
Do Policy Impact Assessment Processes Promote Stringent Environmental Policy?

A Comparative Analysis between Great Britain and
Germany

Dissertation

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SUMMARY

The consideration of environmental issues in policy impact assessments is usually found to be weak, notably when compared to the analysis of economic aspects. At the same time, impact assessments are conceived as an instrument to promote environmental policy stringency. Against this background, this thesis examined to what extent policy impact assessment processes support the consideration of environmental aspects (extent of assessment of environmental impacts in impact assessments) and thus contribute to environmental policy stringency.

The contribution of impact assessment processes to environmental policy stringency was explored by means of four comparative case studies and Actor-Centred Institutionalism. The four processes were reconstructed using a process-tracing approach which was based on a content analysis of documents and scientific literature relevant for the IA processes as well as interviews with experts and actors involved in the IA processes. The following four processes were analysed: the IA processes in England and Germany on the transposition of the EU Waste Framework Directive (2008) – in England the 2011 Waste Regulations and in Germany the 2012 Circular Economy Act; and the IA processes in the UK and Germany on the transposition of the EU Biofuels Directive (2003) – the UK 2007 Renewable Transport Fuel Obligation and the German 2004/06 Mineral Oil/ Energy Tax Act and the 2006 German Biofuels Quota Act.

The following questions were addressed to the case studies:

- What is the relevance of institutions, actors, and non-institutional factors for the level of environmental consideration?
- How do factors interact in shaping the level of environmental consideration and stringency?
- *How* do IA processes and environmental consideration therein contribute to environmental stringency?

Four key findings were derived from the analysis. First, the problem structure, so far undervalued in the analysis of impact assessments, could be identified as central factor shaping to what extent IA processes contribute to environmental policy stringency. The problem structure strongly determines to what extent actors and processes are open and allow for evidence and knowledge to inform decision-making. Second, the problem structure shapes the mode in which actors use the IA (learning, strategic, or symbolic mode) and the form of the IA analyses (e.g. used in a learning mode, IA analyses may take the form of coherence studies). Third, a high level of environmental consideration does not necessarily lead to more stringent policies - the level of environmental policy stringency continues to be determined by the preferences of actors. And fourth, impact assessments may appear in different guises and venues within one policy process. If just formal impact assessment analyses are considered, environmental consideration may appear to be weak. When however the wider policy processes and analyses are taken into account, this observation must be revised to the benefit of oftentimes comprehensive assessments with appropriate or even high levels of environmental consideration.

ZUSAMMENFASSUNG

Der Grad an Umweltberücksichtigung in Politikfolgenabschätzungen ist gewöhnlich schwach, insbesondere im Vergleich zu der Analyse von ökonomischen Aspekten. Zugleich werden Politikfolgenabschätzungen als Instrumente zur Beförderung von Umweltpolitikstringenz verstanden. Vor diesem Hintergrund wurde in der vorliegenden Dissertation untersucht, inwieweit Politikfolgenabschätzungsprozesse die Berücksichtigung von Umweltaspekten befördern und damit Umweltpolitikstringenz unterstützen.

Der Beitrag von Politikfolgenabschätzungsprozessen zu Umweltpolitikstringenz wurde anhand vier vergleichender Fallstudien und akteurszentriertem Institutionalismus untersucht. Die Prozesse wurden in einer Prozessanalyse rekonstruiert, basierend auf Inhaltsanalysen von relevanten Dokumenten und wissenschaftlicher Literatur sowie Interviews mit ExpertInnen und Akteuren der Prozesse. Die vier Fallstudien waren: die Folgenabschätzungsprozesse zur Transposition der EU-Abfallrahmenrichtlinie (2008) in England und Deutschland – in England die 2011 Waste Regulations und in Deutschland das 2012 Kreislaufwirtschaftsgesetz; die Folgenabschätzungsprozesse in Großbritannien und Deutschland zur Transposition der EU-Biokraftstoffrichtlinie (2003) – die 2007 Renewable Transport Fuel Obligation in Großbritannien und das 2004/06 Mineralöl/Energiesteuergesetz und das 2006 Biokraftstoffquotengesetz in Deutschland.

Die folgenden Fragen wurden an die Fallstudien gestellt:

- Was ist die Relevanz von Institutionen, Akteuren und nicht-institutionellen Faktoren für den Grad der Umweltbetrachtung und Umweltpolitikstringenz?
- Wie ist das Zusammenspiel von Institutionen, Akteuren und nicht-institutionellen Faktoren für den Grad an Umweltberücksichtigung und Umwelt
- *Wie* tragen Folgenabschätzungsprozesse und Umweltberücksichtigung zu Umweltpolitikstringenz bei?

Die Analyse hat vier wesentliche Ergebnisse hervorgebracht. Erstens konnte die bislang unterschätzte Problemstruktur als wesentlicher Faktor für Umweltpolitikstringenz identifiziert werden. Die Problemstruktur hat einen starken Einfluss auf die Offenheit von Akteuren und Prozessen und inwieweit diese erlauben, dass Evidenz und Wissen die Entscheidungsfindung informieren. Zweitens ist die Problemstruktur entscheidend für den Modus, in dem Akteure die Folgenabschätzung nutzen (lernend, strategisch, symbolisch) und für die Form der Folgenabschätzungen (im Lernmodus können Analysen z.B. die Form von Kohärenzstudien annehmen). Drittens muss ein hohes Maß an Umweltberücksichtigung nicht zwingend zu umweltstringenteren Politiken führen – Stringenz wird weiterhin von den Präferenzen der Akteure bestimmt. Viertens können Folgenabschätzungen in unterschiedlicher Gestalt und an unterschiedlichen Orten in Erscheinung treten. Wird ‚nur‘ die formale Folgenabschätzung betrachtet, kann Umweltberücksichtigung schwach erscheinen. Werden jedoch der weitere Politik- und Analyseprozess einbezogen, muss diese Beobachtung korrigiert werden zugunsten von Folgenanalysen mit oftmals ‚angemessenen‘ oder umfassenden Graden an Umweltberücksichtigung.

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Abbreviations

ACI	Actor-centred institutionalism
Biofuels Directive	Directive on the promotion of the use of biofuels or other
Biofuels Quota Act	Regulation for the Introduction of a biofuels quota by
BtL	Biomass-to-Liquid (second generation biofuels)
CBA	Cost-benefit analysis
C&SD reporting	Carbon and Sustainability reporting
CD&E waste	Construction, demolition and excavation waste
CO ₂	Carbon dioxide
Defra	UK Department for Environment, Food, and Rural Affairs
DfT	UK Department for Transport
EC	European Commission
EU	European Union
Energy Taxation Directive	Directive restructuring the Community framework for the
GGO	Joint Rules of Procedure of the Federal Ministries
GHG	Greenhouse Gas(es)
HMT	Her Majesty's Treasury (HM Treasury), UK Finance Department Ministry
HoC	House of Commons
HoL	House of Lords
IA	Policy impact assessment
LA	Local authority
LCA	Life-cycle analysis
MP	Member of Parliament
MSW	Municipal solid waste
NAO	National Audit Office
RTFO	Renewable Transport Fuel Obligation
SI	Statutory Instrument

1 INTRODUCTION

This section delineates policy impact assessments¹ (IA) and its environmental dimension. The IA process is outlined with respect to entry points for environmental consideration and their relevance for stringent environmental policies. The specifics of the UK and the German IA systems are described in section 5.

1.1 Policy Impact Assessments and the Environmental Dimension

IAs are considered as formal instruments to assess ex-ante the intended and unintended impacts² (economic, social, environmental) of policies to inform policy-making. As such they are instruments to evidence-base policy-making and to introduce a mode of arguing into the policy-making process while usually power and interests conveyed in a mode of bargaining dominate policy development and decision. This shall promote strategic approaches to policy-development countering incremental policy-making (as piecemeal and reactive adjustments of existing approaches) (cf. Lindblom and Cohen 1979, 83). Administrations shall provide decision-makers with reasons in support of or against a certain policy option while being aware of different preferences, conflicts and different values involved. By increasing the evidence-base of policy-making, interest-based decision-making shall be made more difficult (Jacob et al. 2011b).

IA systems have experienced a worldwide diffusion in the last two decades and by now they have been introduced in all OECD member states and the European Commission. By 2008 all 31 OECD countries had either adopted an assessment procedure or were in the process of doing so (Adelle and Weiland 2012). Orientation, design, and practice varies in all these countries. In recent years countries have begun to broaden the scope of their IA systems from economic and business-focused procedures to incorporate environmental and sustainability aspects (Jacob et al. 2011b). Since IAs enable environmental consideration at early stages of decision-making processes, they can function as precautionary environmental instruments (they can actively and not only reactively shape courses of action).

Steps of IA processes

Implying a technical understanding of IA processes, IAs as outlined in most IA guidelines follow a typical sequence of steps (Adelle and Weiland 2012). They have a procedural and an analytical dimension as shown in Figure 1. The entirety of actors' interaction during these procedural and analytical steps represents the IA *process*. In all countries, the department in charge of the wider policy process has also the responsibility for the IA process. Ideally, it should start the IA process

¹ The terms for impact assessments at policy level are diverse, e.g. policy appraisal or regulatory impact assessment. Covering them all the term policy impact assessment will be used throughout the text.

² Impacts in general are defined as an event which would not be happening without another event. So, impacts indicate a change of something occurring in the aftermath of a causal chain. Assessment means to estimate the impact of an event and to assess the occurred changes.

before the development of the policy proposal reaches an advanced stage, since then the possibility to influence the policy-making process is greater.

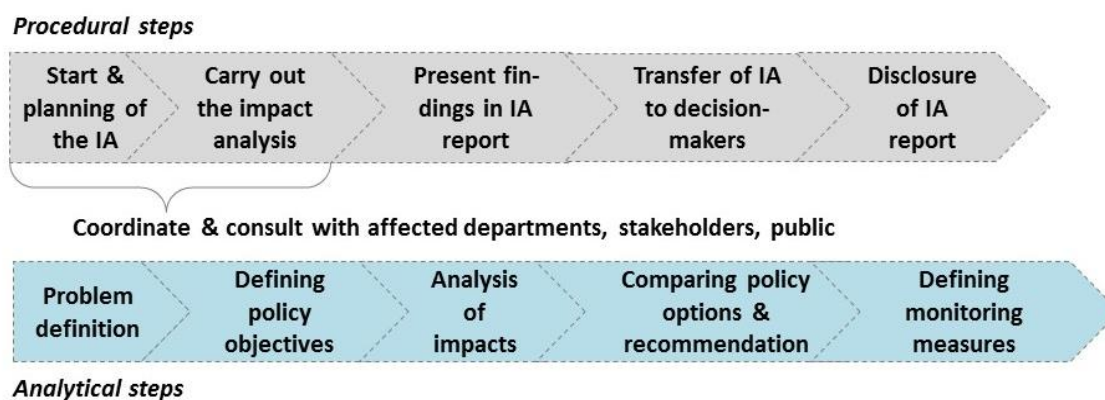


Figure 1: Steps of the IA process (own figure, based on (EC 2009))

Core of an IA process is the impact analysis of different policy options. The analysis serves to explore and reveal the impacts related to different policy options. It includes the definition of the policy problem³. Here, policy officials should state why an intervention is necessary and who is most affected by it. Next, the objectives of the policy – what should be achieved with the policy – should be elaborated. Policy options are then developed and outlined with which the objectives can be achieved. Options pertain to policy instruments such as regulations, economic instruments, information-based approaches, voluntary and negotiated agreements. In the following analysis, the likely impacts of the previously identified policy options on different impact areas (e.g. social, environmental, and economic) are assessed. Foundation of each impact analysis is the development of causal impact chains showing the effects of a policy intervention to its impacts. Predicting the behavioural changes of those addressed by the policy thereby represents a key challenge. Impacts in the different impact areas may be positive or negative, intended or non-intended, short- or long-term, may occur with different regional distribution, or quality. Impacts may be represented in form of a qualitative, quantitative or monetarized analyses or mixes of these. Various methods may be applied during the IA process to trace the impacts (LIAISE, accessed 2017), requiring different levels of time, financial, and personal resources as well as levels of expertise, data and information. The policy options and their impacts are compared by policy officials (or a wider range of actors, such as stakeholders) to recommend the most suited alternative to decision-makers and the public. Usually policy options are run against a baseline scenario (counterfactual). In the IA report, measures and indicators for ex-post analysis of the policy should be set out. Policy evaluation is aimed at informing decision-makers whether the implemented policy has helped solving the problem and achieved policy objectives in an efficient and effective way. The IA report ideally presents a synthesis of the IA process and

³ usually defined as a gap between the existing and a normatively valued situation that is to be bridged by government action” (Hisschemöller and Hoppe 1995)

the results of the impact analysis. The results of the IA are forwarded to decision-makers (notably government and parliaments) to inform the further policy-making process. Responsible policy staff should coordinate the IA process and the impact analysis with other affected ministries. Stakeholders and the wider public should be consulted during the IA process and on the impact analysis. So far however, it is rather standard to consult stakeholders on the wider policy issues (policy options etc.).

1.2 Entry Points for Environmental Consideration

IAs processes as outlined in the previous section have been perceived as instruments for environmental policy integration⁴ (Lenschow 2002, Persson 2004). They belong to the group of procedural environmental policy integration instruments⁵, in line with green budgeting or Strategic Environmental Assessments (Jacob et al. 2008a). As procedural instrument Nilsson and Eckerberg describe IAs as the “low-hanging fruits” of environmental policy integration in contrast to deep changes in the priority given to environmental issues over economic ones (Nilsson and Eckerberg 2007).

Transferring the notion of environmental policy integration to environmental policies (as subjects of this thesis), IA processes can be understood as instruments which contribute to environmental policy stringency. Environmental policy stringency in this thesis refers to the strictness or ambition of an environmental policy (e.g. an 80% recycling target is stricter than a 60% recycling target). The idea is that through the obligation for the policy-responsible departments to consider, assess, and weigh environmental aspects against economic (and social⁶) aspects the environmental dimension is strengthened in policy-preparation and thereby also environmental stringency in the policy adopted.

In this thesis environmental consideration during the IA process is understood as a prerequisite for increasing the likelihood of a high(er) level of environmental stringency in the adoption of the policy. Environmental consideration means to include environmental concerns during the various stages of the IA process. Following Hertin et al. (2008), the IA was assumed to increase the level of environmental consideration in the four case studies when

⁴ Environmental policy integration means that “environmental thinking should be integrated into sectoral policy-making at the earliest point possible to make human development more sustainable” (Jordan and Lenschow 2008). It further means a shift away “from the environmental problems themselves to their causes [and] from “end of pipe” environment ministries to “driving force” sector ministries (EEA 2005).

Environmental policy integration is generally considered as means to increase sectors’ environmental performance and thus to be a core aspect of sustainable development.

⁵ Next to normative and organizational approaches (Persson 2004)

⁶ Research and other publications on (integrated) impact assessments oftentimes refer to the economic, environmental, and social dimension. Due to the focus of this thesis the references to social aspects were left out, although they may have been equally addressed.

- Evidence-base: Environmental impacts, negative and positive, are part of the evidence-base and can be weighed against economic (and social) impacts by decision-makers;
- Transparency: The impact analysis is made transparent (e.g. by making it part of the policy formulation process or by other forms of formal disclosure) and thereby increases the transparency in decision-making, by laying open the priorities on which the decision was made; making it more difficult to pursue self-interests;
- Involvement: Environmental actors are involved in the impact analysis and policy development, primarily through formal and informal consultations;
- Coherence: The impact analysis makes clear how policies contribute to the relevant environmental objectives set out in strategies, policies and programmes thus facilitating integration of environmental objectives.

The four dimensions are comprehensive themselves and cannot be considered independent from each other.

Objective of this thesis is to explore IA processes' contribution to stringent environmental policies. To do so, these four dimensions above were carefully linked to the outcomes of four policies examined. This dissertation thereby went beyond existing research mainly by

- Conducting detailed case studies in a comparative mode: Although case studies were frequently employed in previous research in the context of systematic reviews, these did not include a comparison of IAs on the same policy and the same countries; a comparative approach however is needed in order to identify regularities in the course of IA processes and the consideration of environmental aspects (cf. Gorla 2009).
- Providing a theory (heuristic)-grounded study: research has not yet covered an integrated perspective in which the context (institutions) and actors with their preferences have been taken into account. Few studies have applied a theory-based approach to studying IAs. Radaelli and De Francesco as well as Cashmore plead for more context-sensitive and theory-grounded research. They argue that usable knowledge for policy-makers or society as a whole rather requires theory-based analysis than 'analysis for policy' generating policy recommendations (Radaelli and de Francesco 2007, Cashmore et al. 2010). Turnpenny et al. (2009, 645ff) suggest an institutional context approach which "could help to address macro-level questions such as how do institutions 'encounter' appraisals and what they initially want to get out of using them". They moreover emphasize the advantage of studies in which the unit of analysis is not the country but the policy to show interdependencies between structure, policy and outcome.
- Tracing IA processes: in this research project the process dimension of IAs is the focus; this allows to look at IA and the stringency of environmental policy objectives as the results of courses of events over time and to take into consideration the interaction of involved IA actors against the background of procedural provisions. This follows Herodes et al. (2007) who state that research is required to clarify IAs' role for environmental consideration, since not much research has been conducted regarding "whether IA has in fact supported environmental policy integration" (ibid., 22).

2 PROBLEM DEFINITION, RESEARCH QUESTION, AND STATE OF RESEARCH

2.1 Problem Definition and Research Question

Past efforts of implementing environmental policies have delivered considerable benefits for the world's ecosystems, for (EU) citizens' living standards and the protection of their health. At the same time a continuous depletion of natural systems is occurring (EEA 2015). Societies have not managed to ensure and decouple human well-being from natural resource use (WBGU 2008). Societal development and environmental protection should be jointly considered and ideally do not contradict each other (ibid. 2014).

Implementing environmental policies is however difficult, since many key actors consider them as expensive and with that impacting on the competitiveness of national economies. This is the core of the environmental policy stringency debate. Broadly speaking, two views on the effects of environmental policy stringency exist: the first one departs from the viewpoint that stringency burdens industry and businesses, the second one assumes stringency to foster innovation (GGKP 2015, 3). The question of effects of stringent environmental policies has stirred a long-standing debate between supporters of either viewpoint. Representatives of the former position pertain to administrative and regulatory costs of environmental provisions, with adverse impacts on businesses and on economic growth and jobs. A central argument being the relocation of investments and production to so called "pollution havens", i.e. to less developed countries with less stringent environmental policies (e.g. Lucas et al. 1992, Kellenberg 2009). The central counter hypothesis, the Porter hypothesis (Porter and van der Linde 1995), assumes that environmental regulation and policies lead to positive effects on individual businesses' and national competitiveness by inducing innovations with more efficient technologies, leading to lowered costs. Innovations moreover can lead to first-mover advantages, if standards created experience global diffusion (Taistra 2000).

This discussion on the potential negative and positive effects of stringent environmental policy is reflected in policy IAs in so far that costs of (more) stringent environmental policy objectives are oftentimes considered in terms of red tape (cf. Pandey and Scott 2002), compliance or information costs. To consider these types of costs in regulatory processes instruments to quantify and monetize them were developed (Wegerich 2009). The basic question behind these types of cost assessments is: what are the entailed costs to businesses to fulfil (new) requirements imposed with the environmental policy? Tiessen et al. (2013) even see a shift to the consideration of costs and a neglect of benefits due to specific initiatives which pushed for the consideration of administrative and regulatory costs.

A prominent role in the assessment of red tape costs has the standard cost model (SCM)⁷. Numbers of the SCM are regularly incorporated into IA analyses and the costs section of cost-benefit

⁷ The most recent approaches consider the regulatory costs (see for instance OECD (2014)). Here, the SCM approach is discussed due to its relevance in the case studies examined.

analyses. In a “simplified yet consistent method” (International SCM Network) the SCM provides desk officers with a standard method to determine costs imposed on business. In some countries, a guillotine approach is used: regulations which perform poorly or impose excessive costs are “dumbed” (Russel and Radaelli 2010). Jann and Wegerich (2008) see the success of the SCM founded in its reduction of complexity, clear guidance, in the generation of numbers, and the clear focus on one aspect. Qualitative impacts and a weighing of costs and benefits are not envisaged in the tool.

Opposite to the costs for the economy are the benefits related with an environmental policy. Environmental benefits are well known. A number of studies demonstrated the economic benefits to be achieved with environmental policy measures, including the Stern Report (Stern et al. 2006) (demonstrating significant economic benefits of climate protection measures as avoided costs for adaptation, loss and damage) or the TEEB Report (2010) (demonstrating the services which the world’s ecosystems and biodiversity deliver for human well-being) as prominent examples.

In IA analyses the challenge however is for policy officials to contextualise and represent the environmental benefits of the policy options and to weigh them against regulatory and business costs. The inclusion of the beneficial innovation-related effects of stringent environmental policy has is considered to be complicated, however, due to the complexity of expected innovation paths and effects. Also literature examining the links between environmental regulation and technological innovation and diffusion empirically is limited (Hascic et al. 2009, 2). Generally, challenges for policy-officers exist with respect to predicting and representing environmental implications of a policy intervention. Understanding causal chains and cumulative as well as long-term environmental effects (e.g. climate change) remains difficult. Specific difficulties exist when attempting to express environmental impacts in monetary terms to contrast them with other cost types. Oftentimes a price must be constructed for environmental elements since they do not have a natural or market price (e.g. urban green spaces), or they are considered invaluable (e.g. biodiversity losses, irreversible impacts) (Hanley and Spash 1993).

However, methodological approaches are increasingly developed to include environmental benefits in IAs (e.g. Vagt 2007, Miedzinski and Doranova 2009). Some countries have begun to also consider climate impacts in standardized and (more or less) consistent approaches (Jacob et al. 2011a). The UK carbon valuation tool stands out in this context (DECC 2009).

This dissertation proceeds from the conception of IAs as instruments for environmental policy stringency. However, evidence points to a weak and varying consideration of environmental impacts in IAs within and across administrations (Ecologic et al. 2007, Bond et al. 2012). Even though EU (and OECD) member states increasingly require a balanced consideration of economic and environmental impacts in their IA guidelines, environmental consideration is mostly subordinate to economic factors. In IA practice environmental aspects usually only receive minor attention, even in countries that geared their IA explicitly towards a consideration of the environment or sustainability (Ecologic et al. 2007, Bizer et al. 2010). As Hertin (2016) summarises: “[R]IA offers opportunities to give more prominence to ecological concerns in sectoral policy-making practice, but also contains a considerable risk that narrow assessment practices contribute to side-lining sustainable development.” Repeatedly, there has been a perceived gap between

IA guidelines and IA practice (Hertin et al. 2007, Tiessen et al. 2013, 66).

Against this background, this dissertation project is aimed at exploring IA processes' contribution to environmentally stringent policies. The central research question is:

Do policy IA processes promote environmentally stringent policies?

This central question raises three further sub-questions for which this dissertation aimed to find answers for:

- What is the relevance of institutions, actors, and non-institutional factors for the level of environmental consideration?
- How do factors interact in shaping the level of environmental consideration and stringency? To respond to this question input-output-outcome-impact-chains of IA processes as pictured in Figure 2 were developed.
- How do IA processes and environmental consideration therein contribute to environmental policy stringency?

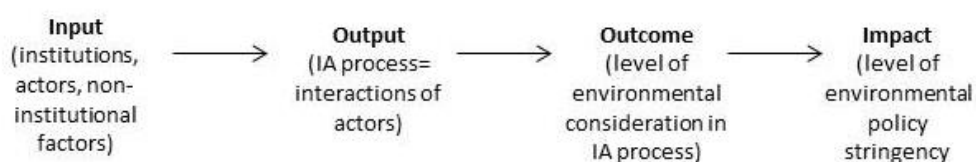


Figure 2: Structure of the process analysis – input-output-outcome-impact chain (own figure)

2.2 State of Research

In this section, the evidence on the consideration of the environmental dimension in IAs, the factors shaping environmental consideration and proposals for improving environmental consideration are reviewed.

2.2.1 Evidence on the Consideration of the Environmental Dimension in IA

Environmental policies are largely contested and hard to implement. And there is a gap between IA guidance requiring the consideration of environmental impacts and the actual practice. With that remains the question of the current practice and evidence on the consideration of the environment within IAs.

A comprehensive study was conducted by (Ecologic et al. 2007) addressing the question how environmental assessment in IAs could be improved. 12 case studies were conducted of IA processes of non-environmental policies or laws in different jurisdictions⁸. Analytical steps included

⁸ The case studies included: tourism policy in the Czech Republic, policy on passenger levies on air travel the Financial Statements Act in Denmark, The Finish National Climate Change Strategy, transport policy of the Netherlands, Spanish biofuels policy, policy of cross-compliance conditions in agriculture in the UK, the US policy on Corporate Average Fuel Economy, the EU Strategies on Biofuels and Rural Development, an IA released by the Trans-European transport network, and EU Trade Sustainability IA.

a systematic review of each case study as well as supplementary material, and interviews with actors involved in the IA processes. The jurisdictional framework conditions, the design of the IA procedure as well as how impacts in the case studies were examined. Findings showed IAs to all address environmental impacts, though if considered in more detail, the analysis proved to be weak and secondary with view to economic impacts. Two out of the 12 cases “successfully considered environmental aspects in all steps of their IA procedure.” (ibid., 28) Acknowledging that “the influence of Impact Assessments on the final policy decision is difficult to prove”, the authors conclude that in eight out of the twelve cases IAs did play a role. While in one case environmental aspects were incorporated into the policy just because of the IA, in another, the IA had a more indirect influence by shaping the debate foregoing the policy decision.

In the EVIA (Evaluating Integrated Impact Assessments) project a questionnaire-based survey was carried out among 52 policy officers in the Netherlands, the UK, and Germany (Zanoni et al. 2007). The focus of the survey was on the degree of quantification of impacts regarding the three different pillars of sustainability (economic, social and environmental), and the use of methods and its potential constraints (e.g. lack of data and/or resources). Like the case studies above, the survey gave evidence of a weak consideration of potential environmental (or unintended) impacts. For policy officers, environmental costs represented secondary aspects, while in 81% of the cases costs for the economy and businesses were considered (mainly cost-benefits analysis, CBA, and Standard Cost Model). While German officers mostly (50%) assessed these impacts qualitatively, officers from the UK would frequently use monetisation (47%) and partial quantification (42%). For environmental benefits, these were in most cases not expected (25%) or not evaluated (30%). If they were assessed, mostly direct costs were considered (86%), unintended effects in contrast only in 57%. The survey moreover showed that for economic impacts, costs were in a considerable number of cases assessed with more sophisticated methods than benefits. In comparing quantification and monetisation in Australia, the European Commission, the UK, and the US, Tiessen et al. (2013) reach similar conclusions and find the costs of a regulation to be clearly addressed more often than its benefits and its social impacts, including environmental ones.

TEP (2007) evaluated the European Commission’s IA system, often considered to be among the most ambitious ones worldwide. Against the three objectives of the European Commission’s IA system – improving the quality of European Commission proposals, provide an aid to decision-making, serving as a communication tool – they accounted for the whole IA process conducting a large number of interviews together with a cursory content analysis of 155 IA reports, 20 in-depth quality assessments and six selected IA case studies. Like the previous ones, this analysis found the assessment of economic impacts to be more developed and specific than the analysis of environmental aspects. Of the 150 IA reports screened, 86% identified at least one economic impact, 55% identified environmental impacts of at least one relevant option explicitly assessed (while only 14% quantified impacts in more than one of the three sustainability pillars). In some cases, the environmental analysis was however found to be too general with respect to the relevant impacts. High priority was given to the calculation of administrative costs by the European Commission, council representatives and industry associations. They acknowledged however, the method to have severe limitations, for instance with view to the balancing of (environmental)

benefits.

Fritsch et al. (2013) find IAs of the European Commission to pay more attention to environmental aspects than the UK system. In their sample (scorecard analysis of all IAs on binding legislative proposals produced from 2005 to 2009) 60% of all IAs discuss environmental impacts. In contrast to Hahn and Dudley (2007) they find that IA quality has improved over time. Dimensions neglected in the past, including the environmental one, were found to be steadily addressed.

Hahn and Dudley (2007) analysed the quality of IAs' CBA performed within the US Environment Protection Agency. The quality of 74 CBAs was examined based on a scorecard approach, spanning three administrations (from 1982 to 1999). The study finds a significant percentage of the IAs not to report some very basic economic information so that IAs cannot be effectively used in policy decisions. While for instance all IAs monetized at least some costs, only half of them monetized some benefits. More merely quantified benefits. Almost all IAs included estimates of the costs to producers (over 90%), while only 30% included information on administrative costs to the federal government, and the state and local governments (50%). While policy options were considered to some extent (85-74%), quantification and monetisation of their benefits showed to be worse (30-37%). Only a small fraction of IAs' executive summaries, relevant for the public to understand the analyses, contained all the key calculations from the analyses. Generally, the study did not find an improvement of CBAs over time, but instead a strong variation in the quality of individual analyses. The authors argue that CBA and its real-world application is still a young exercise which will be used more effectively in 25 years.

2.2.2 Factors Shaping the Consideration of the Environment Dimension

Manifold factors have been found to affect the level of environmental consideration operating at the micro-, meso- and macro-levels. They partly overlap and interact in manifold ways (Turnpenny et al. 2008, cit. Hall 1993 and Fischer 1995).

2.2.2.1 IA System

IA procedure and tradition

Crucial for the consideration of environmental issues is the IA system because it strongly influences quality dimensions of IA processes such as openness or sophistication of the impact analysis (Zanoni et al. 2007). The orientation of the IA procedure has shown to have a significant effect on environmental consideration. Procedures which require environmental consideration clearly facilitated consideration in contrast to IA procedures, for instance with a strong cost focus (Ecologic et al. 2007). In the case studies considered by Ecologic et al. (p. 57) "dual commitments of IA procedures to sustainable development and at the same time to other policy issues, such as trade liberalisation or better regulation, hindered effective integration and lead[...] to tensions." System variables helping to trigger environmental consideration are the IA tradition and expertise. Established IA routines, particularly if they were followed closely, seemed to have a positive effect on the resulting IA (Ecologic et al. 2007).

Timing

IA guidance determines when an IA must be issued. Some guidance remains more general, e.g.

recommending beginning the IA possibly early; some guidance is more specific, such as the UK's which holds that IAs must be issued at three points (from 2010 on at four points) during the IA process. IAs (and environmental concerns) are more important and receive more attention in the wider policy-making process, if they start at an early stage (though it is not a sufficient condition). Possibly before policy officials have drafted the proposal. Then, they can be used to shape policy design and to support the selection of policy options. Timing is closely related to a learning type of IA use (see section 2.2.2.3 on Actors and use of IA) and to actor involvement, because if it is done early it can be used to reduce conflict and trigger dialogue between actors (Ecologic et al. 2007, Zanoni et al. 2007).

Resources

Resources (financial, staff, and technical support) provided for 'doing IA' further influence the strength of environment assessment in IA. Volkery and Jacob (2005) and Turnpenney et al. (2008) find a lack of resources to be a constraining factor for the integration of sustainability or environmental concerns in the German and EU IA systems. More specific, research by Zanoni et al. (2007) demonstrates that IA resources facilitate the representation of costs (including environmental costs), notably by distinguishing between one-off and recurring costs. Russel and Jordan (2006) look at uptake of environmental consideration across Whitehall departments and point out that in most departments only one or two officials were working on environmental policy integration-related issues with some limited (mostly junior) ministerial support. In the European Commission, Directorate Generals (DG) with most resources and expertise for IA were found to be most active in those bodies⁹ coordinating policy initiatives and IAs among DGs to be most active. This uneven distribution of capacities across the DGs caused imbalances in the IA report in some instances, as it led to uneven expert input from sectoral DGs (TEP 2007).

Quality control

Quality control of IA analyses and processes has proven to be a central issue for the overall IA quality and as such for environmental consideration (e.g. Bizer et al. 2010). Different types of quality control can be found in IA systems: control during the IA processes (e.g. bodies overseeing IAs such as the UK Regulatory Policy Committee, or the Impact Assessment Board in the European Commission) or regular ex-post quality control (e.g. bodies evaluating IA quality such as the National Audit Office in the UK). With respect to environmental concerns the focus of the 'watch dog' and its independence from the overall process are key (e.g. the Parliamentary Sustainability Council in Germany scrutinizes whether a sustainability IA was carried out, other control organs focus notably on the calculation of red tape and regulatory costs). In non-transparent systems, it is however difficult for the controlling body to see if „decision“ is followed by „action“. Due to the non-transparent policy-making system in Germany, externals have difficulties in penetrating the analysis. So, they are left with controlling formal but not substantial fulfilments (Veit 2008).

⁹ Inter-Service Steering Groups

2.2.2.2 Organisational Context

Contexts are the “river beds”¹⁰ in which wider policy and IA processes flow (Radaelli 2005) and as such they matter for environmental consideration.

Organisational factors and administrative culture

Turnpenny et al. (2008) compared the barriers to integrated assessments in four European jurisdictions (EU, UK, Germany, and Sweden). They conclude “that the ‘silo’ culture of policy making is still a significant constraint to integrated policy assessment; the role of assessment in ‘joining up’ governance is likely to be small.” Limited inter-ministerial coordination (despite far reaching provisions in the countries examined) due to focus on own interests and strategic objectives are not well suited for the consideration of the non-intended consequences of policies. Furthermore, administrative cultures such as the German legalistic policy-formulation style with its liability to ritualised and formalised behaviour further constitute limiting factors. IA requirements demanding to also set out non-intended effects are perceived as a risk for the assertiveness of policy proposal by desk officers (Veit 2008).

Institutional incentives and routines

Linked to organisational determinants, are insufficient institutional incentives, keeping policy officers from performing comprehensive IAs. Studying six cases of Swedish committee assessment work, Nykvist and Nilsson (2009) claim institutional inertia to prevent the development of IAs as means to integrate sustainability concerns. Established norms and customs keep civil servants from taking a broader view on options and potential implications. Within these committees, sustainability orientated IA was itself be viewed as advocacy, rather than an objective exercise, and provoked opposing interests. Studying tool use in three EU countries, Nilsson et al. (2008) conclude norms and unquestioned routines and strategic interests to be key in the selection and use of policy assessment tools. Experts and tools were chosen because policy officials were familiar with them and because they had invested in them previously. Adding to this, Veit (2008) demonstrates how the institutional context affects implementation of IA provisions in Sweden and Germany. By using sociological new institutionalism together with a quantitative analysis of IA documents from the year 2006 in both countries she assesses the implications of different incentive structures. For instance, in Germany organising assertiveness of a policy proposal results in more legitimacy for the responsible department than adhering to IA provisions. Hahn and Dudley (2007) take the same line when explaining low quality of IAs’ CBAs in the US with missing sanctioning mechanisms for doing poor quality IAs. Moreover, agencies “may not want interested parties to know that the benefits of the regulation may not justify the costs” or they do not think that their analysis is instructive (p. 208).

2.2.2.3 Actors and Use of IAs

Policy-making takes place in highly politicized contexts. Which impacts are considered, the methods to be selected and the interpretation of finding is not only a scientific effort, but depends on world views and interests of actors involved (Jacob and Hertin 2007).

¹⁰ (Mucciaroni 1992)

Orientation of relevant actors

A weak environmental analysis often happens in a context, in which policy officers are bound by a sectoral perspective or departmental philosophy and by their own disciplinary and professional backgrounds (Ecologic et al. 2007, Turnpenny et al. 2008). In an early account of UK environmental policy appraisals Russel and Jordan (2006) conclude that “policy makers have a too limited awareness of wider policy issues (i.e. they are too sectoral in their outlook), and this makes it difficult for them to apply a cross-cutting tool such as EPA [Environmental Policy Appraisal]” (ibid, 11).

Nilsson et al. find ideational motivations and core beliefs to be another factor shaping the use of evidence and tools. While for instance Defra assessments did not cover social aspects well, assessments of the transport department downplayed environmental issues. From the actor side, tools were found to be instrumentalised for bringing their interests and preferred policy solutions on the political agenda. In this view tool use depends upon which actors have access, and their priorities, intentions, interests and competencies, as well as the “choice opportunities” of matching problems to solutions at the right moments.” (Nilsson et al. 2008, 352).

Use of IAs

Hertin et al. (2009b) and based on that, Dunlop et al. (Dunlop et al. 2012) identify three or four types of IA use respectively. The IA use can prevail over the basic orientation of an IA procedure and impact on the way the environmental dimension is considered. The role an IA plays in the overall policy process depends on how the lead departments intends to use it (Zanoni et al. 2007). As Dunlop et al. (2012, 40) notice “the initial commitment of the government to carry out the IA is an incomplete contract that can be shaped by implementation actors.” Hertin et al. draw on the literature on policy learning to identify three types of uses of IA: instrumental learning is about means to attain a given end, conceptual learning in which the assessment contributes to a shift of fundamental views about a policy, and political use which includes different forms of symbolic and strategic IAs as the dominant use. In examining 31 early IAs in the UK and the European Commission, Dunlop et al. add a fourth type of usage – communicative. This entails the use of IA to shape interactions with stakeholders in a manner beyond formal consultation. The authors further identify conditions which lead to different usages. Which type is dominant in a process is influenced by a broad range of factors which are difficult to generalise. They for instance include the extent to which there were pre-existing political commitments, the positions of powerful stakeholders and public opinion, the organisational culture of the responsible administration, the attitude of the policy officer in charge. While the authors do not discuss implications for environmental consideration, the types of usage forms entail different opportunities for the environment. An instrumental use is likely to favour the consideration of non-intended impacts, while with a political use the assessment, if it is disclosed, is frequently challenged, for instance by environmental NGOs (cf. Hertin 2016).

2.2.2.4 IA Process

Origin and maturity of the policy

Several authors suggest that IAs play a greater role when the policy originates from the admin-

istration itself and is not the result of an external initiative (e.g. an EU directive, international commitments). If the problem definition is controlled by the responsible administration it has more space to define the proposal and formulate policy options. “[...] in the case of external initiatives, the role of IA tends to be formalistic” (Zanoni et al. 2007, 9, Turnpenny et al. 2008).

Depending on the maturity of a policy (does it concern an existing or new policy initiative) is the level of detail in the overall impact analysis. In case of a new policy, analyses seem to be accurate and more detailed, because specific impacts, distributional effects and social-environmental costs must be assessed and investigated.

While the policy domain is not relevant to the consideration of sustainability aspects, the potential for integration is important (Zanoni et al. 2007, 9, Turnpenny et al. 2008). Further it is suggested that policies with a high conflict potential seem to trigger environmental consideration because conflicting interests and trade-offs lay open with active search for reconciling interests (Ecologic et al. 2007, Turnpenny et al. 2008).

Relationship with and involvement of stakeholders

A key factor for good IA practice is, in how far IA processes are successfully allowing for the integration of a plurality of voices. In other words, how credible and legitimate are they? “RIA actors are interested in how their views are incorporated in the regulatory process, how science is validated and by whom, and how the government produces its own numbers.” (Radaelli 2005, 940). Credibility and legitimacy are closely related to high quality IAs (Zanoni et al. 2007) because involvement allows responsible departments to understand diverse views regarding the policy problem and how it should be tackled, to broadly collect data and information and with that increase robustness and sophistication of the analysis. The relevance of stakeholder involvement for environmental consideration is ambivalent, though and can be cooperative or antagonistic. Therefore, good co-operation routines between the responsible IA unit and environmental interests facilitate environmental consideration (Ecologic et al. 2007, Turnpenny et al. 2008). However, involving a wide range of actors does not ‘automatically’ result in environmental consideration (ibid.). Relevant for an effective participation of actors is moreover when it is done. Views, data, and information are more likely to have an impact, if involvement starts early (see paragraph on timing above). The relationship of the responsible departments with stakeholders has a strong impact on the role the IA is to play in the overall process (Zanoni et al. 2007).

2.2.2.5 Methodological-Technical Issues

The lack of environmental consideration has moreover been attributed to methodological and technical limitations and a lack of tools. Policy officers have difficulties in assessing environmental benefits or costs because data and information are not readily available in quantified form and they oftentimes require long-term considerations. In a survey among officials from the European Commission 38% disagreed with the view that appropriate tools (i.e. methodologies, analytical models, support groups within the Commission etc.) are in place to assess the environmental impacts of proposals. Even if tools and methods exist they were considered as cost- and time intensive when applied (TEP 2007). Or, environmental information often comes too late in the assessment processes, preventing it from playing a strategic role (in’t Veld 2009, 153-154). Podhora (2013) showed that most of the quantitative methods and tools funded under the Euro-

pean Framework Programmes 6 and 7 addressed “only” one or two out of the three sustainability dimensions and mostly considered impact areas corresponding to the policy. Regarding environmental consideration this can be problematic since tools may not contain the information needed by decision-makers to fully understand policy options full consequences (economic information of environmental policies or environmental consequences from sectoral policies).

2.2.2.6 Underlying Logic of IA

A smaller number of authors – mostly with a post-positivist perspective – has brought forward a fundamental critique of IA approaches with regard to the technical-rational model¹¹ (Adelle et al. 2012). They argue that this linear and instrumental idea underlying most IA guidance does not fit the rationalities of “messy” policy processes and has led many policy officers to treat it as a bureaucratic hurdle rather than a learning opportunity (Hertin et al. 2009a). IAs might qualify policy-making by pointing to weaknesses of the process (Carroll 2010). Owens et al. (2004, 1952) call for a reassessment of suitability of using highly ‘technical-rational’ appraisal techniques to support strategic policy making. A more discursive orientation of IAs is suggested to “not only achieve a higher level of legitimacy and accountability, [...] but also to improving their relevance and, ultimately, effectiveness.” (Hertin et al. 2009a, 420)

2.2.3 How Can Environmental Consideration in IA Processes be Improved?

This section discusses factors for an improved environmental consideration in IA processes. From that expectations are derived for the case studies under which conditions a high degree of environmental consideration and with that environmental ambition is likely.

2.2.3.1 IA system

- An IA system aligned to sustainability/environmental aspects, not solely better regulation or reducing regulatory burden for instance is expected to better facilitate environmental consideration. A compulsory assessment of environmental impacts aids to high levels of consideration (cf. Ecologic et al. 2007).
- A long record of IA practice facilitates environmental consideration, since policy officers had more opportunities to get acquainted with IA requirements, and to learn from past experiences (good and bad practice). A longer record of IA practice also implies more time for IA routines and adequate IA techniques to develop in administrations (Hahn and Dudley 2007).
- Requirements for monitoring and scrutiny (during the process and as ex-post evaluation) together with an independent ‘watch dog’ (e.g. externalised auditor) and

¹¹ The technical-rational model assumes that knowledge is collected, evaluated and then translated straightforwardly into 'better policies' (Hertin et al. 2009). It assumes objective, value-free scientific information. Information will provide an evidence-base for decision-making, contrary to interest-based policy-making. A major characteristic of the technical-rational is a linear representation of decision-making processes. In contrast, the post-positivists argue that facts cannot be separated from values, that prevailing structures of power, interest and value cannot be overseen, and that the policy-relevance of knowledge is relative (ibid, 2ff).

an explicit mission to check for environmental analysis are further seen as relevant factors. Incentives for high-quality IAs can further provide for a high level of consideration (e.g. make IA subject to sign-off by top-level politicians as to incentivise high quality IAs) (TEP 2007, Fritsch et al. 2013).

- The previous aspects are linked to sufficient administrative capacity and resources and resources (financial, time and responsible persons and infrastructure) provided for a well-functioning IA practice in general and environmental consideration specifically (e.g. through interdepartmental coordination units) (Jacob et al. 2008b). The resource factor is moreover closely linked to context factors which must reflect and fit to IA demands (e.g. Nykvist and Nilsson 2009).
- IA provisions demanding that the IA process begins early, i.e. in parallel to the early policy development steps, supposedly yield a higher level of environmental consideration, since environmental concerns can more easily be integrated into problem framing, formulation of policy objectives, options, and the IA (cf. TEP 2007, Hertin et al. 2009a).

2.2.3.2 Institutional Context

- Administrative structures make a difference for policy outputs (Egeberg 2007). Administrations with favourable structures and capacities especially for horizontal coordination and exchange provide better preconditions for environmental consideration (e.g. by aiding in identifying issues requiring co-ordinated solutions or by arbitrating when conflicts cannot be settled informally and bilaterally). This refers to the degree of turf-thinking and the degree of independence of line departments; crucial in this is the role of the environment department in overall policy-making processes (is the lead department obliged to inform and incorporate the views of the environment department) (Schout and Jordan 2007). Nykvist and Nilsson (2009) further call for institutional arenas that allow for blending of different kinds of knowledge and agendas to overcome institutional barriers.
- As Veit (2008) shows, the institutional arrangements need provide the right incentives for policy officials to perform balanced IAs. Next to given institutional arrangements, Jacob et al. (2008b) call for more comprehensive structural adaptations to enable ‘serious’ evidence-basing of policies: “Governments have to appreciate the magnitude of this task and make efforts to make the necessary wide-ranging institutional changes.” (p. 3). This could include structured communication channels and established mechanisms for scientific policy advice.

2.2.3.3 Actors and use of IA

- The overall problem framing of the department responsible for the IA process is relevant to which impact areas will be considered in the analysis and which methods will be employed for the analysis: in short, environmental departments can be expected to deliver analyses with prominent assessment of environmental implications. Departments also have some discretion to define the policy problem. The definition of a problem is crucial for the policy process because it “lays fundamental groundwork for the ensuing struggle over the construction of useful policy alternatives, authoritative adoption of a policy choice, implementation, and assessment” (Weiss 1979).
- If another line department is the responsible ministry a continuous involvement of the environment department during the IA process is expected to have a high level of environmental consideration.

- A communicative or instrumental type of use of IA processes is expected to enhance environmental consideration. Both types interact with supporting forms of involvement of relevant actors (departments and environmental stakeholders) and thorough analyses of broad ranges of impacts. This fits with Hertin et al. (2009a) who suggest highlighting the process dimension of IAs and their discursive and political functions and to stronger frame it as means for more reflexive governance (Hertin 2016).

2.2.3.4 IA process

- For an informative and influential IA Ellig and McLaughlin and Harrington et al. (2009, 2010) but also the IA guidelines of the European Commission (EC 2009) recommend to make available key aspects of the IA available in a non-technical summary report. This inter alia includes a detailed description of expected effects without monetarized or discounted information, at least for the most important benefits categories, and potential consequences of agency actions.
- Non-technical reports on the IA process as well as disclosure of the IA analysis are moreover a relevant element for ensuring greater transparency at all steps of the process.
- For stakeholder involvement, Jacob et al. (2008b) recommend key actors to first develop a shared understanding of the purpose of the IA process within the wider policy process (including its purpose regarding environmental aspects). In addition, a clear distinction between the roles stakeholder can hold, as knowledge holders on the one side and interest holders on the other. Distinguishing between the two can contribute to accuracy of the analysis and the overall quality of the process.

2.2.3.5 Methodological-Technical Issues

- The availability of targeted supporting guidance, methods, tools and data, and good practice examples or checklists for the consideration of environmental aspects throughout the IA process can facilitate environmental consideration (e.g. Harrington et al. 2009). Such support can help non-environmental administrative units consider cross-cutting issues. At the same time, they and notably best practices, can help overcome reservations of policy officers towards quantification and monetarisation of impacts (Russel and Jordan 2006, Jacob et al. 2008b). As Jordan and Turnpenny (2015) notice, CBA “is well known amongst environmentalists for having a much greater ability to ‘clinch’ policy debates than other tools (Owens and Cowell 2002)”. “This may explain why some environmentalists actively seek out opportunities to employ such tools to ensure their own knowledge claims are equally valid and hence usable.” (Dunlop 2014, 213).
- Harrington et al. (2009) further argue that for a stronger role in the decision-making process, counterfactuals should be better used to reveal choices and trade-offs. Expected outcomes of policy cannot be understood without explaining what would happen without a policy.
- Somewhat in contrast to the above calls for developing better tools for quantification and valuation and in reference to the difficulties related to the assessment of environmental issues, other scholars hold that greater attention should be given to structured ways of examining impacts qualitatively in IA guidelines (Jacob et al. 2008b).
- Moreover, a strong role of high-level environmental/sustainability strategies (e.g. national climate strategies), providing objectives and indicators and benchmarks for

the assessment is another factor for improving consideration of environmental impacts in IA processes (Ecologic et al. 2007, Turnpenny et al. 2008).

Summarizing, this section has demonstrated that environmental consideration in IA processes is rather weak vis-à-vis economic analysis across (EU) countries. Apart from a societal frame in which aspects of economic growth are mostly prioritised over environmental ones, a diversity of factors shape the degree to which environmental concerns are taken into account. These range from factors determined by jurisdiction (e.g. IA system), determined by the policy field and prevailing actors (e.g. use of IAs), and by assessment techniques' availability. More fundamentally, some authors suggest a reframing of IAs towards a more discursive exercise in order to enhance IA processes' relevance (also towards more environmental integration). Based on this, suggestions have been made on how to improve environmental consideration. Which factors are crucial for shaping environmental consideration in IA processes and how these diverse factors interact is not yet well understood though. In the following section, the research design is set out, used to pursue these questions and to improve the understanding of factors promoting environmental consideration and finally stringency.

3 METHODS AND DATA COLLECTION

The question, if policy IAs (impact assessments) enhance environmental stringency of policies and the factors this depends on, was answered by comparing four IA processes. Two English/UK and two German IA processes on two different EU directives were contrasted with each other. The following chapter will introduce the methodological approach of the analysis in more detail.

3.1 The Comparative Method

The research design was based on the comparative method and case studies. The experiment is the method which best fulfils scientific requirements (provide evidence of causalities). It allows controlling external influences and variables can intendedly be changed and effects observed on the treatment group in comparison with a control group. This method does mostly not qualify for the political sciences. Here the comparative method comes into play, where a systematic control of the variance of variables is to be achieved through a deliberate selection of cases. Going beyond a common comparison, generalizable results are generated with the comparative method by this systematisation of the cases' selection. The focus of the method lies on the relationship between variables (co-variance) and less on the peculiarities of cases. Co-variance can be described in form of conditional statements (if X, then *mostly* Y) or in form of 'the...the'-statements (in contrast to the experimental method which allows to make deterministic deductions) (Jahn 2011).

Case studies of IA processes were carried out because they are particularly suitable for gaining insights into co-variance and identifying causal mechanisms. Case studies are appropriate when the research is rather explanatory, conveyed in a "how" leading research question, since these questions focus on operational links that need to be traced over time (a set of contemporary events), rather than for instance single incidences (Yin 2009). A case study is an empirical inquiry that is suitable to investigate a contemporary phenomenon (not an argument or a topic) in depth and within its real-life context. Case studies are characterized by taking a holistic view and the consideration of (complex) cases within their context. They allow for the integration of historical as well as culture-specific influences in an analysis (Jahn 2006).

Comparative case studies of four IA processes were used in this analysis as the most suited approach to explore the influence of certain factors on the level of environmental consideration and finally to better understand the role IAs can play for environmental stringency. In the comparison, the policy transposition and related IA processes of two EU Directives in the UK/England and Germany were analysed. Compared were the transposition¹² processes of the Biofuels Di-

¹² According to Jordan and Tosun (2011) the implementation of EU legislation has three dimensions: notification as the adoption of requested measures before a specified deadline; transposition as conforming to substantive dimension of the EU act; and application as the integration into the national regulatory framework.

rective, adopted in 2003, and the Waste Framework Directive, adopted in 2008.

3.1.1 Selection of Case Studies

Founding research on the comparative method required to consider the following aspects in the selection of cases (policies and IA processes) (following Jahn 2011)

- Variance of the dependent variable (experimental variance): the levels of environmental stringency in the policies considered had to vary so that co-variance with the independent variables could be demonstrated.

Two aspects were taken into account: First, policies were chosen where levels of environmental stringency of policy objectives adopted varied for the UK and Germany (e.g. biofuel targets adopted in the UK were lower than those in Germany; recycling targets adopted in Germany varied from those adopted in the UK). Second, the level of environmental consideration in the IA processes had to vary since stringency was assumed to be dependent on the level of environmental consideration.

- Variance of the independent variables (experimental variance): the country contexts and the policy actors of the IA processes had to be clearly distinct from each other to be able to robustly track their effects.

Referring back to Actor-Centred Institutionalism (cf. section 4) the question was, to what extent institutional or actor-related factors influence the level of environmental consideration and finally policy stringency. To this end, a 2x2 set-up was chosen as presented in Figure 3: on the one hand, two jurisdictions with distinct institutional set-ups were chosen (UK/England and Germany); on the other hand, two EU directives (on biofuels and waste) and the IA processes on their transposition into national law were selected so that actors and actor constellations would vary.

		COUNTRY/ INSTITUTIONAL CONTEXT	
		UK/ England	Germany
POLICY FIELD/ ACTORS	EU Biofuels Directive (2003)	IA process 1a Labour Govt. Transport Dept.	IA process - 2a SPD/Green + CDU/SPD Govt. Finance Dept.
	EU Waste Framework Directive (2008)	IA process - 1b Labour + Tory/LibDem Govt. Environment Dept.	IA process - 2b CDU/SPD + CDU,CSU/FPD Environment Dept.

Dept. = responsible department

Figure 3: Set up of comparative case studies

Choice of countries

Regarding those institutional (context) factors potentially explaining the level of environmental consideration and stringency Germany and the UK/England represented opposing systems. They were selected since they represent differing political systems (i.e. a federalist state with a corporatist structure versus a unitary state with a centralised administrative structure; a multi-party system versus one-party system), administrative organizations (e.g. departmental versus centralised) and cultures and IA systems (pioneering IA country versus “reluctant” IA country). The English senior civil service has already much practice in handling IAs whereas in Germany assessment in the sense of an IA as set out in IA guidelines has not been that strong. While Germany represents continental Europe, the UK/England covers the Anglo-Saxon political tradition (cf. see section 5).

The UK administration is circumscribed as one with a flexible negotiation culture (Jann 2000) with a preference for pragmatic solutions. The German administration on the other hand is known as being legalistic (Thedieck 2007, 77). Its coordination processes have been described with the term ‘negative coordination’. Strong horizontal fragmentation of administrative policy fields and units (Knill 2001, 72) structure the course of negotiations. Closed internal careers are typical as well as low degree of internal mobility, whereas the UK civil servants conceive themselves rather as generalists than specialists, partly due to a higher degree of internal mobility (Krumm and Noetzel 2006, 29). Due to these characteristics, Great Britain’s administration has been called the ‘Mercedes’ of environmental integration states. Or as environment minister, Michael Heseltine, put it in 1992: “the UK has some of the most sophisticated machinery in the world for integrating the environment and other policies” (Russel and Jordan 2006).

So overall, the UK was expected to have at least better starting points for the consideration of environmental concerns in IAs. In Germany neither detailed guidelines nor independent quality control institutions exist which was expected to lead to more unfavourable conditions for the realization of a balanced IA (cf. section 5.4).

Choice of EU directives

EU directives have been chosen (and not EU regulations) since they are binding for the member states as soon as they are passed, on a par with national laws. The directives were first chosen so that the key actors – the responsible departments – varied but were still comparable. In the bio-fuels cases, two non-environmental departments (transport and finance) were the lead ministries; in the waste cases, the two environment departments were responsible for the IA and the policies processes. With the policy area selected similar actor constellations were in the game (i.e. the petroleum industry in Germany and the UK in the biofuels cases; waste operators in the waste cases).

Policies with a clear environmental dimension had to be selected, so that the level of environmental stringency could be evaluated in the transposed UK/England and German policies. An overview of possible directives was obtained from scanning the European Commission’s IA library¹³. At the country level the existence of some form of IA processes was obviously relevant.

¹³ http://ec.europa.eu/smart-regulation/impact/ia_carried_out/cia_2015_en.htm

Therefore the available IA documentation was searched which was scanned in a preliminary check to ensure that some kind of environmental analysis had taken place. In the UK, the IA reports were checked, in Germany the explanatory memorandum of the adopted legislation.

Moreover, rather recent policy/IA processes were sought, although the cases chosen show some chronological variation (the Biofuels Directive was adopted in 2003, the Waste Framework Directive in 2008). Indeed, in the biofuels case the implementation processes in the UK/England and Germany date back about 12 years.

Finally, the EU Waste Framework Directive (2008/98/EC) – in England transposed as the 2011 Waste Regulations and in Germany as the 2012 Circular Economy Act, and the Biofuels Directive (2003/30/EC), transposed into the 2007 Renewable Transport Fuel Obligation in Britain and the 2006 German Biofuels Quota Act were selected as case studies.

A critical aspect of the selection of the two directives was that those two pieces of legislation were chosen in policy fields, in which Germany was renowned as a leading country among EU member states. This could have biased the level of environmental stringency outcome towards Germany. But the level in the final policy objectives was balanced, varying in favour of both countries.

- Control of possible external explanatory factors (external variance): select the cases in such a way that factors which are not contained in the independent variables are not likely to be the factors causing variance on the level of environmental consideration and stringency.

This requirement of keeping external factors constant as far as possible was complied with by the choice of the jurisdictions and by using EU directives as starting point for the analysis. IA processes in the UK/England and Germany were chosen, since both countries are similar enough to compare them. They are both West European democracies and industrial nations with same degrees of societal organisation, similar levels of prosperity, and differentiated political and administrative systems. Both jurisdictions have been characterized as leaders in environmental policy and protection in EU-comparison (with a declining tendency for the UK) (Knill et al. 2012). When it comes to implementation of EU environmental policies, both countries have a high transposition rate (UK 90%, Germany 92%). Both have sufficient administrative capacity in place – as technical expertise, staff, and infrastructure – to implement EU provisions. Also, political activism and environmental awareness have reached similar levels in Germany and the UK (Börzel 2000). Both countries (as EU member states in general) have experienced a shift of competences from the national to the EU level (Ismayr 2008).

Using two EU Directives as starting point ensured that in the cases the same policy objectives were central and the same measures had to be transposed, ensuring a similar leeway of possible policy options, environmental consideration and finally stringency.

In the process of analysing the case studies a third independent variables category “non-institutional factors” (operationalised with ‘problem structure’ and ‘origin and maturity of the policy’) was added. In Actor-Centred Institutionalism, non-institutional factors are not pivotal and the problem of external variance can only be tackled through interaction of theory and empirics (Jahn 2011). So adding ‘non-institutional’ factors to the analytical framework (see section

4) was deemed necessary since otherwise the external variance would have been too strong which could have not been captured by the institutional and actor-related variables.

3.2 Data Collection and Structuring

Process tracing was used to reconstruct and structure the four IA processes. The data for the analysis was obtained from document analysis and interviews. The comparison of the case studies and the data and information collected was thereby ensured by means of structured comparison. Structured referred to a set of standardized questions that were applied to each case to ensure standardized data collection so to obtain systematically comparable results (George and Bennett 2005, 67ff). The questions arise from the research question and theoretical foundation (Blatter et al. 2007, 140). So, to enable a structured comparison, the factors expected to shape IA processes as set out in analytical framework were applied to each of the four case studies.

3.2.1 Process-Tracing

Processes, such as IA processes, are coherent courses of events over time. In principle, socio-political processes are open-and value-ended (cf. von Prittwitz 2007, 170). Process-tracing examines sequences of events *over time*. This required describing remarkable events or situations occurring at *one point in time* marking the IA processes analysed by indicating a change or a sequence within the process (comparable to taking snap-shots). Process analysis exceeds situational analysis and structural analysis due to the explicit consideration of time.

Process tracing is a “fundamental tool of qualitative analysis” and can “contribute decisively both to describing political [...] phenomena and to evaluating causal claims” (Collier 2011). Process-tracing is commonly applied in case study analyses, since they are always targeted at identifying causal mechanisms. The method is central to reconstructing the temporal sequence of events and the underlying mechanisms in the research field and helps to structure the analysis of the cases (George and Bennett 2005, Blatter et al. 2007). Against this background, process-tracing was considered as suitable approach to open the ‘open the black box’ of IA processes and to empirically trace the relevance of institutions, actors, and non-institutional factors for environmental consideration and stringency, how these factors interact, and how this shapes the level of environmental policy stringency; and it was considered a suitable approach for structuring the representation of the four IA processes.

George and Bennett (2005) define a causal mechanism „as ultimately unobservable physical, social, or psychological processes through which agents with causal capacities operate, but only in specific contexts or conditions, to transfer energy, information, or matter to other entities. In so doing, the causal agent changes the affected entity’s characteristics, capacities, or propensities in ways that persist until subsequent causal mechanisms act upon it.“ Causal mechanisms can take the form of intentions, expectations, information, small group and administrative decision-making dynamics, coalition dynamics, strategic interaction and so forth (Bennett and George 1997). Actor-centred institutionalism, which guided the case study analyses, provided these causal pathways or connecting threads between actors/institutions, environmental consideration, and finally stringency in the adopted policies (Gerring 2007).

Causal processes can take different forms as suggested by George and Bennett (2005). In more complex situations, outcomes are mostly the result of different temporally converging conditions, independent variables or causal chains. An even more complex type of causal process may be determined by interacting causal variables that are not independent of each other. Another type describes processes that are path-dependent. Here cases consist of a sequence of events in which the factor impacting first, constrains certain paths in the further course of the process.

Approach to process-tracing

In comparing the processes of several case studies the investigator can begin to map out the repertoire of causal paths that resulted in a certain outcome (George and Bennett 2005). In conducting a process-tracing it will be revealed if the causal mechanisms provided by the theory were in fact operative in the case studies examined. A causal argument may be conceptualized as consisting of a structural (antecedent, exogenous) cause (X_1), an intermediate cause (X_{1a}), and an outcome (Y). The intermediate cause(s) performs the role of a causal mechanism, a pathway from X_1 to Y (Gerring 2009). Before beginning the description of the episode the starting point for investigation should be chosen and well justified depending on the research question trying to explain. Two fixed points seem to be suitable. First, choosing a critical juncture or the time when a key actor enters the scene or receives some material or gains a certain informational capacity (Bennett and Checkel 2012). Starting point for the IA processes examined were the activities started in the UK/England and Germany after the adoption of the two EU Directives. The end point of the analyses was marked by the adoption of the policy transposing the respective EU directive in either the UK/England or Germany.

Constraints in process-tracing amount if not an uninterrupted causal path (A causes B; B causes C; C causes D; and so on) can be established. The explanatory value of the evidence path is weakened if information on causes is just not obtainable. If data is missing or theories are indeterminate, only provisional conclusions can be made with process-tracing (George and Bennett 2005). In case evidence is not available at the time of the research, a way out is to predict what the unobtainable evidence would indicate once it becomes available. This technique if sophisticatedly applied provides strong confirmatory evidence (Bennett and Checkel 2012).

3.2.1.1 Structure of the IA Processes Analysed

The description of the IA processes followed the structure as set out in Figure 4. It follows the different idealised steps of IA processes as set out in sub-section 1.2. It moreover allowed capturing relevant tuning points in the courses of the IA processes. After an introduction to the policy field in the respective country (i), an overview of the IA process was provided, including the actors relevant for the cases and their interests and preferences towards the policy. They were thereby divided into political actors, administration and agencies, private actors such as business associations, and environmental associations (ii).

- | | |
|------|--|
| i. | Introduction to the policy field |
| ii. | IA process <ul style="list-style-type: none"> ▪ Actor constellation |
| iii. | Policy objective A <ul style="list-style-type: none"> ▪ Conflict & actor constellation ▪ IA & wider evidence-base ▪ IA in the decision-making procedure |
| iv. | Policy objective B <ul style="list-style-type: none"> ▪ Conflict & actor constellation ▪ IA & wider evidence-base ▪ IA in the decision-making procedure |
| v. | Conclusion |

Figure 4: Structure of the description of case studies

The next section (iii) would describe the actual IA and wider policy process, for the individual policy objectives of the respective policy. In the waste cases for instance, the household recycling target and the requirement to implement the waste hierarchy represented individual policy objectives). The specific conflict and actor constellation and the specific evidence-base ‘growing around’ each individual policy objectives were described. The different versions of the policy drafts issued by the responsible ministries were relevant and intermediate corner stones in these analyses (for Germany starting with the ministerial draft and continuing with the different versions of the government drafts). For each policy objective section, it was examined whether changes had occurred in the framing of the policy problem, policy options and the level of objectives, the impact analyses which were produced during the process and the relevant evidence-base and which factors ‘caused’ these changes. The decision-making section set out the process in the institutions with formal policy decision-making rights (e.g. in Germany the parliament and the second chamber), since these could precipitate changes in the level of environmental stringency of the policies.

In the concluding part of the case studies, the course and causes of the IA process were analysed with respect to the indicators derived from the analytical framework.

3.2.2 Document and Content Analysis

Evidence for process-tracing should be collected from a variety of sources in a mode of triangulation to cross-check the causal inferences derived from the process tracing. Accordingly interviews with relevant actors (see next section) as well as media reports, documents and other literature were used. Thereby, it could be explored which actor knew and did what and when, and who interacted or allied with whom (Bennett and Checkel 2012).

Generally, the evaluation of the relevant data and information was based on a qualitative analysis, divided into the collection of documents and the analysis of their content to understand the material in its context (in contrast to many quantitative approaches) (cf. Mayring 2010).

Two types of documents were evaluated: “external” documents to develop an understanding of the respective case (e.g. texts about the development of waste policy and management in England); and documents which were an inherent part of the IA processes (e.g. the IAs themselves or

impact analyses conducted during the process).

Generally, documents incorporated into the analysis included technical publications relevant for the IA processes. For the investigation of stakeholder preferences and the identification of debated policy options and impact analyses, particularly submissions to the responsible ministries, press statements of the stakeholders, or media coverage were analysed. In the analysis, the key documents were identified and examined, such as those (repeatedly) cited in the official departmental publications (e.g. regulatory drafts or IAs) or by stakeholders, or publications which had an effect on the IA and wider policy processes. The author thereby followed the snowball principle as well as target literature searches, largely for the time period between the adoption of the directives and the adoption of the policies. Particularly for the biofuels cases scientific as well as grey literature and stakeholder publications were vast and not all could be covered due to resource and time constraints. For the analysis of the decision-making sections (debates in the parliaments and technical committees), particularly the public parliamentary and second chambers' documentation and information systems were consulted as data sources (e.g. <http://dipbt.bundestag.de/dip21.web/welcome.do?resetNav=y>).

Qualitative content analysis intends to analyse existing communication, in a systematic, theory-based approach to infer from the material analysed valuable information relevant for the research question (Mayring 2010, 13). In the content analysis, the author focussed on aspects set out in the analytical framework (cf. section 4) allowing for a systematic and comparable analysis of the documents. This included focusing on the documents main purposes' and situation of emergence, editors and under which conditions the material was published, and, if feasible, stating the impact of a document on the IA process and the level of environmental integration in particular. The documents were considered as relevant if they contained a relevant statement on the policy's objectives, options, or impacts.

3.2.3 Semi-Structured Interviews

Semi-structured expert interviews complemented the information gained from the content analysis of key documents. In total 25 interviews were conducted with relevant actors, such as responsible persons from the (lead) ministries, stakeholders (from businesses, NGOs, associations), as well as external experts (e.g. waste experts from universities). The interviews particularly served to obtain such information about the course of the case studies which could not be drawn from the analysis of the documents, following the question "what happened inbetween the evaluation points"?

The interviews were structured with an interview guide (cf. section 9.2) to ensure that certain issues were addressed by the interviewed persons and to that end ensure the comparability of the information. The interviews were recorded and transcribed, and then evaluated on the same basis as the documents, by means of content analysis (Lamnek 2005). The focus of the analysis was on the particular view of the person interviewed with respect to the variables set out in the analytical framework and the different steps of the IA process.

The interview partners are listed in the annex (section 9.1).

Critical aspects – Data collection and interpretation

The author carried out the case study analyses independently. This may have caused possible biases in the collection of data (gathering documents and choosing interview partners) and in its interpretation and representation, although a balanced analysis was a key intention throughout the work. The interviews as well as documents were crucial in ensuring a balanced approach: Recurring references made by different actors to conflicts or aspects (potentially from different viewpoints, though on the same aspect) which were otherwise prominent in the process, were key indications of the relevance of an issue for the author.

4 THE ANALYTICAL FRAMEWORK – OPERATIONALISING IA PROCESSES

This section presents the analytical framework which guided the analysis and comparison of the four case studies. Drawing on Actor-Centred Institutionalism (ACI) and on the state of research (see section 2.2), the independent variables – institutional context, non-institutional context, and actors – were defined, as well as the dependent variables – environmental consideration and level of environmental policy stringency. They were further operationalised to make them identifiable in the four policy/IA processes.

An overview of the analytical framework structuring the analysis of the case studies is presented in Figure 5. At the end of each section the operationalisation and indicators are summarised in a table.

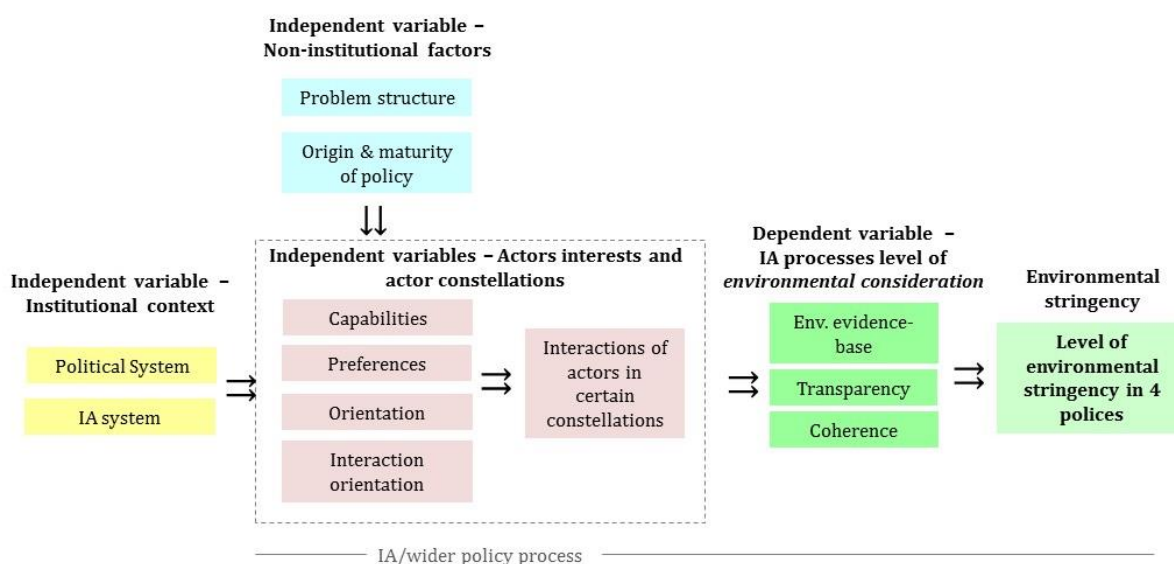


Figure 5: Overview analytical framework (own figure)

4.1 Introduction to Actor-Centred Institutionalism

By applying ACI light could be shed on the role of actors and their interests, interacting in certain institutional and non-institutional contexts and constellations that led to different levels of environmental consideration and stringency of policies. ACI is a heuristic that combines actor and institution-centred approaches and builds on several institutional theories¹⁴. ACI primarily is a micro-level theory and explains collective decisions (organisational and policy processes) departing from individual decisions¹⁵ (Jahn 2006). ACI allows the researcher to turn the spotlight

¹⁴ e.g. economic institutionalism, institutional organisation sociology and new institutionalism in the policy sciences

¹⁵ In contrast to other institutionalist theories such as sociological new institutionalism which belongs to the category of macro-theories and understands policy outcomes as a matter of above-the-individual structures

on autonomous actors and their interests in certain actor constellations. New Institutional approaches such as ACI emphasize the embeddedness of actors in superordinate rule systems called institutions. Independent from their level of formalization they influence actors in that they generate overall expectation structures in what is appropriate action and decision-making. They restrict and enable certain behaviour at the same time (Hasse and Krücken 2005).

Basic assumption in ACI is that social outcomes are the result of the interaction of several actors acting intentionally (Scharpf 2006). Corporate actors or organisations in politics act based on their perceptions and preferences. They do not act according to an objective reality but according to a subjectively perceived reality. It is defined by their subjective interests, evaluations and normative ideas. Institutions influence actors' preferences and the outcome of a policy process but they are not assigned a deterministic effect. Compared to sociological institutionalism, ACI follows a narrower institutions term comprising regulatory aspects and social norms. Institutions create mutual reliability in expectations and as a consequence enable actors to act since they define the range of actions available (Baumgartner 2010, 81). This way, institutions create a stimulating, enabling or constraining context of action. The institutional context constitutes the remote cause whereas the action of actors is treated as proximate cause. Inbetween these manifold factors intervene and determine the actors and their orientations, their interlinking relationships and the situations in which they interact (Mayntz and Scharpf 1995, 43-47).

ACI is not an explanatory model but a research heuristics which can be understood as an analytical approach that is aimed at better understanding a system (Mayntz and Scharpf 1995, 39). ACI's analytic components function as 'attention-grabbers', employed when analysing decision processes. The four analytic components of ACI – actors, institutions, action orientations, and constellations – always have to be understood in their situative context when explaining empirical problems (Schimank 2004, 298). Political decisions cannot be made by one single actor but are results of interdependent actors in certain actor constellations acting in certain modes of interaction. These analytically independent categories will determine the output and the level of environmental ambition in the IA process under analysis (Scharpf 2006).

In the following sections the ACI 'attention grabbers' – institutions, actors and action orientations, and constellations – and their operationalisation for the analysis of the case studies will be introduced.

4.2 Institutional Context

In ACI institutions are the rules of the game. They are nationally specific, embedded in historical and cultural structures, and in the interests of actors "on site" (Luthardt 1999, 162). These rules are aimed at the distribution and exertion of power, the definition of competences, and the disposal of resources. They define relationships of authority and dependency. Institutions as defined, practiced, and sanctioned regulations, establish reliability of expectations. Institutional procedures create occasions for interaction and arenas where specified actors come together for

and processes or in contrast to rational choice institutionalisms which depart from the rational decisions of individuals and in whose purest forms, institutions take a back seat (cf. Jahn 2006).

deliberation or decision on specified issues. Institutions define how the outputs of decisions should be assessed and consequently determine actors' preferences in regard to possible options (Scharpf 2006, 79).

The institutional context constitutes actors and actor constellations, structures their disposal over resources, influences their action orientations and shapes important aspects of the concrete action situation. The institutional context influences the capability of modes of interactions to solve political problems. A situation develops differently when actors face majority voting or hierarchical decision if negotiations do not bring a satisficing result (Scharpf 2006, 92). The institutional context shapes the form of interaction inherent in a certain situation.

Rules or institutions appear in the form of formal or informal provisions or social norms. More specifically, they can be distinguished as i) rules which determine material behavioural and formal procedural norms for certain situations; ii) specified addressees which exert financial, legal, personal, technical and natural resources; iii) rules that determine the relationship between actors (especially dominant and dependency relationships).

4.2.1 Operationalisation

4.2.1.1 Political system

Veto points in the policy-making process

By comparing IA processes in the UK/England and Germany the remote effects of political systems with few and high numbers of veto players could be examined. "Veto players are individual or collective decision-makers whose agreement is required for the change of the status quo" (Tsebelis 2000). Institutional and partisan veto players include for instance federalism, bicameralism or parties.

The assumption was that in Germany, as a system with numerous veto players, the likelihood of IA playing a role in the decision-making process would be lower as opposed to the UK, a political system with few intervening players. Other, more formalised mechanisms between the actors would prevail (Jacob and Hertin 2007). With an increasing number of quality/environmentally inclined veto players however, environmental consideration was expected to increase.

Access rights of environmental actors to IA and wider policy-making process

This factor comprised access rights in the overall policy-making system as well as access rights granted by IA provisions. Although the latter category would belong to the 'IA system' (see next section), they were subsumed since empirically they were too close to be separated.

What opportunities exist for the diverse types of actors, and notably environmental actors, to get involved in the IA and wider policy process? This factor concerns access rights granted to environmental actors by institutional rights in the early phases of policy formulation, when the proposal is still in the hand of civil servants in the administrations. Again, Germany and the UK represented two opposing systems in this regard. Germany represents a corporate system (e.g. where local government partners have an exclusive right to involvement granted in the GGO), which however oftentimes appears as a black box when it comes to involvement in the wider policy and IA processes. Largely the departments decide who is "in and who is out" and how stakeholders are involved in the IA. Compared to this, the UK represents a transparent involve-

ment system with clear provisions on involvement (e.g. a guidance document with clear terms for involvement exists, as well as provisions for a two stages involvement in the IA process). For this variable, the involvement of environmental actors was assumed to be less transparent and that involvement of environmental actors was more dependent on the lead ministry in Germany (and opposite expectations for the UK processes). So, involvement of environmental actors was expected to be higher in the 'waste case' with an environment department responsible for the process.

4.2.1.2 IA system

Generally, the UK is a vanguard regarding IA, while Germany has been slow in advancing its IA procedure and practice. Accordingly, the UK was expected to deliver 'better' than Germany on all the following variables below and with that to provide better conditions for environmental consideration. The question is in how far this affects policy formulation, since German bureaucrats certainly evidence-base their policies and do not draw them out of the blue.

Institutionalisation

In how far are IA processes institutionalized in the policy-making process? Institutionalisation could be indicated for instance by the year of adoption of the IA procedure, existence of a single IA template, and extra resources (budget and time) provided for doing IAs (see Radaelli et al. 2008). This was expected to be a key variable, positively or negatively affecting all other dimensions of the IA systems examined. The degree of institutionalisation would largely determine whether IA practice is a symbolic act or grounded in departments and decision-making processes. It was moreover expected to be relevant for the level of awareness of IA practice among stakeholders and the wider public. The degree of legitimacy which would be granted to IA departments for producing appropriate IAs and considering the environment is highly dependent on degree to which IA processes have been established in the policy-making process.

Provisions for environmental consideration and for the use of methods

The bindingness of the IA procedure and distinguished requirements for environmental impact assessment were expected to be key for a high level of environmental consideration. Notably if IA provisions are binding and the incorporation of environmental aspects is mandatory policy officers would have an incentive, if at all, to include the environmental dimension in their IA. The IA systems differed considerably regarding the bindingness of their IA procedure and following from that the consideration of environmental aspects. Provisions for environmental consideration can vary from no consideration at all, recommended incorporation, in case significant environmental impacts can be expected, or mandatory (integrated) consideration, for instance by making provisions on methods or tools to be used (cf. OECD 2010a).

Staff of responsible units in the ministries can employ different methods to support the IA process and environmental consideration therein. Methods are relevant for environmental consideration since they represent systematic and established procedures to acquire knowledge and evidence for the different phases of the IA process (cf. LIAISE). A sound method-base which includes environmental assessment was therefore considered key for increasing the likelihood of a high level of environmental ambition.

Due to more favourable conditions for environmental consideration in IA and provisions on methods in terms of a systematic assessment, the UK processes were expected to showcase environmental consideration in both cases compared to the German ones. While the German case with the Environment Department as lead ministry was expected to feature a higher level of environmental consideration than the one with the Finance department as lead, this is expected to play a less distinct role in the UK counterpart however.

Transparency

In how far do IA provisions require policy officials to publish results of the IA during and after the process? And in how far are they encouraged to issue a report that is comprehensible also for outsiders of to the process (e.g. in terms of the policy options considered, handling of stakeholder input, and the assumptions made in the analysis)? A transparent process was expected to facilitate environmental consideration, since it would force policy officials to demonstrate in how far they complied with (environmental) IA provisions.

Quality control mechanisms

The existence of quality control mechanisms are seen as key for the production of high quality IA evidence-bases (as mostly a precondition for environmental consideration) and processes in a wider sense. "Watchdogs" can be established to intervene during the IA process (in the UK the head economists must sign-off the CBA or provisions for ministerial clearance for instance) or to provide overall evaluation of IA practice. Judicial reviews as they are standard in several OECD countries may take place on a yearly basis by an independent body (such as the Court of Auditors) and scrutinize the overall quality of IAs. They can severely criticize departments on their work in direct comparison with other ministries.

Table 1: Operationalisation - Institutional context

Operationalisation	Indicators
Political system	
Veto players	- Who and how many have veto rights (with respect to policy)
Access rights in policy-making processes	- Formal and informal access rights granted by institutions to environmental actors - Who gets involved at which phase, formally and informally?
IA system	
Institutionalisation of IA process	- year of adoption of IA procedure, single IA template, IA tick-boxing exercise, extra resources provided (budget and time)
Provisions for environmental consideration	- Environmental issues part of impact areas mandatory to be considered
Provisions for methods	- Recommendations and support guidelines for using methods - Tools provided for doing the IA
Transparency	- IAs disclosed systematically (during and after the IA process)
Quality control	- IAs are scrutinized during and after the IA process (evaluation)

4.3 Actors

In ACI actors act intentionally but in their actions, they are supported or constrained by the institutions surrounding them. The dimensions with which actors were captured in the IA processes include their capacities, their action orientations, and their interaction orientation.

ACI distinguishes two types of actors, the individual and the complex actor. They include political actors as well as all relevant state- and non-state actors. With the classification of the complex actor political outcomes cannot only be explained on the basis of single actor's decisions and actions. It enables the analysis to assume that an actor may act on behalf of another person, group or organisation and that this actor can be treated as strategically capable. A complex actor is made up of a group of individuals who share the intention of generating a mutual product or achieving a common goal. For that reason, Scharpf introduces two kinds of complex actors: the collective and the corporative actor.

Collective actors have two distinguishing features. First, their action capacities have been collectivized to a certain degree and the disposal over them is in the hand of the collective actor. Second, collective actors cannot decide autonomously on action guiding preferences but are formed commonly. Following this line, four types of collective actors are described – coalitions, social movements, clubs, associations, and corporative actors. They can be described based on the two dimensions: control of action capacities and references to action orientations. Since corporative actors can have goals, identities and resources which are independent from the interests and preferences of its single members, they may be more efficient and effective in achieving their goals than collective actors. Collective actors on the other hand are bound to the preferences of its members. Actors can be distinguished by their capabilities, perceptions and preferences. The latter two categories make up an actor's action orientation (Scharpf 2006, 95ff).

4.3.1 Capabilities

Capabilities include all resources which enable an actor to influence a political outcome. They comprise personal characteristics such as social competences, material competences like money or technological resources or a privileged access to knowledge. The most important capabilities comprise institutional rules which assert competences, participative or veto rights, and the right to make autonomous decisions granted by institutions (Scharpf 2006, 86). For Scharpf they are very important since without capabilities "the best perceptions and preferences" are useless.

4.3.2 Action Orientation

Action orientation served the analysis of the intentional action of actors. An actor's action orientation is not directly observable. Action orientation is operationalized by the three concepts cognitive (perceptions), motivational (preferences), and relational orientations. The cognitive dimension refers to expectation on and perceptions of action situations, possible courses of action and interaction. It was not further used in the analysis, since not deemed central. Instead, actors' preferences were put in the centre for their motivational dimension. The relational category reflects the fact that solving policy problems usually concerns several actors which interact in a certain actor constellation with interdependent options for action. In contrast to rational-choice theories these must be empirically determined and cannot just be assumed. All three dimensions

of action orientation are strongly intertwined (Schimank 2004, 296). Scharpf (2006, 111) works with simplified assumptions as well as institutionally defined information.

Motivational aspects – actors' preferences

ACI assumes that human beings act based on a perceived reality and socially constructed interests, convictions and preferences. Preferences are crucial, since actors rank possible outcomes of interactions on the basis of them (Scharpf 2006). They pursue a certain strategy to achieve the most preferred option. A strategy is an actor's attempt to get as close as possible to the most preferred alternative. The actor pursues the strategy which is expected to maximize its total utility (Frieden 1999, 41). For explaining strategic behaviour, analysing if and how perceptions deviate from best possible knowledge is relevant. Political actors try to enforce their preferences, thereby acting under bounded rationality. That is, actors are intentionally rational, but limitedly in knowledge, foresight and time (Simon 1957, 195). With simplified assumptions as well as institutionally derived information the action orientation of involved actors can be identified. Preferences are divided up into the following two categories to simplify the analysis of preferences (Scharpf 2006, 116ff)¹⁶.

- Norms: This component describes normative expectations (formal or informal) directed at actors in certain positions. Since administrations have been created to serve a certain policy field it is rather easy to identify their basic purpose. Norms appear to apply system-wide, but can on a second step become internalised by actors. A selective choice of these internalised norms is activated by the specific situative context.
- Identities: a situation might result in incoherent demands, the identity of an actor helps to select certain interests and norms to ease decision-making by reducing complexity. An effect of a certain actor's identity is that it reduces insecurity of other actors because it offers information on what can be expected from an actor and it can enhance the efficiency of interactions; and interaction orientation (see below).

The relational aspect of action orientation – interaction orientation

The relational aspect of action orientations can be described by means of the category *interaction orientation* (Scharpf 2006, 150). Interaction orientations are typified interpretations of relations between several actors, and represent an own determinant of action next to the knowledge pool and the action motivation of actors. The main types of relations are:

- Antagonistic: the loss of the other is perceived as a win for the other;
- Competitive: about the difference between own win and the win of the other side;
- Egoistic-rationale: only the own win counts;
- Cooperative: the common orientation towards winning counts (Scharpf 2006).

By determining actors' interaction orientations the possible influence of actors on an action situation is captured. Which of them dominates depends on the situation at hand and must be ana-

¹⁶ leaving out interests as self-interest comprising actors' preferences for self-preservation, autonomy, and growth

lysed in the according context, though in politics the three relations individualism, solidarity, and competition are the most important. For the relations between most departments a competitive orientation can be assumed while the relations within departments can be typified as being hierarchical.

4.3.3 Operationalisation

4.3.3.1 Capabilities

Staff, time, financial resources

How many resources in terms of staff, time, and financial resources, were available and used by different actors to influence the IA process and to decrease or increase the level of environmental ambition in the IA/ in the policy proposal? An analysis of UK policy appraisals has discussed the necessity of time, staff and financial resources for environmental consideration. If not available or only to a limited extent “policy makers tended to ‘cherry pick’ those appraisal requirements and systems that fitted with and sustained their core work” (Russel and Jordan 2006, 12). Staff involved in the IA – at the side of responsible departments for doing the IA and organising the policy-making process, at the side of other actors such as other departments or stakeholders what staff were dedicated to the processes –, time (e.g. for collecting data, information etc.) as well as financial resources available (if they can be inquired, e.g. for commissioning external expertise) served the operationalization of the above expectations. The author expected that sufficient resources on the side of the responsible departments and “pro-environment” actors to increase the likelihood of environmental consideration.

Assertiveness of actors

The assertiveness of actors was further considered as relevant for the level of environmental consideration. Which actor groups were involved in the IA processes and how assertive were they? An actor was considered assertive if it had a high level of representation (represents many members in one policy field), and if it was able to build up societal pressure by refusing or threatening to refuse a societally relevant service.

If powerful environmental actors were part of the processes they were expected to particularly influence the consideration of policy measures and their environmental implications. Generally, the concerns of powerful actors are expected to feature prominently in IA reports.

4.3.3.2 Preferences of IA Actors

IA actors would rank the possible outcomes of the policy-making and IA processes against their preferences. They would pursue a certain strategy to realize their prioritized alternative. The motivational action orientation was operationalised by the organisational background of key IA actors as well as the work profiles of the responsible IA administrative units. Thereby, the autopoietic and work-related conditions could be conceptualized as further factors for environmental consideration.

Organisational background

The normative dimensions of the IA actors were institutionally defined and were described as the general and comprehensive frames through which policy officers perceive the policy-making

and IA process. The departmental or organisational background would decide through which frames policy officers interpret the policy issue. They would determine what they perceive as approvable policy options and which inputs, activities and measures would be appropriate to achieve the intended effects. For determining the normative orientation of involved actors and attitudes evoked towards environmental consideration, the organisational backgrounds of involved actors were examined and the lead department was expected to play a key role for the outcome of the overall process. An environment ministry in charge of the policy and the IA process would increase the likelihood of environmental consideration while a line ministry would lower chances of a focus on environmental impacts" (EEA 2005b, 27). The approach was similar for the other actors in the IA process: other involved department representatives will assess the situation from the perspectives of their line ministries and the agendas they pursue. Associations will have a different stance of the policy issue and desirable outcomes of the IA and policy-making process fed by their cognitive orientation, and so on.

Generally, the level of environmental consideration was expected to be higher in the two cases in which the environmental departments were responsible for the policy and IA process. Compared to the German case studies, the influence of the environment department was expected to be less distinct in the UK case studies due to a lower decision-making autonomy of departments and joint-up government with stronger control of the prime minister.

Work-profile of IA unit

Identity related motivations were traced by referring to the work-related profile of the responsible IA unit within a department which was, next to the overall mission of a department, considered as a further factor crucial for the consideration of environmental aspects (e.g. it makes a difference whether the organic or conventional agricultural unit was in charge of the IA process).

4.3.3.3 Interaction Orientation

Interaction pattern and communication

The analytical focus was on the relation and the exchange between IA responsible departments, other affected departments, the political heads of government, as well as stakeholders, and the public. The interaction orientation between lead departments, other affected departments and stakeholders were described using the four forms described by Scharpf, namely competitive (about the difference between own win and the win of the other side), cooperative (common orientation towards winning), antagonistic (the loss of the other is perceived as a win for the other), or egoistic-rationale (only the own win counts), or mixed forms of them. The interaction orientations had to be analysed empirically. The interaction was captured by inquiring about the exchange between the IA departments and other actors (environmental/ opposing departments, stakeholders) regarding its quality and quantity as far as possible.

The interaction pattern was expected to be linked to types of IA uses; for instance, an egoistic-rationale mode rather with strategic forms, a cooperative rather with a communicative type of use. Moreover, a cooperative mode in the processes was expected to facilitate higher levels of environmental consideration and the search for win-win-solutions than an antagonistic mode.

Involvement of environmental actors in IA

The interaction pattern was linked to how the lead department organised involvement in the IA process. Regarding environmental aspects the opportunities for environmental departments (or other environmentally competent ministries), environmental (and social) NGOs and organisations (and the wider public) to engage in the assessment process were seen as crucial. Through formal and informal consultation, they would receive the opportunity to scrutinize and complement the collection of evidence and the analysis process. Involvement is moreover central, for acceptance and thus contribution to environmental policy stringency. For instance, involvement in the application of a method was seen as crucial for the integration of environmental knowledge but also for the legitimacy of the methods' findings among stakeholders (De Smedt 2010). Involvement should begin from early on, since the basic orientation of an IA is usually determined in the earlier phases. While the institutionally established access rights were discussed in section 4.2.1.1, their realisation in the IA and wider policy processes were captured by detecting empirically the formal and informal involvement of actors and differences in shaping the IAs' content related to that as far as possible.

4.4 Actor Constellation

Political decisions cannot be made by one single actor but were considered to be the result of interdependent actors in certain actor constellations acting in certain forms of interaction. These two analytically independent categories determined the output of a situation. That interaction in certain actor constellations was an important structural variable in ACI is only logic, since an interaction can only take place as a reciprocal action of two or more persons.

Constellations included the involved actors, their strategic options, and the results arising from the combination of their different strategies and the actors' preferences regarding these results. Actor constellations provide the crucial link between substantive policy analysis and interaction-oriented policy research (Scharpf 2006). The actor constellation describes the level of conflict between actors.

4.4.1 Form of Interaction

The form of interaction described the modus with which the conflict would be solved. Three of the possible four basic forms distinguished by ACI were considered (Scharpf 2006, 88):

- one-sided or mutual adaption (negative coordination): single actors adapt to a situation changed by the other actors without perceptions of their actions' interdependencies; actors act for themselves, though in knowledge of their interdependency of their activities and in anticipation of the others actions and reactions;
- negotiation: strategies are chosen by negotiation (technically and time-constrained bilateral connections of actors);
- Hierarchical decision: strategies of one or several actors can be determined by one other player.

The analytic dimension to these forms of interaction is the degree of individual autonomy – or

the collective action capability. These different forms of interaction vary in their ability to resolve conflicts in the prevailing institutional context (Scharpf 2006, 92).

4.4.2 Operationalisation

The form of interaction was operationalised by provisions for coordination in administrations and responsible IA departments' decision-making autonomy. While the latter was determined through empirical analysis, the former was derived from the institutional context and overall decision-making culture. Since the two factors were very proximate though, they were subsumed.

4.4.2.1 Provisions for Coordination

Horizontal coordination of policy and IA processes between affected departments was seen as key for the consideration of environmental issues. Notably, if the technical expertise of environmental departments and divisions is incorporated in formulation and assessment environmental integration can occur. Both administrations under examination are embedded in and restricted by hierarchical authority structures, in which negotiations as well as one-sided decisions are possible conflict solving modes (Scharpf 2006). And as Scharpf remarks, all "decisions produced by government are influenced by the preferences of the responsible minister or the chancellor [...] and the lower units usually exactly know for which positions they would receive support in case horizontal negotiations should fail" (Scharpf 2006, 324).

The two jurisdictions of this analysis featured however distinct administrative decision-making cultures (see section 5). While the UK is known for its flexible negotiation culture and few provisions of formalised coordination, Germany is known for its legalistic administrative culture with formalised and negative coordination procedures.

4.4.2.2 Departments' Decision-Making Autonomy

Peters (1998) described different coordination options available for administrations: ranging from minimalist (such as independent decision-making by ministries), medium (e.g. inter-ministerial search for agreement as seeking consensus) to maximalist level (such as overall government strategy). Decision-making autonomy here refers to the question how the overall IA process is organised. Did the responsible department organise the IA and wider policy process in isolation from other departments, were inter-departmental working groups, task forces, joint planning groups, or specific advisory entities, set up? It was expected that a low level of decision-making autonomy of IA departments would facilitate a higher quality IA since improving the likelihood for incorporation of a diverse range of actors. It had to be determined empirically whether this was to the benefit or cost of environmental consideration.

Table 2: Operationalisation Actors

Operationalisation	Indicators
Capabilities of actors	
Resources	- Time, budget, staff available
Assertiveness of actors	- Ability to build up societal pressure by refusing or threatening to refuse a societally relevant service
Action orientations	
Preferences (norms and identity)	- Institutional background of the IA actor (lead department) - IA departments' work profile and role of environmental aspects ensuing from that (responsible IA unit)
Interaction orientation	
Interaction and communication patterns between IA actors	- Competitive, cooperative, antagonistic, or egoistic-rationale → linked to different types of IA use (symbolic, communicative, political/strategic, instrumental/learning)
Involvement of environmental actors	- Who - When
Forms of interaction	
Provisions for coordination/administrative decision-making culture	- negative coordination, negotiation, hierarchical decision
Degree of departments' decision-making autonomy in wider policy and IA processes	- Organisation of the IA/ wider policy process (e.g. isolated decision-making by department or inter-departmental decision-making)

4.5 Non-Institutional Context

In ACI the non-institutional context is used to describe independent forces which cannot be attributed to the context, such as historical aspects or natural conditions. The author expected non-institutional factors to be relevant for the level of environmental consideration in the IA and wider policy processes, although not a central component of Actor-Centred Institutionalism.

4.5.1 Operationalisation

4.5.1.1 Problem Structure

The non-institutional factors determining the IA and wider policy processes' and their outcomes concentrated on the policy aspects. Three dimensions were used to represent non-institutional factors: policy instruments, types of policies, and underlying problem structure.

The problem structure of a policy comprises the clarity or ambiguity of the addressed problem, its meaning for the economy (addressed by type of policy, see below), the number, diversity and societal relevance of those causing the problem, the evidence-base and available solutions to the problem (Böcher and Töller 2012, 89, cit. Tils). Some of these aspects were already covered by other dimensions described above. The aspect of the clarity of the problem and available

data and informational basis was relevant for IA processes since they were intended to clarify and discuss these issues.

To define the problem structure of the four policies the analysis draw on the four problem types developed by (Hisschemöller and Hoppe 1995). Here, policy problems are classified based on scientific and normative uncertainty (see Table 3). In case of a moderately structured policy problem, the “disciplines and specialisms to be invoked are clearly defined and the policy-making responsibility is in the hands of one actor”. Further characteristics include a clear definition of policy goals and government acts as one homogenous actor while competences are clearly defined among ministries. The process is dominated by experts or actors claiming an expert role. In such cases the environmental dimension would be solved by standardized (quantitative) techniques and procedures, if the problem was of a technical nature and there was consensus about how to solve it.

Table 3: Four problem types (Hisschemöller and Hoppe 1995, 44)

	Normative certainty (normative consensus)	Normative uncertainty (no normative consensus)
Scientific certainty (consensus about facts)	<i>Structured problem</i> Can be solved by experts or bureaucrats	<i>Moderately structured problem (means)</i>
Scientific uncertainty (no consensus about facts)	<i>Moderately structured problem (ends)</i>	<i>Unstructured problem</i> Learning strategy/public debate

For a moderately structured policy problem (means) the knowledge dimension is uncontested but the values at stakes represent the conflict line. The conflict is solved by an accommodation strategy by the key actors compromising the values at stake. The conflict frame is rather “frozen than dissolved” (Hisschemöller and Hoppe 1995), the status-quo is maintained. The policy-making process is characterized by elite-consultation, with decisions made behind closed doors and low degree of public participation. There is a high level of expert involvement. The experts “have the task of depoliticising the conflict”.

For unstructured policy problems, technical methods appear to be inadequate. “The boundaries of the problem are diffuse, so it can hardly be separated from other problems. [...] One cannot be sure what disciplines and specialisms are to be invoked for problem solving. Conflicting values and facts are interwoven, and many actors become involved in the policy process, which can neither agree on values or on knowledge, yet there is still a widespread sense of discomfort with the status quo. The policy process is shaped by negotiations and arguments about the most efficient and effective means to achieve the policy goal. Multiple actors are involved, the different segments of government articulate distinct positions on the problem. Evidence is widely used by the different parties, “though expert opinion in itself divided along the lines of interest: scientific disagreement emulates political disagreement”.

The extent of impact analysis (and environmental consideration) was expected to be greater in both biofuels cases compared to the waste cases, as new policy initiatives with an unstructured underlying problem structure. Analyses were expected to be more detailed and the IA used

more in a learning mode. Against this the two biofuels cases were expected to feature the best environmental integration and consideration.

4.5.1.2 *Origin and Maturity of the Policy*

The four IA processes analyzed all related to EU directives. So instead of focusing on the question whether the policy was an internal or external initiative (cf. section 2.2.2.4), the support of the national government for either of the two directives (biofuels/waste) was taken into account. The likelihood of a more comprehensive policy and IA process was expected to be higher for those cases in which the national government was in favor of the adoption of the EU directive. This again was assumed to be amplified in case of a less mature policy since knowledge on the workings of causal chains was less secured.

Table 4: Operationalisation - non-institutional context

Operationalisation	Indicators
Problem structure	<ul style="list-style-type: none"> - Structured - Moderately structured - Unstructured
Origin and maturity of the policy	<ul style="list-style-type: none"> - Level of support for policy already at EU level - Level of maturity (newness) of the policy issue addressed

4.6 Level of Environmental Consideration

4.6.1 The Environmental Evidence-Base

A sound environmental evidence-base is considered key for increasing the likelihood of a high level of environmental ambition, particularly when it helped to better understand the implications from policy and to make these likely impacts transparent for externals to the wider policy process. What indicates a “good” environmental evidence-base?

4.6.2 Operationalisation

4.6.2.1 *Environmental Evidence-Base*

Assesses environmental impacts relatively to economic impacts

An evidence-base which promotes environmental consideration would – dependent on the policy – assess the relevant intended and non-intended environmental impacts of policy options, and show which societal groups would be potentially affected by them and how. Relative to the consideration of economic aspects it would qualify or quantify/monetarise potential impacts. Important for environmental problems, it would consider effects at different spatial and time scales (e.g. long-term effects). And it would establish a clear relationship between policy problems, objectives, and options to the environmental implications. Basis for such an evidence would be

the use of different types of relevant knowledge and evidence¹⁷ (e.g. scientific, stakeholder, lay knowledge; see for instance Campbell et al. (2007) for an overview), since knowledge and evidence are produced in many different arenas (Weingart and Lentsch 2008).

Use of methods to consider environmental impacts

The use of methods was considered to indicate a more thorough, since more systematic, analysis of environmental impacts and signals a 'serious' effort of policy officials to examine environmental implication. Methods and tools¹⁸ employed are suited differently for providing information on environmental aspects in IA processes (e.g. monetarising environmental impacts in a cost-benefit is oftentimes difficult, whereas life-cycle analyses have been developed to consider environmental implications) (Ferretti et al. 2012). Various methods and tools used in the different phases of the IA process, allow for acquiring and using broad sources of knowledge and information (cf. LIAISE n.d.) and increase the likelihood of improved environmental consideration.

4.6.2.2 Transparency of the Analysis

Used in a transparent manner IAs can fulfil a communication role and serve as reference documents about the environmental implications of policy options. Transparency in IA was operationalised as having two dimensions, a procedural (IA disclosure) and a substantial (analytical) one.

Procedural transparency

Anticipating that the IAs will published for scrutiny, was considered to be an incentive for administrations to produce higher-quality IAs. IAs should be issued during the IA process and disclosed after termination of the process. With that actors would be given the opportunity to be informed about the (environmental) implications and to exert influence on the evidence-base, possibly from an early stage on. Transparency was considered to be increased, if the often highly technical IA analyses were summarized in non-technical and user-friendly language and the implications for environmental aspects were stated clearly.

Substantial transparency

With respect to environmental issues, substantial transparency meant that administrations had made explicit their assumptions, the context of the planned policy, data/information/knowledge used (or not used); they would show which options they had considered (and then possibly the reasons, why they were discarded), and in how far inputs and

¹⁷ Evidence can be defined as the "available body of facts or information indicating whether a belief or proposition is true or valid" (Oxford Dictionary 2017). Amin and Cohendet (2004) distinguish knowledge and information (and data). Knowledge on the one hand is acquired by agents (individuals or collective actors, in the form of routines) by doing or thinking. Information on the other hand is codified knowledge. Knowledge is converted into information by making it explicit, formalising or systemising it. Next to codified knowledge tacit knowledge exists. It cannot be codified but complements codified knowledge. Its main forms are inter alia know-how and beliefs/representations of the world.

¹⁸ Methods represent systematic and established procedures to acquire knowledge for the different phases of the IA process; tools represent specific and contextualised approaches of a certain method.

objections from stakeholders were incorporated into the IA/policy, and generally, the implications for environmental aspects and causal chains would be stated clearly. Detailing the circumstances or reasons forming the basis of a decision, was expected to reduce opportunities for interest-based policy-making and to increase acceptance and legitimacy of policy outputs.

4.6.2.3 Coherence

IA can promote the environmental coherence of public policies (OECD 2009). Coherent policies which reduce conflicts and promote synergies between and within different policy areas are key in achieving jointly agreed environmental policy objectives (Nilsson et al. 2012). With a steadily increasing density and interdependencies of policies and other types of legislation at multiple levels (Briassoulis 2004) showing where the planned policy might overlap with others and how they interact, where synergies and trade-offs get created, and how it is embedded in and linked to the overall network of policies becomes even more important. The (environmental) legitimacy (and thus stringency) of a policy was expected to be increased, if it was shown in how far it contributed to goals, indicators, and priorities set out in other policies and strategies (e.g. sustainability strategies). An assessment which demonstrated how policy contributed or weakened achievement of other environmental policy objectives was considered a further asset.

Table 5: Operationalising – Environmental consideration

Environmental evidence-base	
Operationalisation	Indicators
Assesses environmental impacts, relatively to economic impacts	<ul style="list-style-type: none"> - Relates problem description, objectives, options, impacts, and comparison to environmental concerns - Attempts to consider the most relevant positive and negative environmental impacts (if it doesn't, it sets out why it was decided to limit the assessment) - Above a qualitative assessment, it attempts to quantify or monetarise impacts - Considers different spatial and time scales
Methods used to support an understandable, transparent assessment of knowledge and information	<ul style="list-style-type: none"> - Makes an effort to use methods in the different steps of the IA to support environmental consideration - uses a variety of environmentally relevant data and information to enable a broad evidence-base for the analysis - sets out uncertainties and gaps in data and information, and limits to the knowledge and information used
Transparency	
Procedural	<ul style="list-style-type: none"> - IA issued during the IA process - IA accessible after termination of the process
Substantial	<ul style="list-style-type: none"> - Shows which options have been considered/discarded, reasons provided, why a certain method/tool was used, which assumptions were made in the analysis, sources of data and information (not) used etc. - IA summary provided in non-technical and user-friendly language; implications for environmental aspects have been stated clearly - Made explicit who was involved and how stakeholder inputs were further processed in the IA
Coherence	
	<ul style="list-style-type: none"> - Reference made to other relevant environmental policies and strategies - Shown how policy contributes or weakens achievement of other environmental policy objectives

4.7 Brief Critical Account of Using Actor-Centred Institutionalism for Studying IA Processes

Aim of this study was to analyse in how far institutions and actors shape environmental consideration in IA processes (and with that the level of environmental stringency in adopted policies). Since institutions in ACI determine outcomes only mediately ('remote cause', see section 4.1), the question to what extent institutions constrained or enabled environmental consideration was answerable only to a limited degree and findings had to be carefully interpreted. Moreover, institutions leave considerable leeway for actors' actions (they can also non-comply with these), so that many but not all actions could be explained by knowing the intuitional context.

Again on the institutions: by emphasizing the differences of institutions across countries (institutions as something which is country specific), the variations and diversity within countries may be neglected (e.g. different IA routines among departments). The fact that institutions are country and even time specific (Scharpf 2006, 82f) implies that also their impacts are country and

time specific. From this follows that explanatory potential of findings could only be very carefully used and transferred to other contexts.

The non-institutional context receives only limited notice in ACI, though has been found to indeed play a role for environmental consideration in IA processes (see section 2.2.2). This may have skewed the analysis in favour of institutional and actor-related factors. And last but not least, ACI has been developed with view to studying social sub-systems, leaving this analysis which considers 'only' sections of such sub-systems (IA processes) with a changed field of investigation.

4.8 Overview of the Research Design

Referring to Howlett et al. (2009) performance evaluation aims to find out if an instrument is doing what it is supposed to be doing. “In this type of evaluation, the performance of a given [instrument] is compared to its intended goals. [...] Based on the findings, recommendations for altering or changing [instruments] may be made.” The central question of this thesis was, if IA processes promote environmentally stringent policies. How “green” were the policies adopted by parliaments and what was the role of IAs in shaping them? What were the factors shaping environmental consideration in IA processes? In this perspective an IA process was doing what it was supposed to be doing, if a relative environmental improvement in the policy adopted could be attributed to the IA processes. Do IA processes matter for environmental ambition or would the same environmental level have been reached if the usual policy-making process would have been in place?

Evaluations have to deal with four basic questions (Stockmann 2011). The first question refers to the subject of the evaluation (what is being evaluated?). In this thesis IA processes and the environmental dimension therein were examined (see section 1). Second, what is the purpose of the evaluation? This thesis was aimed at examining the level of environmental consideration in IA processes and the resulting environmental policy stringency as the dependent variable. Third, what are the perspective and criteria which form the basis of the evaluation? The analysis was based on an analytical framework guided by Actor-Centred Institutionalism (ACI) (see section 4). ACI helped to draw the attention to actors and the actor constellations in IA processes and the institutional contexts which enhance or constrain actors in realizing their interests. Both, actors and institutions – and the problem structure – were considered as independent variables in this study. In doing so, the author could provide for a better understanding of the role and interaction of context and agency for IA processes and the consideration of environmental consideration. To explore the level of environmental stringency and IA processes’ influence on that, an analytical framework was developed to assess environmental consideration and environmental stringency. This analytical framework was informed by the state of research on environmental policy-making, and wider research in this domain.

The fourth question – how is the subject being evaluated? – refers to methods employed in the evaluation. IAs have been studied from the angle of different disciplines (e.g. legal, public administration, or natural sciences). This thesis analysed IAs from a policy sciences perspective, focusing on their process dimension and the actors, institutions, and non-institutional factors shaping these processes. Four comparative and detailed case studies of the IA processes on the transposition of two EU Directives (waste and biofuels) in the UK/England and Germany were carried out (see section 6). The four comparative IA processes were analysed using a process tracing analysis (see section 3). The research design outlined above is summarised in Figure 6.

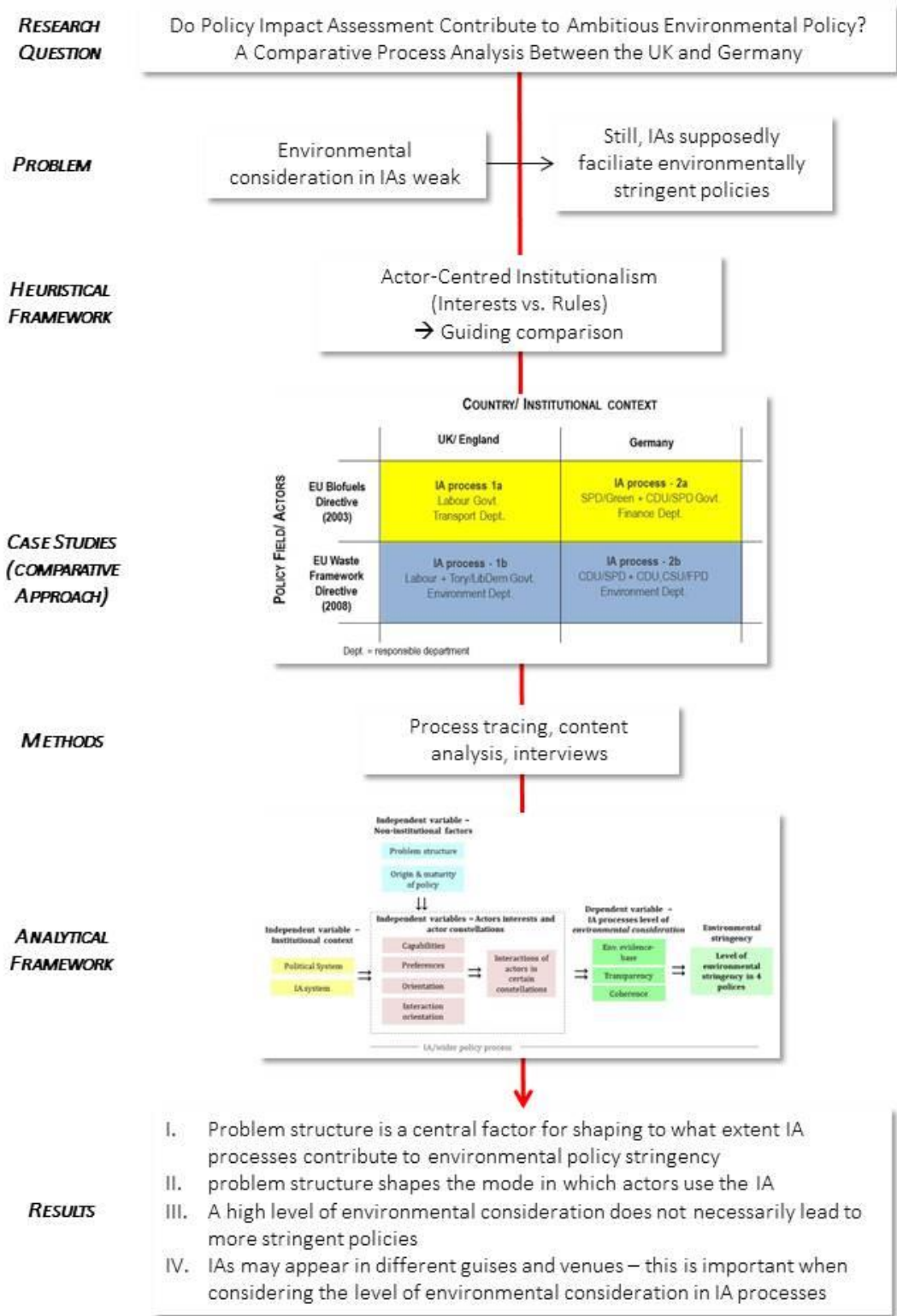


Figure 6: Research design of the thesis

5 THE INSTITUTIONAL CONTEXTS OF THE IA PROCESSES

The UK/England and Germany are similar with respect to their general political, administrative and economic capacities (cf. section 3.1 for the justification of the selection of countries). They however provide contrasting institutional contexts in terms of their political and administrative systems. These were compared in the following sections, including the processes of law-making, the IA procedures and practice.

The literature regarding the IA systems extends mostly to the year 2010. The author is aware of more recent developments in the IA practice in both jurisdiction (see for instance the debate on the integration of an ‘innovation check’ into the German IA procedure, (Deutscher Bundestag 2017)). These were not included in this section in order to correspond to the time span of the case studies (the policies in the two waste case studies were adopted in 2011 or 2012 respectively).

5.1 Policy-Making in Great Britain

5.1.1 Political System

The British public policy system is referred to as the Westminster model. Its most important feature is the majority’s party control over the legislative and executive. It is a highly centralised system (Greenwood and Wilson 1989). The clear party political majority ratios, the distinct ‘collective responsibility’ of the parliamentary groups, the control of the parliamentary agenda and schedule of the House of Commons (HoC), and the lack of influential veto players shape British policy processes. Parties can implement their government agendas as long as they are supported by the parliament (Ismayr 2008). Political processes are hence much more determined by informal selection processes of the political leaders and by the general elections (ibid., 64ff cit. Stroe 2003). Cabinet decisions can only be prevented by backbenchers¹⁹ who may threaten the Cabinet to not vote with the party. The House of Lords cannot prevent a proposal from passing the parliament but can blockade it for 12 months and demand changes. This hardly ever happens in practice however. A bill enters into force after being confirmed by the queen (Royal Assent). Other intervening factors might be interest groups, the media, or public opinion (Krumm and Noetzel 2006).

Despite recent developments towards devolution²⁰, Britain’s political system has traditionally been highly centralised, fundamental decisions are taken at Whitehall (Greenwood et al. 2002). The dominance of the Prime Minister (particularly driven with Tony Blair’s terms in office) is a

¹⁹ MPs with no (paid) government function

²⁰ The devolution process began in 1999. The UK is slowly transforming from a unitary state to a more decentralised system of government, i.e. the transfer of power from central government to mainly regional assemblies (Scotland, Wales, Northern Ireland, and England) but also local authorities (Krumm and Noetzel 2006, 237).

key principle. His/her powers have steadily increased to that extent that it has also been referred to as “prime ministerial government” (Dorey 2005, 51).

Another significant development has been the growing role of courts and judicial reviews in government processes. Individuals may challenge the decisions of primarily public bodies on the ground that these have not properly followed procedures or reached a decision that is unreasonable. Some central departments get challenged more often than others, such as Defra (Environment Ministry) or the Department for Transport (DfT) (Budge et al. 1998, 265ff).

As set out above interest groups (business organisations and trade associations, NGOs) have been increasingly incorporated into policy development and policy delivery and services (Richards and Smith 2002). Under the Labour government consultations significantly increased and linkages with consultees were tightened. Consultees are involved at a much earlier stage, even when options and ideas about the actual implementation of a policy are not elaborated far. Under Labour voluntary organisations were embraced because they had “been briefing them for the last eighteen years”. Since Labour government has become more established and embraced other sources of policy advice the influence of pressure groups and NGOs has faded (ibid., 181).

Government departments have also established close links with organised interests or policy communities. With them they are engaged in a steady process of consultation and negotiation. Against this background policy officials tend to consider only a limited set of options when faced with a policy problem. This has often limited the scope for radical policy change even further. The outcome of this constellation being incremental policy making in Britain is the norm rather than policy change (Dorey 2005).

In contrast to Germany and continental Europe however, Great Britain has no strong neo-corporatist setting²¹; the structure of British associations and unions has been described as pluralist, characterised by voluntary membership in organisations, and absence of state support and approval, and no monopoly for representation. Associations are also politically less influential because of the stronger divide between the political sphere of the parliament and cabinet and the rather apolitical civil servants which notably attempt to anticipate the Prime Minister’s expectations while recurring to external expertise and deliberation. Despite that, traditionally, the unions, the Confederation of British Industries, human rights and environmental groups have been strong in the British political system while social interest groups primarily have to rely on the activism of their members (Krumm and Noetzel 2006).

Opportunities for the HoC and the interested public to influence policy drafts were expanded remarkably as was the level of information. The draft bill is being published together with explanatory documents and the evidence base. At the same time policy making is becoming more informal and “the record of how the decision was made may well be less comprehensive than previously” (Waller et al. 2009, 33).

²¹ Cooperation between state institutions and interest groups in the preparation and implementation of policy decisions

5.1.2 Interaction Patterns

The Cabinet Office, headed by the Premier Minister, is the central institution of government co-ordinating the work across Whitehall and government as a whole though (Budge et al. 1998). This can be traced back to “joint-up” government which was introduced by Blair government as a cure to the generally felt loss to control and coordinate policy across departments. This model is based on strong central control from the Prime Minister’s and the Cabinet Office (Richards and Smith 2002). Accordingly, line departments’ autonomy, such as Defra, is less distinct than in Germany. However, the Finance Department always has to be consulted which frequently influences policy decisions, due to its role as provider as finance (Smith et al. 1993).

Ministers are rather policy generalists who are often relocated between departments. Relative to Germany, this considerably reduces their influence in policy-making. Different to federal systems, new ministers usually do not have any experience in government and have to get acquainted quickly to departments and practice (Krumm and Noetzel 2006). More than in other Western countries, British Ministers depend heavily on civil servants’ policy and administrative advice and experience (Budge et al. 1998).

In principle, administrative structures and procedures have a low level of institutionalisation. Ministers and civil servants way of proceeding is less determined by parliamentary regulations than by orders in council or regulative codes (Krumm and Noetzel 2006). To a large extent policy making in Whitehall departments is driven by “custom and practice” rather than by formal rules. Much of the policy-making process and inter-departmental contacts work through informal networks (Richards and Smith 2002). The British administration is circumscribed as one with a flexible negotiation culture (Jann 2000) and a preference for pragmatic solutions (Thedieck 2007).

Civil servants conceive themselves rather as generalists than specialists, partly due to a higher degree of internal mobility than in the German ministerial administration. Moreover, civil servants have to change their area of expertise every three years in order to not accumulate too much insider or outsider knowledge (Krumm and Noetzel 2006). In contrast to the legalistic German administration, strategic knowledge is preferred over detailed procedural knowledge in policy development (Knill 2003). The politically neutral civil servant has been on decline and replaced by officials required to act as policy managers. Human resource management in UK government rather compares to structures in industry and businesses which hires staff on demand, with different qualifications, and no fixed expectations regarding career or salary expectations (Krumm and Noetzel 2006).

5.2 The UK IA System

5.2.1 Institutionalisation

The UK was among the first countries to introduce IA in the 1980s. In this setting the UK IA system has achieved a high degree of institutionalisation. IA implementation is good compared to other EU jurisdictions, including Germany. In its 2010 UK better regulation review the OECD approved the UK a significant and ground breaking progress in its IA system since 2002. “Major efforts are being made to integrate impact assessment into the policy making process. Impressive institutional and methodological support is in place” (OECD 2010c, 14).

The 1998 Labour government revitalised the concern of the role of evidence in policy-making as part of Labour's shift to a more non-ideological or 'what-works' policy-making approach (Nutley et al. 2002, Dorey 2005, 44). In 2004, Labour integrated the sectoral forms of appraisal into one procedure. The existing compliance-cost focussed IA procedure was replaced; departments should consider the wider costs and benefits of new regulations – then covering also environmental and sustainability issues – as well as consult and inform stakeholders and the broader public (NAO 2005).

Despite the broad focus of the IA system, the process is clearly cost-benefit focused (HMT 2003) and market liberalism in the form of Better Regulation and deregulation continues to be the main paradigm in the UK that frames the UK IA process (Adelle 2010). In this context IA is primarily used to establish whether regulation is necessary and a policy's implications for reducing and simplifying the regulatory burden (Hertin 2006).

A further indicator for the IA system's institutionalisation is the formalisation through IA templates in which IA findings are to be summarised (e.g. a summary of the analysis and evidence as the key numbers of the cost-benefit analysis). The two-page summary sheets are usually followed by more extensive complementary evidence, often including further explanatory information (BEIS 2011).

In addition, RIA coverage is wide in that all legislative initiatives, primary and secondary legislation, executive orders, guidelines, self-regulations, and EU legislation are subject of an appraisal (BIS 2010b, NAO 2010). Whilst the application of IA to EU regulations is noteworthy relative to some other EU countries as noted by the OECD, the framework of well-established institutional structures, capacities to manage EU processes may need reinforcement (OECD 2010c). A limited influence of IAs was found for proposals originating from the EU, particularly because IA processes were not started early enough (NAO 2005, 2010). From 2010 on, an IA has been compulsory for legislation agreed at EU level to explore the best options for the UK (Adelle 2010).

5.2.2 Provisions for Environmental Consideration

In principle, the UK IA system is modularised in that impact areas are reflected independently from each other in the assessment in Specific Impact Tests (SITs). An IA should consider all substantial effects on the economy, as well as the wider social and environmental effects. The focus of the procedure is however on the implications for businesses and the economy.

Ten SITs were developed for a range of impact areas, such as the Small Firms Impact Test. SITs with environmental relevance include the Greenhouse Gas Impact Assessments, in responsibility of the Department of Energy and Climate Change (DECC²²). Since 2003, Greenhouse Gas Impact Assessments represent an integral but extra part of assessing environmental impacts (BIS 2010b). The Wider Environmental Impact Test covers all environmental impacts (apart from carbon effects), such as air quality, flood risks, or biodiversity. The Sustainability Impact Test mainly looks at intergenerational aspects. Except from the GHG test, it is left to the discretion of policy officials to conduct the environmentally and sustainability relevant SITs (BIS 2010c).

²² Dissolved in 2016

The voluntary nature of SITs, the prevailing proportionality principle, and IAs' strong roots in the reduction of regulatory barriers and costs to businesses are related to the mostly insufficient incorporation of environmental impacts in IAs (Adelle 2010). Hertin (2004) also found the wider impacts in IAs often addressed only in 'sketchy form'. Russel and Jordan (2006) ascribed this to a lack of resources and expertise, and policy officers being sceptical about the added value of IA processes, and reservations against cost-benefit analysis.

The quality of sample IAs' scrutinized by the National Audit Office varied widely (NAO 2007, 2010). From the IAs considered by the NAO only 32% assessed environmental impacts, while 78% regarded economic and 58% social issues (NAO 2005, 2009, 2010).

Parliament's Environmental Audit Committee recommended using IA guidance to "emphasise the importance of consulting on environmental issues, given the support and insight this could provide to officials struggling to assess intangible environmental impacts." (EAC 2007)

5.2.3 Guidance and Methods

Comprehensive guidance on IA procedures and methods has been developed. The HMT's Green Book on Appraisal and Evaluation (HMT 2003) covers the IA process in general as well as cost and benefit related aspects. IA Toolkits with detailed guidelines for the IA process and doing IAs have been provided under Labour and the Tory-Liberal Democrats governments, including descriptions on how to conduct CBAs, explaining the SITs (BIS 2010a), or where to find additional departmental guidance (BIS 2010c). The webpages of the ministries responsible for the single SITs usually contain further information on the relevant impact tests with more detailed guidance and contacts (OECD 2010c). Individual departments additionally produce internal IA guidance for their staff (NAO 2010). Support can be provided in the form of basic checklists, spreadsheets, or tools, such as the carbon appraisal tool, made available by DECC. This tool is excel-based and provides a formalized structure to value changes in GHG emissions from policy intervention (OECD 2010c). Defra for instance provides further information on the consideration of environmental impacts (e.g. eftec 2009).

Central for the representation is the economic analysis in form of the CBA, in which the period under consideration usually is ten years. If the appraisal includes non-monetised impacts (e.g. environmental impacts), these should be compared by means of multi-criteria analysis (HMT 2003). For policies with potentially significant and wide ranging environmental impacts and significant effects on economic assets, an ecosystem services approach is recommended (BIS 2010a). The Environmental Audit Committee criticised the strong focus of IAs' on CBA and the potential limitations this puts on the consideration of (non-monetised) environmental issues. It therefore suggested adding a requirement for each IA to contain a null response (explaining when environmental issues were considered but not included in the evidence sheets because considered as not relevant). Another recommendation targeted the increased development of methods for environmental assessment in cooperation with private and academic actors (EAC 2007).

5.2.4 Transparency

IA reports are disclosed during the policy process and after adoption of the policy. The IA report is published alongside the documents of the wider consultation process, so together with the

final IA report it is published four (since 2010) or three times respectively (named Initial, Partial and Final/Full RIAs (Adelle 2010). In April 2010, the IA procedure was changed, in that a Post Implementation Review (PIR) was required to examine the actual impact of policies to show what works, what could be improved, and how others can learn from the approaches used (BIS 2010a). The final IAs are published and stored in an online library, after policy proposals have entered into force (see www.legislation.gov.uk/search/impacts).

The IA process should run in parallel to the broader stages of the policy-making cycle, with the relevant stages being (BIS 2010b):

- Development stage: includes definition of the policy problem, gathering of evidence, establishing the rationale for Government intervention, and identification of policy objectives;
- Options stage – first IA draft: it requires an initial (e.g. qualitative) estimate of costs and benefits associated with the different options”, for the economy, social and environmental issues; options should be tested through pre-consultation;
- Consultation stage: With the formal public consultation, the IA should provide an adequate quantification of costs and benefits of the refined options; the IA should be published for consultation and comment;
- final proposal stage: costs and benefits of the preferred option (the actual policy proposal) should be established; the IA should be published alongside Bills and Statutory Instruments;
- Review stage: policy officials should examine the actual costs and benefits of the policy and whether it has achieved its desired effects; again the IA should be published.

A report from 2005 found that IAs were frequently produced at the end of the policy making process when all the key decisions had been taken, rather than before when they could inform the decision-making process (NAO 2005). It was also found that IA normally occurs as a one-off event late on in the policy design process. They stated that “in almost all cases studied, the desk officers whose job it is to produce them perceive IAs to be an administrative ‘add-on’, or at best an opportunity to justify a policy line that has already been decided”. This tends to limit the number of options which are considered and “many are not in fact ‘real’ options at all but somewhat artificial constructions created to complete the assessment process (Hertin 2006).

5.2.5 Provisions for Involvement

For guidance on consultations, the IA toolkit refers to the HMG’s 2008 Code of Practice on Consultation. It sets out seven criteria to consider during consultation processes and to be reproduced in consultation documents (such as ‘when to consult’ or ‘clarity of scope and impact’) (HMG 2008). In principle though, it is up to the lead ministry to decide on the scope and timing of the involvement (Ismayr 2008). As for the wider policy process, formal and informal consultations are an integral part of the IA procedure. The Consultation Code demands the involvement of relevant actors and the wider public throughout the process, with a three months minimum period for written consultation at least once during policy formulation (Adelle 2010).

In its 2005-2006 evaluation report the NAO (2006) found consultation to be one of the strengths in the IA process with most consultations performing well. The extension of the consultation

process to the very early stages of the policy development process is considered as one of the most significant innovations during the last years (Ismayr 2008). Russel and Turnpenny (2009) found that many of the consultation processes in their sample IAs appeared to be integrated into the IA and/or policy processes and in a considerable number of cases solicited responses from a broad number of actors (e.g. business, trade unions, environmental groups, voluntary organisations). In addition, informal consultation with key groups tends to run alongside the formal consultation process (Hertin et al. 2007). Moreover, a considerable number of the consultations were rather narrow, with the 'main players' principally being industry rather than non-governmental organisations and the voluntary sector. "[T]hat is, the substance of such consultation was likely to be biased towards a narrow range of sectoral views." (Russel and Turnpenny 2009, 346f) They found that this pattern was not particular to specific sectors and examples of good and bad consultation could be seen in most of the departments sampled. Despite this, consultation is often identified as a vital mechanism to identify and resolve trade-offs through debate and deliberation and to thus pursue a more joined-up and inclusive approach to policy making (Russel and Turnpenny 2009). In addition to directly influencing policy preparation, IAs fulfil an important role for communication in line with transparency requirements and for information of actors in the process, such as members of parliament or businesses (NAO 2005).

Weaknesses in consultation practice in the UK were observed in involving the public in (mainly web-based) consultations because "many citizens are simply not aware of IA or of the opportunities to be consulted" (Hertin 2006, 18). The author also found that inter-departmental consultation was weaker than with external groups, but this depended on the case. In addition, the publication of stakeholder responses, which should be listed in the published IA, is apparently not always done.

5.2.6 Quality Control Mechanisms

At several points during the IA process control mechanisms come into effect, directly during the process and as ex-post evaluations. A Better Regulation Unit within each department coordinates IAs and provides assistance to teams involved in regulation. Next, various units have been responsible for overseeing overall IA quality. Under the Better Regulation Executive (BRE) teams were set up in all Whitehall departments to promote the use of IAs and provide quality control. These teams usually had the responsibility for coordinating the Administrative Burdens Reduction initiative and departmental Simplification Plans (Adelle 2010). In 2009 the Regulatory Policy Committee²³ (RPC) was established as an external watchdog, replacing similar units such as previous government's Better Regulation Executive. "The RPC is the first body in the UK to provide an independent assessment of regulatory changes at the time government regulations are being made." (Gibbons and Parker 2012, 259) The review of the evidence by external panels of key stakeholders or professional experts also count as approval mechanisms (BIS 2010b). The RPC publishes an opinion on (almost) all IAs, using a traffic light system. The NAO in contrast carries out ex-post quality control. It has been evaluating yearly IA practice across Whitehall departments since 2002 (NAO 2005).

²³ Originally the RPC had five members drawn from business, consumer, trade unions and trade associations and one further member with expertise in economics (Gibbons and Parker 2012).

Another incentive for high quality IAs is ministerial declaration, which was strengthened under Labour from 2007 on. The responsible minister had to sign off a declaration that the IA represented a responsible view on the likely costs and benefits, and impacts of the main options. Again at the final proposal stage, he or she would have to sign a declaration with the same indications as above, and additionally that they had read the IA and the benefits would justify the costs (BIS 2010b). The renewed IA process (since April 2010) again strengthened ministerial declaration and the role for Chief Economists who had to sign off that economic analysis is robust (Adelle 2010). The NAO reports that the review by departments' Chief Economists was widely considered to add value to the internal scrutiny (NAO 2010).

5.3 Policy-Making in Germany

5.3.1 Political System

In stark contrast to the Westminster model, the German political system represents a majority competitive democracy with diverse veto points. It is characterised by divided government. Responsibilities and power are dispersed in a multi-level government setting from EU to local authorities. Typical are coalition governments, the strong position of the Federal Constitutional Court, the federal states and the specific role of the Bundesrat as second chamber which exists next to the competitive party system (Ismayr 2008). In addition, the set-up is shaped by a corporate system with interest organisations having granted decision rights (e.g. tariff autonomy). Policy results are said to be rather the result of negotiation than majorities, referred to as negotiation democracy (Rudzio 2006). It is different at EU level. The federal government remains the central collective actor in the German European policy. In contrast to the national level, only the leading ministry is involved in policy negotiations at EU level. Mechanisms of checks and balances, like the coordination of policies in the cabinet, are absent (Beichelt 2009).

In recent years, cooperation between federal and state level has shifted to an intensified involvement of the Bundesländer at the general level and multiple forms of federal-state institutions. The two most common forms of cooperation include the Bundesrat and Federal-State Commissions. The numerous commissions function below the ministerial level and work on the development of legislation and ordinances and in coordination for legislative implementation. Advantages of federalism like a more localised implementation of legislative proposals are faced with slow and little effective negotiation procedures on the side of disadvantages. Majority decisions have to give way oftentimes to technically inappropriate compromises; party-political oppositions often impede effective legislative implementation (Rudzio 2006).

Next to the chancellor, the minister of finance and the minister of the interior have a strong position in the cabinet and can potentially object a proposal which usually has a preventive effect (Ismayr 2008). The draft bill further has to be forwarded to the Bundesrat (which has six weeks to issue a statement) after decision-making among members of the cabinet. Usually, the Bundesrat makes a detailed statement and asks for changes in the bill, in many cases though only in form of administrative terms. Strongly dependent on the party political considerations, the Bundesländer decide on their vote in the plenum of the Bundesrat. The party political constellation in the Bundesrat strongly influences the opposition parties' opportunities for bringing in their

ideas into the draft bill, also with view to the succeeding process in the Bundestag (Ismayr 2008).

The draft bill is then forwarded to the Bundestag. Here they are deliberated in three readings. Usually several technical committees are concerned with the discussion of a proposal, with the ministerially corresponding one mostly as the lead committee. This is relevant since the final decision resides with the lead committee. Two thirds of all proposals receive more or less fundamental changes. The suggestions of the opposition parties usually have no chance of being considered. However, proposals of the government are often dealt with together with proposals of the opposition which facilitates the debate about alternatives also in the committees and the plenum. After approval of the Bundestag, the Bundesrat has a second opportunity to veto the bill. In that case a mediation committee consisting of representatives of the Bundestag and the Bundesrat will negotiate the bill anew. Effectively only few bills failed at this stage. But again this is likely to have an indirect effect on the law-making procedure (Ismayr 2008).

In contrast to Britain, societal interests are also incorporated formally in the development of legislation. These co-ruling forms of policy development have also been titled the “rule of associations”. Involvement of interest groups is regulated in the Joint Rules of Procedure of the Federal Ministries (GGO, §47). It sets out that the draft proposal should be forwarded possibly at an early stage to the Laender, umbrella organisations of the central local level associations as well as central and general associations, and expert communities, if they are affected by it. These participation provisions shall help to achieve proposals which have the support of associations before they are forwarded to the government coalition and to the Bundestag. Recent critique has however rather targeted untransparent, uncontrollable, and informal forms of lobbying, suggesting that these prevent effective reforms of certain policies fields (Marschall 2011).

In 2009 about 5.000 associations pursuing political interests were registered, the most important ones being economic and labour related associations (inter alia the Federation of German Industries as umbrella organisation of German industry) (Ismayr 2008). Research on lobbying mechanisms has again suggested that lobbying in internal and more cooperative structures is more effective than seeking to influence public opinion (Marschall 2011).

5.3.2 Interaction Patterns

The legal structure of the German government can be described based on the chancellor, cabinet, and departmental principle (Rudzio 2006, 239ff). These are set out and detailed in the Joint Rules of Procedure of the Federal Ministries (GGO) (Bundesregierung 2009). The GGO sets out the rules for ministries’ cooperation and their cooperation with the first and second chamber and the federal government, business operations with external actors, as well as involvement in the policy-making procedure.

The chancellor has several competences comprising inter alia the decision over ministries’ competences. The chancellor also has the policy-making power. This allows the chancellor to determine the policy lines which cannot be overthrown by a majority decision of the cabinet members. The departmental principle claims that ministers run and are responsible for the portfolio of their ministry, so the chancellor cannot interfere past the minister (Rudzio 2006). Relative to the UK, this grants considerable decision-making autonomy to line departments. And, different to the UK, the appointment of cabinets rather remains stable and ministers are not changed as

often, again increasing their potential to enforce their own agenda.

Thereby German administrative culture is known as being legalistic (Thedieck 2007), with inter-departmental exchange processes having been termed as ‘negative coordination’. The departmental principle facilitates competition among line ministries which results in communication and interaction structures characterised by delimitation and ‘turf wars’ in which coordination and joint problem solving is difficult. Strong horizontal fragmentation of administrative policy fields and units (Knill 2001) structure the course of negotiations. Closed internal careers are typical as well as low degree of internal mobility (ibid.).

In inter-departmental coordination the Environment Ministry is disadvantaged over larger departments, such as the Finance or Agricultural Department. In 2010, the former employed about 1600 or 600 civil servants respectively, while the Environment Ministry had about 400 (Deutscher Bundestag 2011h). The Federal Environment Agency provides expertise as required by the Environment Department and other ministries for short-term needs (such as for answering parliamentary requests), and for mid- to longer-term. To do so, it carries out in-house research, and to a larger extent it commissions external research (Böcher and Töller 2012).

5.4 The German IA System

5.4.1 Institutionalisation

An IA procedure was introduced as a mandatory instrument in 2000, in the context of the government’s “Modern state – modern administration” programme. Its main objectives were increasing the acceptance and effectiveness of policies, thereby improving the quality of regulation and minimising the density of regulations (Böhret and Konzendorf 2000). The IA is implemented in the Joint Rules of Procedure (in § 44 I, 45 GGO) of the federal ministries. As such it is designed as an integral part of the policy process. IA is intended to help analyse and assess the potential intended and unintended effects of regulations and to rationalise the policy-decision process (ibid., 6). IA applies only to laws and regulations with substantial impacts and not to other policy instruments. For legislation of EU origin the same process basically applies (Bundesregierung 2006b).

Formalised spreadsheets support the individual steps of the IA. The results of the IA should be integrated in the “justification section” of the explanatory memorandum to the regulation (BMI 2009a). The lead ministries have no formal budget allocated for IA practice. Since 2010 each department has a formally appointed IA officer. So far, they have not played a key role in the IA processes (Weiland 2010).

Bills have a formal structure, consisting of the proposal text, the policy’s rationale, and a preceding overview. The rationale part has to include the policy’s impact (referring to the IA detailed in § 44 GGO, see below), the circumstances of the policy and the “sources of knowledge” on which they are based, if alternatives exist to solve the problem, and if the issue could have been solved by private actors (GGO, § 43). In case the National Regulatory Control Council or the federal government provides a statement it has to be part of the policy proposal (GGO, § 42). The relevance of the rationale should not be underestimated: Apart from clarifying the regulatory content they are used by authorities and courts in case of disputes of interpretation.

In its 2004 review the OECD found that Germany's IA system has remained largely comprehensive on paper but not in practice. It is far from informing policy as it could, particularly because it tends to be carried out late in the IA process. Although the OECD confirms that administrative culture has changed with regard to assessing administrative burden, this does not apply for other IA approaches. "Part of the problem may be a political and cultural reluctance to use it in a context where decision-making is very politicised from an early stage, ministries are used to acting autonomously, and key stakeholders are used to the relatively closed process of building up consensus on an issue." (OECD 2010b) In addition, strong traditions in administrative procedures and legal control mechanisms have prevented the establishment of new approaches. The German IA process has been integrated into these inappropriate institutions, without making space for new approaches (ibid.).

One of the main implementation shortcomings in the German IA process is the limited consideration of alternatives to regulation and their scrutiny, with no relevant progress made since 2004. The OECD sees this aspect as one of the key areas for improving the IA system. Moreover, a more uniform and centralised institutional IA framework, enhanced methodological support, particularly as regards quantification, increased transparency and scope are seen as the key challenging areas to improve IAs' effectiveness (ibid.).

5.4.2 Provisions for Environmental Consideration

In principle, an IA should cover all substantial effects of the regulatory proposal. It is up to the lead ministry to decide, whether a proposal will have substantial impacts, no threshold exists. Scope and depth of the IA process and the use of methods and tools are up to the ministry Weiland suggests that this lack of formalisation results from the autonomy of the ministries in the legislation process (Weiland 2010). According to the Joint Rules of Procedure the IA inter alia has to show

- the impacts on public budgets, including Länder and local budgets;
- whether impacts comply with a sustainable development;
- costs for the economy, particularly for medium enterprises;
- administrative costs for businesses (Bundesregierung 2009).

The requirement to consider impacts on a sustainable development (as modularized sustainability impact assessment, SIA) was introduced with the IA reform in 2009 (entering into force in beginning of 2010). Thereby special regard has to be paid to long-term impacts. Alternatives shall be assessed against the 21 indicators and related quantified objectives described in the strategy. Environmental indicators (with quantified targets) and management rules relate for instance to resource and climate protection, land-use, biodiversity or air quality (BMI 2009a). If a cursory analysis shows that a policy options conflicts with the strategy's indicators, a more detailed analysis of impacts should be carried out. Before 2009, the IA, although supposed to cover all substantial effects of a proposed law, focused mainly on the assessment of legal, administrative and budgetary aspects of the proposed legislation (see BMI 2000). Apart from the sustainability requirement, affected ministries can ask the responsible ministry to set out further impacts.

Although the most important impacts of a law or regulation should be assessed, IAs still focus

mainly on the legal, administrative and budgetary aspects of the proposed legislation. As a result, substantial IAs are carried out only in a minority of cases. Most of the time there is no comprehensive IA carried out at all (Weiland 2010). If an IA is conducted, it is usually limited and carried out towards the end of the legislation process. Only the Standard Cost Model is used rather at an early stage in the legislation process (Förster 2006). The explanatory memoranda usually justify the chosen regulation option rather than discussing policy alternatives. The reason for this can possibly be seen in the German administrative tradition that is reluctant to lay open internal considerations that have led to certain decisions (Weiland 2010).

5.4.3 Guidance and Methods

Generally, guidance and provision of methods to support (environmental) impact consideration is weak. In 2009 the Federal Ministry of the Interior (BMI) as IA coordinating department published the non-binding “Technical Guidance to IA” in 2009. The 22 pages document is aimed at supporting ministries in carrying out an IA as set out by the GGO (BMI 2009a). Two other manuals were issued: In 2006, the BMI also published the “Guide to Impact Assessment in the European Union” (Bundesregierung 2006b). It discusses the European Commission’s and European Parliament’s IA system and Germany’s opportunities for early involvement at EU IA level. These and other guidance are hardly used by policy officers, though (Weiland 2010).

Methodological approaches in the IA and SIA are not formalised. The IA guidelines and the spreadsheets suggest various approaches. For the development of policy options literature checks, expert interviews or creativity techniques (such as idea workshops or mind-mapping) are recommended; it is further suggested to carry out an actor analysis, for instance with a causal chain analysis. For the impact analysis a checklist with key questions with key impact areas has been provided.

For the assessment of the administrative costs the standard cost-model (SCM) has to be applied. The tool measures all informational obligations for the economy, the general public, and the administrations. The Federal Statistics Office has issued a SCM manual to support the practice of measuring administrative burdens from new policy proposals (Vorgimmler et al. 2011). With the requirements to calculate the costs (not necessarily the benefits) for public budgets and the economy, the quantification of policy implementation costs is compulsory for each IA. Carrying out a risk assessment to consider uncertainties or a sensitivity analysis as in the UK case is not advised in the guidelines (Böhmer et al. 2008). In 2013 a report commissioned by the National Regulatory Control Council examined methods for the quantification of policies’ benefits. It suggests a standardized benefits assessment in analogy to the SCM or an integrated approach, with the consideration of economic, social, and environmental impacts in one analytical framework (Tiessen et al. 2013). Ex post evaluation is mentioned only briefly in the GGO and is rarely produced, hence does not play a big role in regard to methods used.

5.4.4 Transparency

In comparison with the UK, the German IA system is non-transparent, the results of IA are rarely published (at least not in detailed reports), and disclosure is hardly formalized (Weiland 2010). For the financial impacts the underlying calculations and assumptions have to be set out (BMI 2009a).

The BMI guidelines suggest the preparation of documentary reports on the findings of the IA, but publish them is not a requirement (BMI 2009b). This makes the German IA system intransparent and hard to access for externals, particularly in comparison to the UK one. However, a summary of the impact analysis has to be provided in a two-page cover note of the legislative proposal. The section on the sustainability IA is typically only a few lines of text in the mandatory explanatory memorandum. The justification for the proposal may however include a more comprehensive analysis. However, this is not formalised. The policy drafts together with the compressed IA information are available online on the Parliament website²⁴ though not issued in the Law Gazette (Weiland 2010).

5.4.5 Involvement

A public consultation on the policy proposal is mandated in the Joint Rules. However, the IA does not play a role in this. According to the Joint Rules, the regulatory proposal is subject of the obligatory public consultation, but not the underlying analysis, although for the financial impacts the underlying calculations and assumptions have to be set out (BMI 2009a, Bundesregierung 2009).

The chancellor's office has to be informed about the consultation. For laws with particular political relevance it has to agree to the consultation. Timing, selection, and scope of the consultations are at the discretion of the lead ministry (GGO, § 45 and 47). § 50 however sets out that usually the appropriate period of time is four weeks. In case of comprehensive and legally complicated drafts an affected ministry can ask for the extension to two months. If a proposal is to be made public in the internet, this has to be agreed by the Chancellor's office and the other affected ministries.

At the stage of the ministerial draft bill, staff will seek the opinion of the relevant trade associations and also decide, if a comprehensive IA will be carried out, if work will be outsourced to consultancies, or if committees have to be established. Formally, the decision is up to the head of the department (Ismayr 2008).

The lead ministry has to involve the Laender and local authorities and give them the opportunity to make representations. For the representation of the impacts the line ministries have to be consulted. This inter-departmental coordination serves as a form of quality control in the process. However, this hardly ever happens in practice. Rather than jointly working on the analysis, the regulatory proposal is negotiated between the departments. And it is usually the policy proposal (including the cover note and the justification) that is subject to consultation rather than the IA. If the heads of departments come from different political parties of the coalition government, cooperation between the ministries is more difficult.

Consultations hardly ever take place in a formalised way (Weiland 2010). Moreover, there is no entity responsible for supervising the consultation. The discretion which is left to lead department normally results in the interests of the different ministries influencing the consultation according to their ministerial power.

Officials do not rely much on consultants to conduct IA during the formal IA process. During the

²⁴ www.bundestag.de/drs

informal assessment processes consultants are involved in the assessment process. They are given the opportunity to explain their view. Usually they are given both the chance to send in comments and to have discussions or workshops with stakeholders (Weiland 2010).

The OECD calls for stronger links between IA and consultation practice, finding departments “going their own way” and not necessarily consulting at the different stages of the IA process as required by the Joint Rules of Procedure (OECD 2010b).

5.4.6 Quality Control Mechanisms

Several IA quality control mechanisms are in place, though not as distinct as in the UK. A small coordination unit within the Ministry of the Interior is responsible for overall quality control and drafting guidelines. It has a small budget only, however (Weiland 2010).

The analyses of the administrative costs are scrutinized by the National Regulatory Control Council. Since 2010 the Parliamentary Advisory Board for Sustainable Development²⁵ reviews the application of the sustainability IAs. In practice, two politicians from the government and from the opposition parties prepare a joint opinion on the sustainability IA. The opinion is submitted to the lead committee of the policy proposal (Deutscher Bundestag 2009) which then evaluates the opinion. However, since the consideration of the Board’s statement is not binding for the lead committees, the Board can hardly demand an ‘appropriate’ consideration of its statement (Deutscher Bundestag 2011c).

In July 2011 the Bundestag was informed by the Advisory Board on the Sustainability IA practice. 306 law proposals within a period of about one year were evaluated. 212 contained statements on sustainability impacts, of which 136 contained sustainability statements which were reasonable, while in 170 statements were insufficient. For future IAs it recommended to focus on proposals which seem to be irrelevant for sustainability, requiring better justification of why the policy proposal was non-relevant with respect to sustainability issues. Those sustainability IAs containing a sustainability assessment, these oftentimes included only a very general assessment of proposals. In the future these could be enhanced through a strengthening of substantial impact considerations. It also suggested that findings of the sustainability IA should be presented en bloc in the explanatory memorandum, using the structure of the National Sustainability Strategy indicators, if a more sound analysis was carried out. Seeing sustainability IA as a means to strengthen sustainability as a Leitbild in German policy-making, it concluded that it had to intensify sensitisation of members of parliament for the sustainability IA process and assessments (Deutscher Bundestag 2011c).

²⁵ Parlamentarischer Beirat für Nachhaltige Entwicklung

6 THE FOUR CASE STUDIES

6.1 The Biofuels Directive and the Energy Taxation Directive

The “Directive on the promotion of the use of biofuels or other renewable fuels for transport” (2003/30/EC, hereafter called Biofuels Directive) was the first EU directive to comprehensively and consistently regulate the use of renewables in transport in all member states. And it was the first directive to set fixed targets for renewable transport fuels²⁶. Its central target was to make transport more climate and environmentally friendly and to promote renewable energies. Rural development and increasing security of energy supply represented further rationales for its implementation (EP and Council 2003, preamble).

When the Biofuels Directive was adopted in May 2003, only five (of the then 15) member states had significant experiences with using biofuels, “for most of the rest they were an unknown quantity” (EC 2007, 3). Their overall share in the EU market was only 0.3% (ibid). Promoting biofuels was part of the suggested sustainability measures in the 2001 Gothenburg Strategy and formed part of the “package of measures needed to comply with the Kyoto Protocol” (EP and Council 2003, introduction). The directive gave right to selling blended biodiesel (B5) without notification. The argument for blending biofuels was its potentially cost reducing effects in the distribution system in the EU (Biofuels Directive, preamble, paragraph 22). The European Commission did not conduct an analysis of the potential impacts of the Biofuels Directive because the requirement for IAs only started in 2003 (EC 2002). Central targets of the Biofuels Directive were:

- Biofuels targets: To ensure that a minimum amount of biofuels was achieved across the EU, indicative (not mandatory) targets were set in the directive: 2% as an interim target – on the basis of their energy content – of all petrol and diesel transport to be achieved by 2005, and 5.75% by 2010. This step-by-step approach was justified by the European Commission with the few experiences with biofuels to that end. Member states would need to report to the EU however and justify why measures would deviate from EU targets.
- Sustainability obligations: Since the extensive promotion of biofuels for transport was new territory, the directive contained passages demanding the monitoring of the environmental impacts of biofuels usage. Next to considering biofuels’ cost-effectiveness and competitiveness, the reports should cover the following: Environmental impacts of a further increase of the share of biofuels; life-cycle assessments of biofuels; sustainability of biofuel feedstock, particularly land-use and

²⁶ Three types of biofuels relevant in quantity exist: biodiesel (in Europe mostly made from rape oil); bioethanol (mostly produced from crops or sugar beet), and pure vegetable oil, particularly relevant in Germany (mostly based on rape oil, though in contrast to biodiesel, without requiring a conversion process). This type of oil was mostly used for vehicles in agriculture and forestry. Biofuels to Liquid (BtL) belong to the so called second generation biofuels. The technology for their production was (and is) not matured when the EU directive was adopted (DBFZ 2012).

intensity of cultivation; assessments of the use of biofuels in terms of their climate effects, particularly their impact on GHG reduction. Member states were suggested to give priority to the promotion of those fuels showing a very good cost-effective environmental balance (EC 2007).

Member states' biofuels policy was also facilitated by the "Directive restructuring the Community framework for the taxation of energy products and electricity" (2003/96/EC, hereafter called the Energy Taxation Directive) (Council of the European Union 2003). It was implemented in October 2003 and allowed all member states to exempt biofuels from the mineral oil tax (hydrocarbon) tax. Accordingly, member states used both opportunities provided by the directives to regulate biofuels policy. Germany and the UK both used duty incentives enabled by the Energy Taxation Directive and biofuels quota enabled by the Biofuels Directive to set biofuels targets.

Whether biofuels are a measure for "greening" the transport sector was (and still is) highly contested (e.g. the issue of land use changes in third countries) and was a central conflict in both IA processes.

In the UK the 2007 Renewable Transport Fuel Obligation (RTFO) would mainly implement the Biofuels Directive. Fuel duties were also used, but the UK Hydrocarbon Oils Duties in itself played no central role. In Germany the 2003 Mineral Oil Tax Act²⁷ and subsequently the 2006 Energy Tax Act²⁸ were first used to promote biofuels and later co-regulated with the 2006 Biofuels Quota Act²⁹.

6.2 The IA Process on the UK 2007 Renewable Transport Fuel Obligation

6.2.1 Introduction to the Policy field – Biofuels Policy and Production in the UK

In a global and EU comparison, the UK has had historically low levels of renewable energy (OECD and IEA 2007). Comparing the level of national biofuel targets and the progress on biofuel share between 2003 and 2005 of all EU25 member states the UK ranked last in both categories (EC 2007, 15ff). While rural development opportunities³⁰ provided an incentive in the territorial EU countries, it provided a weak motive for the UK. The limited economic relevance of the UK agriculture (Ismayr 2008, 299), and limited availability of arable land were among the reasons for the UK's hesitation towards the biofuels policy. Apart from that a facilitating factor of biofuels development was the reform of the Common Agricultural Policy. Under its 2003 agreement a high share of energy crops was grown on set-aside land, because farmers could then still receive set-aside payments (45 €/hectare) when energy crops were grown (EAC 2003). In 2002, 79,000 hectares of oilseed rape were produced in the UK, and roughly 50,000 hectares of that on set-aside land (Statista 2015).

²⁷ Mineralölsteuergesetz

²⁸ Energiesteuergesetz

²⁹ Biokraftstoffquotengesetz

³⁰ as one of the objectives for implementing the Biofuels Directive (cf. EP and Council 2003, preamble)

There was a lot of confusion in the early 2000s in how far biofuels could play a role in the UK transport sector (Interview No. 1, 2014). A 20 pence/litre duty incentive for biodiesel was introduced from July 2002 on. This resulted in a rapid increase of biodiesel, of which most was based on waste vegetable oil as the cheapest option for producing biodiesel. The goal was to cut carbon emissions but the road to that goal was not clear (EAC 2003).

After its second win in 2001 and two months before the Biofuels Directive was adopted, the Labour government published its “long-awaited” (BBC 2009) Energy White Paper which put forward a long-term CO₂ emission reduction target of 60% by 2050. Its focus in the transport sector was primarily on hybrid, low-carbon vehicles. Despite the foreseeable adoption of the Biofuels Directive and despite forecasts showing that the GHG emissions of the UK transport sector were to increase significantly, it had little to say on reduction of carbon emissions from transport (ENDS 2003c). It simply set out that fuels made from biomass “represent an important potential route for achieving the goal of zero-carbon transport. [...] We are [...] interested in supporting the development of bioethanol and biodiesel production from biomass [...]. These can potentially deliver bigger carbon savings and wider environmental, farming and rural employment benefits.”

The House of Commons (HoC) undertook a first inquiry on biofuels because of the adoption of the Biofuels Directive and the Government’s Energy White Paper. Moreover, the responsible HoC Environment, Food and Rural Affairs Select Committee (July 2003-March 2004) was dissatisfied with government’s approach to biofuels and the duty rebates which would not be sufficient to achieve the 5.75% biofuels target (EAC 2003). This inquiry was the first out of two and its objective was to clarify the wider sustainability impacts of increasing the share of biofuels in transport and the goals government were pursuing with its biofuels policy (reducing GHG emissions, boosting rural economy, or improve fuel security). The committee supported increased biofuels use, despite not being the most effective means to reduce GHG emissions from transport. Other measures were important too, such as engine efficiency or managing the demand for road transport. And the committee was particularly concerned with biofuels impacts on biodiversity in the UK and abroad. It cited evidence which provided support to both negative (Glastra et al. 2002) and reconciling impacts. The Royal Society for the Protection of Birds was quoted with its concern that the set-aside lands which would be preferred for crop cultivation had so far benefited the UK biodiversity, particularly for wintering and breeding birds. The potential carbon savings of biofuels use were acknowledged citing a report carried out by researchers from the Sheffield Hallam University (Elsayed et al. 2003, see below). They had found that net savings of 71% of CO₂ emissions were realizable with biodiesel and 70% with bioethanol.

In the context of the Energy White Paper several assessments were carried out by the relevant ministries. The studies in which the basic conflicts were already laid out would provide central reference points and assessment venues throughout the RTFO process. The responsible Department for Transport (DfT) for instance commissioned a study to inform the Energy White Paper which looked on the effects of a large-scale introduction of hydrogen renewables and biofuels³¹. It was set to examine “the optimal role for transport fuels in the future energy mix from an environmental perspective.” (Eyre et al. 2002, 4) and was based on well-to-wheel analyses to consid-

³¹ Eyre et al. on behalf of DfT – Fuelling Road Transport Implications for Energy Policy (November 2002)

er emissions from vehicles as well as fuel production. For biofuels the authors only saw a niche role to play in the short to medium term but to never provide for large shares of the UK road transport. They moreover found substantial imports of biofuel feedstock from other EU members or oversea countries such as Brazil not unconceivable. With respect to the carbon benefits of “biomass-derived fuels” the authors noted: “[...] the carbon benefits of biodiesel and bioethanol are much less than from using a similar area of land for woody biomass for energy. Furthermore, there are also significant additional disbenefits from nitrous oxide emissions from soils which adversely affect the greenhouse gas balance of annual crops, but which have not been quantified here.” (Eyre et al. 2002, 47) They also saw potentially important impacts from all types of energy crops, such as impacts on the landscape or biodiversity.

A follow up study commissioned by DfT informed the Energy White Paper assessment by modelling “aggressive” and long-term biofuels (biodiesel/ethanol/methane and hydrogen) penetration scenarios and their energy and CO₂ implications³². The scenarios described the impacts of a large-scale move towards biofuels introduction. Objectives of the analysis were 1) to estimate energy requirements for and GHG reduction implications of operating UK transport with biofuels and 2) to estimate the potential for domestic production of biofuels. The modelling showed that for slow biofuel uptake the UK would be able to meet its own biofuel needs from domestic sources to 2020. Under rapid biofuel uptake a small share of biofuels would need to be covered from imports from around 2020. For all scenarios, it applied that imports were required beyond 2020 since efficiency gains in conversion processes could not make up for the growth in demand and limited UK biofuel feedstocks. With regard to GHG emissions the authors concluded that under the assumptions made, biofuels could lead to substantial GHG emissions as long as supplied from UK biomass feedstock. For imports emissions “would depend on the emission balances of the imported fuels”.

The above demonstrates that a robust evidence-base on biofuels was not yet established. Studies on biofuels’ carbon balances were numerous, though showing very different figures depending on the feedstock considered (e.g. biodiesel or ethanol plants), production processes and chains considered and calculation methodologies applied. As one interviewee put it:

“Back in 2003 there were big arguments about how much GHG biofuels really saved; this has not really changed, except that at that time people didn’t understand why different scientific studies were producing different results.” (Interview No. 1, 2014)

The Department of Trade and Industry (DTI) study “Carbon and Energy Balances for a Range of Biofuels Options”³³ demonstrated this “confusion” exemplarily. Its objective was to “produce a set of baseline energy and carbon balances for [...] transport fuel production systems based on biomass feedstocks” (e.g. oilseed rape, recycled vegetable oil) (executive summary). The report

³² Hart, D., et al. (2003). Liquid biofuels and hydrogen from renewable resources in the UK to 2050: a technical analysis. An assessment of the implications of achieving ultra-low carbon road transport. E4tech (UK) Ltd., Study carried out for the UK Department for Transport, December 2003.

³³ Elsayed, M. A. et al. (2003). Carbon and Energy Balances for a Range of Biofuels Options. Sheffield Hallam University on behalf of DTI, March 2003.

was primarily based on a systematic review of existing literature. In total, 43 mostly life-cycle assessment studies were examined. The study concluded that all biofuel technologies assessed would offer – with varying degrees – energy and carbon savings compared to fossil fuels.

DfT further approached the Energy White paper assessments and the transposition of the Biofuels Directive by facilitating a stakeholder and expert consultation in support of its own internal work from early on. A first stakeholder workshop organised, was attended by 35 representatives from agricultural and forestry organisations, processors, energy industries, rural development and environmental agencies and NGOs. It resulted in a report which informed the initial IA on UK biofuels policy (IEEP 2004)³⁴. The involvement of stakeholders and experts served to discuss the environmental and wider rural impacts of *domestic* biofuels production in the medium and longer term. Stakeholders and experts acknowledged impacts in third countries but they were not in the exercise's scope. Focus were direct environmental impacts from energy crops and changes in cropping patterns and systems. Consideration was moreover given to employment opportunities, agricultural aspects and wider rural development issues. The consultation showed that there was wide support for biofuels. It was seen that a modest expansion of biofuel feedstock, particularly rape and wheat, would not lead to significant adverse environmental impacts. Already back then there were concerns however, that it would be more efficient to use biomass in the electricity sector.

6.2.2 The IA Process

6.2.2.1 Overview of the IA Process

The Biofuels Directive was adopted in May 2003 and had to be transposed by the end of 2004. The process for the Renewable Transport Fuel Obligation (RTFO) ran about four years – from beginning of 2004 to October 2007 (entering into force by April 2008).

The Cleaner Fuels and Vehicles Division of DfT was responsible for transposing the directive. With DfT's Rupert Furness and Greg Archer (then director of the LowCVP, see below) two key persons with environmental backgrounds/expertise were responsible for transposing the EU Directive. On the one hand, those responsible in the DfT closely followed IA provisions described in the Greenbook (HMT 2003): Two IA reports were prepared as part of the consultation documents. In the first phase the options for transposing the directive were deliberated. The role of biofuels was debated in context of the UK's renewable fuels strategy, the Energy White Paper. The second stage consultation and IA already focussed on the draft regulation of an RTFO and the draft carbon and sustainability (C&SD) reporting guidelines. A third and final IA report was presented together with the RTFO regulation and forwarded to the two Houses of Parliament. The IA cycle was then closed with a (draft) post-implementation review of the RTFO open for consultation in December 2013.

On the other hand, the IA and wider policy process went beyond the provisions in the IA Green-

³⁴ IEEP on behalf of DfT - The Potential Environmental and Rural Impacts of Biofuel Production in the UK Report of a Stakeholder Consultation Process (March 2004) (IEEP 2004).

book. Enabled by the responsible DfT staff, the process was comprehensive, highly cooperative and transparent – in particular, if compared to the German one (Interview No. 6, 2014). Several interviewees highlighted the uniqueness of the RTFO development process. According to one of the interviewees (Interview No. 1, 2014) the RTFO and C&SD reporting process was one of the very few bottom-up processes that produced a piece of legislation and guidance. In DfT it is seen as an exemplary piece of policy development. It was unusual, explicitly for the DfT (Interview No. 6, 2014), with respect to the extensive degree of stakeholder engagement which was used to resolve key questions and conflicts during the RTFO formulation. DfT inter alia set up an inter-departmental body to oversee the transposition of the Biofuels Directive and at a later point the RTFO feasibility studies. Members of that group included DTI, the Finance Department (HMT), HMRC, the Environment Department (Defra), the Cabinet Office, and representatives of the Devolved Administrations (DfT 2007f).

Both the stakeholder engagement and the consultancy reports fed into the IA reports. And the formal IA reports were used to present the results of this process and not vice versa. According to department officials the IA was moreover used for ministerial clearance and for structuring DfT work. Other than the consultation in the UK waste process none of the consultation questions in this process directly referred to the IA. One question indirectly addressed the assessment work done by DfT, asking: “Do you agree with our projections of 12 million litres a month biofuel sales by the end of 2005?” (DfT 2004b, 25)

The process was marked by a high degree of consensus among stakeholders and government staff. At least in the beginning of the process those involved had different views on biofuels, but still got along very well on a personal level. Generally, the preferences for an RTFO ran along the line of support for enhanced biofuels promotion and the sense that an RTFO could not be avoided.

“The design that the RTFO had chosen had already been through an extensive stakeholder process; it is more common for government to decide on the particular regulatory design and then set that out to the stakeholder community and seek their views; in this particular case the stakeholder community provided the input earlier and therefore there was little controversy neither on the draft regulation nor the IA.”
(Interview No. 1, 2014).

Towards the second stage consultation however, the perception of biofuels by particular stakeholders and notably the public started to change by late 2006. Mobilised by the environmental and development NGOs this was also reflected in the number of responses to the second consultation. DfT was ‘flooded’ with 6,335 responses. “Of these, 6,270 were from members of the public, primarily asking that mandatory minimum standards for carbon saving and sustainability associated with biofuel be introduced in the RTFO from the outset.” (DfT 2007e, 4)

“When the palm oil industry started to take off in Indonesia, the NGOs became very, very concerned about palm oil business and the harmed Orang-utan in particular; and suddenly the development NGOs and others were on to the (indirect) land-use change issue.” (Interview No. 1, 2014)

This was when the overall policy process became “chaotic” (Interview No. 11, 2014) and which marked a U-turn in the process. NGOs which had previously supported the transposition of the Biofuels Directive now turned against it. One representative of the biofuels industry put it this way:

“I thought, yesterday we were friends and now you turn against me; what has happened?” (Interview No. 11, 2014)

6.2.2.2 Level of Biofuels Quota and Duty Incentives

6.2.2.2.1 The Conflict and Actor Constellation

The need for the road transport sector to contribute more effectively to GHG savings was uncontroversial. A normative debate arose though about the role biofuels should and could play for turning the transport sector more climate friendly and with that the level of biofuels targets. In the early years of the process, the unintended effects of the policy were unclear; towards the end of the process they became more evidence-based and the policy as well as the question of consequences of that increasingly contested. As the then Defra Chief Scientific Adviser told in a BBC interview, the RTFO process was characterised by the fact that policy was ahead of science. Biofuels were driven, although the actual carbon savings they would generate unclear. The RTFO process culminated in the “Gallagher Review on the indirect effects of biofuels production” (RFA 2008b), issued in July 2008 after RTFO implementation, which called for a slowdown in the growth of biofuels.

The Labour government was in power during the whole Biofuels Directive transposition process. Its biofuels policy was described as “muddled and unfocussed” (EAC/HoC 2006). The departments involved in the issue were disagreeing about the key reasons for increasing the use of biofuels. And government failed to nominate one lead department in the quest to introduce more biofuels in the UK³⁵ (HoC 2003). Its preferences towards the RTFO were split. It had supported the EU Energy Taxation Directive to permit duty reductions, it opposed the mandatory biofuel targets though (ENDS 2002a). Biofuels promotion was not a priority field of action, but the focus was much more on hydrogen as renewable energy source for vehicles (Eyre et al. 2002). Accordingly, Labour kept biofuel targets and duty incentives low, and instead put resources in the development of a carbon and sustainability (C&SD) reporting system (cf. section 6.2.2.3).

Without ‘seriously’ promoting a UK based biofuels industry, it jumped to the introduction of an RTFO, obligating the petrol majors to achieve the biofuels targets of the EU directive. Labour’s decision to transpose the EU directive in form of an obligation was made early. The Energy Act from July 2004, issued shortly after the first stage consultation, was prepared to serve as primary legislation for an RTFO³⁶. This continued with the 2004 pre-budget report, published in De-

³⁵ In order to follow up the Energy White Paper and learn more about how to implement low carbon fuels for instance, the UK Government formed an overall committee and distributed responsibilities to different departments (EAC 2003, 17).

³⁶ See chapter 5 of the Energy Act (Her Majesty’s Stationery Office 2004), it gives power to the Secretary of State to impose renewable transport fuel obligations, to determine an administrator and the amounts of fuel, to

ember 2004, announcing “a package of measures to support the development of biofuels, including a consultative process and feasibility study on a Renewable Transport Fuels Obligation” (HMT 2004, 13). The idea for an RTFO had been inspired by the “Renewables Obligation” in the electricity supply sector (DfT 2005b). Under pressure in face of continuously mounting GHG emissions from transport, DfT used the RTFO to show that it was taking action. The RTFO would become the main policy in the transport sector to reduce GHG emissions (DfT 2007f, 42). DfT preferred an RTFO since it would provide the department with higher levels of certainty regarding the significant investment costs for biofuels production and distribution involved (DfT 2004b, 18). It pointed to the problem that production costs for biofuels were considerably higher than for fossil fuels.

Next to the DfT, the Low Carbon Vehicle Partnership (LowCVP), founded in 2003 as a public-private partnership, was a key actor in the process (LowCVP 2016). Its mission was to create opportunities in the low carbon vehicle and fuel market for UK businesses. Particularly the development of the C&SD reporting requirements was organised as a cooperative process fostered by the LowCVP. Many different organisations, including environment groups, fuel suppliers and automotive industry representatives were members, making for a total of ca. 200 organisations. LowCVP acknowledged the importance and potential of introducing more biofuels but remained slightly sceptical of the feasibility (LowCVP 2005), especially considering fuel standards, land limitations and costs. With regard to the RTFO, it was seen as a potential danger to firms that they might have to produce a set amount of biofuels (LowCVP 2005, 1).

The biofuels industry was small and described as “fledgling” and less mature and established than in other European countries with only a few domestic producers of biodiesel using domestic recycled vegetable oils (ENDS 2003b). Accordingly, a powerful advocate of biofuels promotion and high biofuels targets in the UK was lacking. The biofuels industry, inter alia represented by the Renewable Energy Association (REA, including UK biofuel producers, importers, feedstock suppliers, and technology providers) was lobbying for stable biofuels targets and trajectories and called for a more stimulating biofuels policy. In its view this could be done either through duty incentives of 25-30 pence per litre or through a regulatory obligation, while all other stakeholders considered this as a short-term measure to support the UK’s biofuels industry only (ENDS 2002a, EAC 2003, DfT 2004b).

The Department for Environment, Food and Rural Affairs (Defra) and its responsible agricultural unit advocated biofuels with view to the advantages these could have for rural development and farmer incomes. Defra pointed to the potential of second generation biofuels, acknowledging it was not clear when these would become cost-effective (HoC 2003). In the earlier phases of the process it claimed, together with the National Farmers Union (NFU) that the 5% target by 2010 could be met by UK supplies; and that by 2050 even one third of fuel needs could be sourced from UK renewables. “UK farmers are ideally placed to provide energy crops, without any need to acquire new specialist machinery, skills or knowledge” (HoC 2006). Defra and the NFU further acknowledged the likelihood of imports or impacts on food production in case targets were to be

use the issuing of certificates to control compliance to the regulation, and to impose sanction payments and civil penalties for non-compliance to the obligation.

increased or biomass was increasingly used for heat and electricity production (EAC/HoC 2006). The finance ministry, Her Majesty's Treasury (HMT), was responsible for the fiscal side of biofuels. It declared that the current 20 pence duty derogation was sufficient compared to other, conventional fuels (HoC 2003). The 2004 budget confirmed that "the current duty incentives would remain in place for at least the next three years." (DfT 2004b), but HMT strongly opposed a duty incentive and made this very clear to the DfT (Interview No. 4, 2014).

The Department of Trade and Industry (DTI) was concerned with the technological and capital investment aspects of the transition towards more biofuels (HoC 2003). It regarded the RTFO as basically positive, but lacking an incentivising potential (DTI 2006). The DTI called for massive investments for better (second generation) technologies in order to achieve greater GHG savings (ibid.).

The oil companies (e.g. Shell, BP, and Exxon Mobile) and its representing organisation UK Petroleum Industry Association (UKPIA³⁷) did not (openly) oppose the transposition of the Biofuels Directive. But they strongly opposed its transposition in the form of an obligation, since this would place the main delivery pressure and its cost on them (DfT 2004a). They also strongly opposed a carbon reporting mechanism and carbon linkage (linking certification to the carbon intensity of biofuels). They argued with adverse effects on the UK's international competitiveness and administrative burden for businesses. They also generally questioned the value of 'today's' biofuels, saying that biomass was more effectively used in electricity generation (DfT 2004a). However, DfT "convinced" them of an obligation. Opposing such a "green" policy would have tarnished their reputation as those preventing a greening of the transport sector (Interview No. 4, 2014). With the partial IA, the introduction of an RTFO was discussed in detail and petrol majors (defined as companies delivering more than 450,000 litres of fossil fuel across the duty point during a year) would have to supply the according share of biofuels (DfT 2007d).

Numerous NGOs were concerned with biofuels and their role in the transport sector. From the environmental and development NGOs, Biofuelwatch did not consider biofuels as an adequate measure to reduce GHGs at all and declined their role from early on (Interview No. 2, 2013).

"Back in 2006/2007 it was only Biofuelwatch saying there is a really big problem; a lot of the development people were still thinking, it is sort of ok because it is going to bring some sort of development; that was before the land grabbing came out and worse thing, that people were being thrown off their land; a lot of the environmental NGOs are still for biofuels." (Interview No. 2, 2013)

Other organisations, such as WWF, FoE, Greenpeace, RSPB, Oxfam, first supported biofuels. With increasing evidence about their potential impacts, particularly in third countries, their position on biofuels turned.

"You have got all the big development and environmental NGOs, saying there are some good and some bad biofuels; they all see it in a quite nuanced way; and some of the development agencies like ActionAid or Oxfam are campaigning really hard." (Interview No. 2, 2013)

³⁷ with nine members, including BP, Chevron, ConocoPhillips, ExxonMobil, INEOS, Murco, Petroplus, Shell, and Total, together sourcing more than 90% of transport fuel to the UK (Tucker and Watson 2009)

The consequences they called for however varied. While the environmental groups called for a moratorium of biofuels promotion, from 2006 onwards, other organisations in this group demanded lower targets, or improved carbon and sustainability requirements (e.g. WWF) (Upham and Tomei 2010). Some members of this group requested government to provide support only for biofuels meeting certain minimum environmental standards (DfT 2007f, 7f). They managed to influence public opinion with media-effective campaigns, especially when it came to the implementation of the RTFO. For example Biofuelwatch wrote an open letter to the RTFO team. It stated: "As usual conspicuous by their absence were the groups who represent the billions of citizens in the majority world-wide where most biofuels will be produced and who will be adversely affected by your ill-advised policy: the landless movement in Brazil, the subsistence farmers in Indonesia, the indigenous people of Borneo, India & West Papua, the afro-Colombians of Colombia, poor farmers in Paraguay and Argentina. It is censorship by omission. Some commentators might venture that this looks like another form of colonialism where the West take the resources of the South." (Biofuelwatch 2007)

6.2.2.2.2 *IA and Wider Evidence-Base*

In its Energy White Paper (DTI et al. 2003) government had committed itself to carrying out regulatory IAs for all significant policies based on this paper. The initial IA in the RTFO process was the result of this announcement. The stage one consultation documents were sent directly to nearly 100 stakeholders who had expressed an interest including oil producers and retailers, vehicle manufacturers, environmental groups, county councils and academics (the list of consulted organisations was annexed to the consultation document (DfT 2004c).

In this first round, DfT still sought the views of consultees on target levels for biofuels for 2005 (DfT 2004b). It proposed to implement the Biofuels Directive's reference values for biofuels, 2 % in 2005 (by energy content), and 5.75 % by 2010. However, DfT suggested to defer targets for 2010, because they only had to be adopted until July 2007 and because of uncertainties in the further approach involved (policy, carbon benefits, high costs) (ibid., 24). For the HoC biofuels committee members, the late first stage consultation, only in the first half of 2004 and one year after the adoption of the Biofuels Directive, was a proof for government's lack of intention of setting ambitious targets, at least for the 2005 deadline. The timeframe would not leave enough time between the consultation and for farmers to plant and harvest their crops and for bringing any extra processing in operation (HoC 2003).

When DfT consulted at stage two in February 2007, the time to set a 2005 target had already passed. So it suggested target levels from 2008 onwards, as shown in Table 6. Overall, the government defended rising targets as a stimulus for industry and as a measure to eventually develop second-generation biofuels (Berti and Levidow 2014). However, parliamentary committees opposed the targets in fear of delaying the development of second-generation biofuels. Apart from that increased duty incentives and an RTFO were discussed as the two central mechanisms to promote biofuels at this second IA stage.

Table 6: target levels for biofuels 2008-2011 and beyond (DfT 2007f, 15)

Period	Obligation Rate
2008-9	2.5%
2009-10	3.75%
2010-11	5%
Thereafter	5%

Wider implications of biofuels

Before discussing biofuels policy impacts in detail in the IA, DfT provided a more general account of the cost and carbon implications and other intended and non-intended effects from achieving the Biofuel Directive's indicative biofuel targets. These included impacts on environment and sustainability, the fuel market, government and regulatory, diversity and security of supply implications, and impacts on the oleo-chemical and other industries. The orientation of the initial (and following IA reports) on the three sustainability dimensions was the result of the first "Bio-fuels" inquiry of the HoC Environment, Food and Rural Affairs Select Committee (cf. section 6.2.1). The HoC committee had requested from DfT to carry out a wide assessment of impacts (HoC 2003). In the final IA, DfT officers compared all four policy options considered in form of a sustainability-oriented multi-criteria analysis addressing economic, environmental, and social aspects, and concluding that an RTFO was performing best. The assessment criteria included first the likelihood of achieving the desired level of carbon savings (based on certainty of volumes supplied, investor confidence, and carbon performance of the renewable fuels), and second sustainability concerns as costs to the general taxpayer (DfT 2007e, 11).

For environment and sustainability impacts, the implications in third countries as increased imports of palm and soy bean oil to the UK from establishing fixed biofuel targets were addressed. This was done by referring to the WWF report "Oil Palm Plantations and Deforestation in Indonesia. What Role do Europe and Germany Play?"³⁸. The report gave an example of how natural forests were replaced for palm oil plantations. The biggest palm oil importing countries were India, China, the Netherlands, and Germany, where at that time two-thirds of the palm oil was used by the food industry. Under weak governance structures international corporations from the timber, paper and pulp, and palm oil plantations were exploiting natural resources in the country. The NGO estimated that of the former 5 million hectares of forest lands in Indonesia's lowlands, three million hectares had already been converted into crop cultures. At that time predictions set out that the country would provide for 50% of the plantation land satisfying the global oil plant demand to 2020. A survey among processing companies revealed that the palm oil exports delivered to Germany could be traced back to its port for export in exceptional cases only. Tracing their origin back to the farm on which they were produced was considered impossible. This aspect was relevant for the C&SD reporting scheme which would be developed later in the process (cf. section 6.2.2.3). Experiences from other sectors showed that chain-of-custody mechanisms could be established if all actors were cooperating. WWF called on the industry, regulators, financiers, buyers, and other stakeholders to cooperate in order to develop sustaina-

³⁸ December 2002

ble palm oil agriculture. The EU's Biofuels Directive was not yet mentioned in this report, neither was biodiesel.

DfT stated not to intend replacing one environmental problem with another. "However, given the international nature of the problem, it is not clear whether there are real practical measures that might achieve this – at least in the short term." (DfT 2004b, 6) Later in the process, this aspect would turn into a central argument against the biofuels targets. DfT moreover pointed to possible adverse effects on land-use, landscape, biodiversity, and soil structure. In the partial IA DfT noted: "All of these issues may be used by NGOs to attack the RTFO and perhaps to make it a scapegoat for other unrelated environmental issues." (DfT 2007f, 23)

For the first type of impacts (carbon savings), DfT referred to Defra's report "Liquid biofuels – industry support, cost of carbon savings and agricultural implications" (Turley et al. 2003) which had found that impacts were largely neutral, if certain aspects were respected (e.g. a variety of biofuel crops was grown). Potential future efficiency gains for biofuels were discussed (e.g. farming methods, future technological developments) which could potentially increase environmental performance of biofuels.

Turning to socio-economic aspects of biofuels imports, DfT remarked that the number of jobs created through biofuels in the UK was dependent on the share of imports. Using estimates from a study prepared on behalf of Defra's Organic Farming and Industrial Crops Division (Turley et al. 2003), DfT assumed that for each 1000 tonnes of biofuel produced in the UK, 2-5 jobs could be created or sustained in farming or rural businesses. The study suggested that in the short term only biodiesel production would be important in the UK to meet the 2005 directive's goals. This would require a much higher production of oilseed rape and an increase of the rape area between 45-100%. However, if this was done, it would still be extremely difficult for the UK to meet the 2010 substitution target. It recommended an implementation strategy of fuel duty reductions to favour biofuels and additional Government subsidies for investment in feedstock conversion plants (Turley et al. 2003).

Carbon appraisal of EU biofuels targets and policy options 0-2

In all three IA reports, DfT set out potential implications from four possible options: 0) do nothing – continue with existing duty incentives; 1) increasing the existing duty incentive; 2) introduction of a renewables obligation; 3) a voluntary agreement with the industry to deliver biofuels. With respect to Labour's preference for deregulatory approaches, DfT 'automatically' considered a voluntary approach. However, it was quickly discarded due to its high risk of not achieving the indicative targets and because it was rejected by the oil industry due to a lack of certainty. "Consultees overwhelmingly considered that a voluntary approach would be unworkable, mainly because of the significant additional costs of supplying renewable fuels, which would incentivise "rogue non-compliance" (DfT 2007f, 14). Because a voluntary arrangement was quickly omitted in the process it was further discussed in this process analysis.

The previously updated IA guidance included a provision to consider environmental impacts. Carbon IAs had to be "an integral part of assessing environmental impacts" (DTI et al. 2003, 113) and the initial IA did include a comprehensive carbon assessment in combination with air quality benefits of the indicative targets of the Biofuel's Directive and of policy options 0-2 using a discount rate at 3.5% per year. Assumptions for the total amount of fuels sold were based on DfTs

National Transport Model³⁹. DfT pointed out that biofuels would deliver carbon savings though “figures [would] vary quite widely according to feedstocks, processes and methodologies used.” (DfT 2004b, 6) So calculations were conducted, assuming 40% and a 56% carbon savings, acknowledging that the range was much wider. The 56% carbon saving number was taken from the Sheffield Hallam Study (Elsayed et al. 2003) while the 40% value was taken from a EUCAR, CONCAWE & JRC report (CONCAWE et al. 2003). In the second IA the saving range would be widened to 25-85%.

The ConcaWE “Well-to-Wheels Analysis of Future Automotive Fuels and Powertrains in the European Context” was the first joint publication of the European Council for Automotive R&D, representing Europe’s major vehicle manufacturers, CONCAWE (an organisation including most oil companies operating in Europe and established to carry out research on environmental issues relevant to the oil industry) and the European Commission Joint Research Centre. It intended to a) establish, in a transparent and objective manner, a consensual well-to-wheels energy use and GHG emissions assessment of a wide range of automotive fuels and powertrains relevant to Europe in 2010 and beyond; b) consider the viability of each fuel pathway and estimate the associated macro-economic costs; c) have the outcome accepted as a reference by all relevant stakeholders. Among the main observations from the study was that “a shift to renewable/low fossil carbon routes may offer a significant GHG reduction potential but generally requires more energy. The specific pathway is critical”.

DfT estimated the costs and carbon benefits and the amount of carbon saved from achieving the biofuels targets as shown in Table 7. Compared to a “no change” in fuels consumption DfT estimated the amounts of carbon saved. In sum, the calculation demonstrated that the costs of the policy would “considerably outweigh the monetised carbon benefits” (DfT 2004b, 12). As one interview partner set out:

“At that time however, there was the political will to drive biofuels and the RTFO, so at that time no one was really concerned about whether the numbers could be wrong. This was remarkable since the RTFO was an unusual piece of legislation in that the costs of introducing the policy clearly exceeded its benefits.” (Interview No. 4, 2014)

These calculations were underpinned by a more detailed economic assessment of achieving EU targets, annexed to the consultation document. The analysis contained further scenarios: achieving biofuel sales of 0.3% in 2005 (deemed realistic to be achieved, cf. DfT (2004b)) and 2% and 5% respectively in the year 2010 (at stage two only the 5% scenario would be assessed). The 0.3% target would later be set in the adopted 2007 RTFO.

³⁹ cf. DfT 2003. National Transport Model (NTM): Summary. Integrated Transport Economics and Appraisal Division (DfT n.d.)

Table 7: DfT estimates of the costs and carbon benefits of achieving the Biofuels Directive biofuels target (DfT 2004b, 11)

	2005	2010
Reference value set out in Directive	2%	5.75%
Forecast total fuel sales (million litres)	47900	47000
Total annual amount of biofuel sales necessary to meet volume targets (million litres)	951	2625
Total annual amount of carbon saved t/C (million)	0.38	1.06
Total annual value of carbon saved (@£70/tC) (million)	£30.9	£77.2
Additional resource cost of biofuels (million)	£160.7	£365.4
Annual net cost of carbon abatement (£70t/C) (million)	£129.8	£288.2
Cost of carbon abatement (£/tC)	£422	£353

DfT also addressed the alternative and potentially more cost-effective use of biomass for electricity generation. It pointed to conflicting research showing that GHG reductions were higher when used in the electricity sector. Against the background of biofuels not being the most cost-effective option, DfT advanced the policy referring to long-term biofuels development and the more efficient 2nd generation biofuels.

Appraisal of policy options 0-3

In the partial and full IA the assessments were complemented by aspects required by the 2005 Hampton Review⁴⁰ (HMT et al. 2006, 61). One of the review's key findings was the limited use of risk assessment in the regulatory system and it recommended policy officials to make administrative costs for businesses a greater part of IAs (Hampton 2005). Accordingly, all policy options were qualitatively assessed against the risk of achieving the overall policy objectives.

And, in the partial IA the “winners and losers” of different policy options were described by setting out the cost impacts on the different stakeholders. Next to the major oil suppliers, small biofuel suppliers could have an advantage of an increased demand. Likewise they were at risk from pressure of large supplying businesses which had an advantage of economies of scale, greater investment capacity and a potential roll out of duty incentives, parallel to an RTFO. The UK farmers were also seen as a group profiting from an RTFO, with a potentially increased demand for biomass feedstock such as wheat or sugar. However, they could also be circumvented by obligated suppliers since these could freely choose their source of supply, either from the UK or from (non)-EU third countries.

Assessment of options 0 and 1 – Continue with and increasing the existing fuel duty incentive

Under the existing duty incentives DfT saw the risk of biofuels remaining a niche market due to

⁴⁰ “Reducing administrative burdens: effective inspection and enforcement”; regulators were obligated to assess the effectiveness of their own doing and were to be made more accountable for their work

the high costs compared to conventional fuels. The alternative fuels supplier Greenergy estimated that the 20p duty differential would lead to only 1% of the UK's fuels being replaced by biodiesel by 2010 (ENDS 2002b). Biofuels would remain a niche market unless there was a significant technology breakthrough reducing their production costs. Referring to the impacts the 100% duty incentive had had in Germany (cf. DfT 2007d), it still expected that a substantial increase of the existing fuel duty incentive would boost sales of biofuels in the UK. Since under a 20p duty incentive achieving EU targets was unlikely, an increased duty incentive of 30p/litre (0.44 €/l) had to be considered. Larger petrol companies, for example Petroplus, considered importing rapeseed oil from other countries, if the duty differential wouldn't increase (ENDS 2003a).

At stage two DfT considered the costs of duty incentives under the four policy options (cf. Table 8). The comparison demonstrated that the RTFO was the "cheapest" option for the government and tax payers, while an increase in duty incentives was the most expensive option. For the duty incentives, risks were seen in overcompensation, if oil prices were to further increase, in uncertainties of environmental and carbon benefits unlevelled playing field in terms of environmental requirements for biofuel feedstock production in the UK and non-EU countries, and in uncertainties for investors since the incentives were only allowed on a rolling three-year basis. Moreover, the government would have little influence on the revenue losses entailed with this approach. However, both of the options described above involved no administrative burden for the suppliers.

Table 8: Costs of policy option 0 and 1 (existing duty incentive & increase duty incentive) to the Exchequer (DfT 2007f, 25)

	Costs incurred by	1. Maintain duty incentive	2. Increase duty incentive	3. Voluntary Agreement	4. Introduce the RTFO
Duty Costs	Government	£480 million	£720 million	£480 million	£240 million

Assessment of option 2 – Renewable Transport Fuel Obligation (RTFO)

For this option, DfT saw advantages in a high certainty of achieving EU biofuels targets and of ensuring carbon savings achieved. Industry would have a high certainty regarding government's long-term commitment to promoting biofuels which would increase investors' confidence and market certainty. As in the case of the fuel duty incentive, distinguishing biofuels regarding their environmental requirements would not be in-built in this approach. But "in theory" DfT saw a chance of introducing a reporting system to favour more sustainable supplies already in the initial IA (DfT 2004b, 18). It saw conflict potential though in the resulting administrative costs and complexity and with trade rules.

In November 2005 the Secretary of State for Transport announced an RTFO (HoC 2006). This was the point for the House of Commons (HoC) to begin with a second inquiry⁴¹. Focus inter alia was on the role of bioenergy and biofuels in particular for meeting the UK's climate change aims (EAC 2005) and the question of carbon savings from biofuels. The committee members exemplarily cited a study which had found the energy used for producing bioethanol to be greater than the energy content of the resulting fuel. While the Renewable Energy Association (REA) reminded the committee that comparisons between carbon saving studies had to be taken with care, the HoC committee cited DfT's report on the "UK carbon reduction potential from technologies in the transport sector' for the UK" (Hart et al. 2003) which had found considerable variations of carbon savings from biofuels. The committee concluded and recommended government

- to do more about its piecemeal approach to bioenergy policy;
- that with an RTFO biofuels would receive a disproportionate degree of support to the detriment of biomass;
- that measures to promote 2nd generation biofuels technologies and that the RTFO would produce a first generation 'lock in', potentially undermining further commercial development; it suggested carbon linkage in order to facilitate investments.

It supported that government intended to increase the level of the obligation to incentivise further investment. With respect to environmental concerns it remarked that considering the world commodity market, production of 2nd generation biofuels would potentially compete less with food production. It was also concerned that if the 5% target was to be increased, this would have serious UK land use and biodiversity impacts. International land use and social issues did not play a prominent role in its inquiry. In examining the evidence presented by the largest part of stakeholder, the HoC committee critically asked for further evidence to underpin government's conclusion in the 2006 Energy Review that doubling the target levels would also double carbon savings (HoC 2006).

The HoC committee's conclusions overlapped with findings of a key report by DfT⁴². This report was a stocktaking of existing and emerging technologies and fuels and their potential to reduce CO₂ emission in the UK road transport sector. It thus embedded biofuels promotion in its broad-

⁴¹ The Committee took evidence from the National Farmers Union; the Renewable Energy Association; the Biofuels Corporation; the Energy Crops Company; the Society of Motor Manufacturers & Traders; UKPIA; the President of the Biomass Task Force; the Biosciences Federation and the Royal Society of Chemistry; English Nature; Shell; Ford; Rolls-Royce; Officials from Defra and HMT; and the Minister of State (Climate Change and the Environment).

⁴² E4tech on behalf of DfT (2006). UK carbon reduction potential from technologies in the transport sector. UK carbon reduction potential from technologies in the transport sector. Final report, for UK Department for Transport and Energy Review team. (E4Tech 2006)

er policy setting. The study was set to highlight technology and cost aspects to be considered in policy-making. The authors pointed out that a combination of measures was needed to reduce GHG emissions, including increased energy efficiency, new technology introduction, and fuel switching. In the short-term, hybrid vehicles and renewable fuels were expected to primarily reduce CO₂ emissions while in the long-term fuel cell vehicles would offer most likely the best potential. So, biofuels were assigned an intermediary role for decreasing CO₂ emissions. For biodiesel and bioethanol they estimated that a domestic supply could be achieved in the range of 20-30% for bioethanol or 10 to 20% for biodiesel, if energy crops, agricultural and forestry residues, and the organic fraction of municipal solid waste was to be included. They assumed that for this purpose around 30% of the current arable area, 40% of energy crop residues, 12% of residues from the 6 principal food crops, 50% of fellings from forestry and 20% of wood processing residues, and 70% of the organic and paper fractions of municipal solid waste were needed; and that these could be either used for bioethanol, biodiesel or hydrogen. Key challenges with respect to biofuels were the need for cost reductions, the commercialisation of 2nd generation biofuels, and improvements in their GHG balance. In comparison to other CO₂ reducing options biofuels performed critically. On the RTFO the authors stated that it was not exhibiting incentives for the further development or use of second generation biofuels. Environmentally friendlier produced biomass feedstock would need to be rewarded, e.g. with carbon linkage. However, not just new technologies were crucial for CO₂ emission in the transport sector, but demand reduction, integrated public transport and behavioural switching alike.

The final IA summary sheet (see Figure 7) showed that according to DfT's cost-benefit analysis the costs of implementing an RTFO would clearly exceed its benefits. The value of the saved carbon emissions through biofuels was the exclusive impact category in the analysis of the benefits.

Summary: Analysis & Evidence			
Policy Option: 4		Description: Introducing a renewable transport fuel obligation for road transport	
COSTS	ANNUAL COSTS		Description and scale of key monetised costs by 'main affected groups' Fuel costs = £2,145m - £5,762m Costs of new facilities = £240m; Administrative costs = £33m Forecourt costs = £5m; an additional cost representing the change in welfare due to fuel cost increase is also included.
	One-off (Transition)	Yrs	
	£ 252m		
	Average Annual Cost (excluding one-off)		
	£ 200m to £563m		
		Total Cost (PV)	£ 2,428m to £6,601m
Other key non-monetised costs by 'main affected groups'			
BENEFITS	ANNUAL BENEFITS		Description and scale of key monetised benefits by 'main affected groups' Monetised value of reduced carbon emissions
	One-off	Yrs	
	£		
	Average Annual Benefit (excluding one-off)		
	£ 84m - £96m		
		Total Benefit (PV)	£ 834m - £951m
Other key non-monetised benefits by 'main affected groups' Market / employment opportunities in agriculture and biodiesel production; diversity and security of national fuel supply; likely positive impact on innovation; possible positive impact on congestion.			

Figure 7: Summary of the costs and benefits of RTFO implementation, full IA (DfT 2007e, 8)

For calculating the net CO₂ benefits, 50% carbon savings compared to fossil fuels were assumed, growing to 75% over time. Again, DfT officers pointed to the possible wider range of 25-85% of reduced emissions as a result of varying inputs for producing biofuels. Reacting to requests from stakeholder consultation (DfT 2007e), DfT presented a table (see

Table 9) in which the net CO₂ savings were presented, including the emissions associated with producing the biofuels, next to a table with carbon savings without life-cycle considerations.

While these carbon assessments were acknowledged to be the environmental impact analyses of the RTFO IA, they have been considered as not transparent to externals:

"From the outside it's a black box which delivers some percentage in GHG savings [...]. The DfT was coming up with this black box, you put these inputs in, feedstocks, this will give you the saving in GHGs. [...] They were carrying out these calculations and initially there were lots of discussions on what to involve on the production side of it." (Interview No. 4, 2014)

Table 9: DfT's estimation of monetarised net carbon savings using well-to-wheel approach (DfT 2007e, 17)

	Annual Savings of Carbon Dioxide (MtCO ₂)		Annual Savings of Carbon (MtC)		Net Present Value, £m		Cost-effectiveness, £/tC saved
	2010	2020	2010	2020	2010	2020	
Central oil price scenario	3.2	4.3	0.9	1.2	-1,066	-2,916	320
Low/High oil price scenarios	3.1 to 3.6	4.1 to 4.6	0.8 to 1.0	1.1 to 1.2	-1,475 to -885	-4,932 to -1,438	207 to 453

DfT also set out the benefits which had or could not be monetarised such as potential opportunities for UK agriculture or innovation effects. Potential non-intended negative environmental impacts such as impacts on biodiversity or monocultures were not discussed in this final IA document.

The largest share of the costs was with the 10-20 obligated suppliers and 20-40 smaller oil importers and distributors (represented by the Association of UK Oil Independents, AUKOI). The former would have to incur 344 million € over the years 2007-2010 based on own estimates. UKPIA was therefore “heavily involved” in the development of the RTFO, as were the smaller oil importers and distributors in stakeholder discussions. For government, costs were estimated to sum up to 8 million € for establishing the agency administrating the RTFO and the reporting scheme (see 6.2.2.3). If the extra costs of providing biofuels would exceed 15ppl, suppliers were able to buy-out to protect consumers from excessive prices.

Regardless of the costs involved, Transport Secretary Alistair Darling announced the imposition of an RTFO in November 2005. Then DfT began to intensify stakeholder engagement “on all aspects of the scheme”. In this context it carried out numerous activities, including workshops with key stakeholders on detailed design aspects of the RTFO, and regular scheduled meetings with key stakeholders through the LowCVP (DfT 2007e).

6.2.2.3 Carbon and Sustainability Reporting Under the RTFO

6.2.2.3.1 The Conflict and Actor Constellation

Next to the decision to transpose the EU Biofuels Directive by means of a renewable fuels obligation, a carbon and sustainability (C&SD) reporting mechanism was to be established. Since GHG and sustainability impacts of biofuels varied significantly, a reporting system was to encourage biofuels suppliers to source sustainable fuels and to submit information on both the net GHG savings and sustainability of biofuels imported. While the public opinion on biofuels had turned in the meantime, the C&SD reporting was also a means to maintain public confidence in biofuels (DfT 2007a). As one of the interviewees put it:

“When the debate started to get very heated then the industry, the policy-makers and the people for biofuels brought in the sustainability standards, saying we will have sustainability standards. Of course this was a device trying to muddy the waters and to confuse things.” (Interview No. 2, 2013)

The negotiation of the C&SD reporting requirements was a process within the RTFO process, with its own consultation and assessment. While DfT had inquired about a C&SD reporting system already in the initial IA as a means to encourage the best environmental practice, work on the reporting began in spring 2005. This happened under pressure because the deadline for transposing the Biofuels Directive (December 2004) had passed.

Stakeholders held controversial positions on whether such a reporting system should be introduced at all (DfT 2007g). Some saw that it could provide for minimum standards of environmental and social benefits and qualify imported biofuels for fiscal support. Notably with the announcement made by government in June 2007, stating that it intended to reward biofuels in accordance with the carbon savings that they offered from April 2010 on and that it intended to reward biofuels only if the feedstocks from which they were produced met appropriate sustainability standards from April 2011 (DfT 2007b). This so-called carbon linkage was a central controversy with respect to a reporting system. On the one hand, opponents referred to its uncertain implementation; on the other hand the challenge lied in global supply chains which at that point were not yet sufficiently transparent to collect all the necessary data and information for suppliers to fulfil reporting requirements. But DfT was optimistic that these “information gaps” would close or narrow down over time (DfT 2007c). A “smaller” conflict regarding this reporting system was a technical one, namely the ability of suppliers to report ‘unknown’ regarding the provenance of the biofuels supplied.

The petrol majors would receive a certificate for each litre of biofuels, if they had submitted information about the volume of renewable fuels delivered, the carbon saved through it and the sustainability impact of these fuels. All this information would be pooled in the C&SD reporting system. DfT would publish monthly meta-reports on the achieved carbon savings and sustainability impacts. Fuel suppliers could trade certificates or if the price for biofuels would rise above a certain sum, opt out with a buy-out price. Potential conflicts with EU single market and WTO trade rules were put forward as potential barriers (DfT 2007c). One interviewee however remarked that these were never a real threat to a reporting system (Interview No. 1, 2014).

At the beginning of the process DfT found that in the shorter term it might be impractical to introduce such a mechanism. Having learnt from the Renewables Obligation in the electricity sector, it argued with potential administrative costs involved and the complexity of such a system. Setting up such a system was a novel thing to do, with international supply chains which had to be tracked down, chains of custody to be established, high variation in the GHG savings the different biofuel feedstock would deliver, and the costs involved for companies to do the reporting work. To oversee how much carbon was saved and if the targets of the policy were achieved it saw the necessity of a C&SD reporting system (Interview No. 4, 2014).

The oil majors had to bear the main burden of the requirements and were also their main opponents. DfT ‘convinced’ them to accept reporting requirements by making clear that reports would be published (Interview No. 4, 2014). The oil majors, particularly Shell (Interview No. 6, 2014), did not want to get a bad reputation and fit into. They agreed to target setting and C&SD requirements; what they did oppose though, was carbon linkage of certificates. The development of the C&SD reporting was central for the IA analysis, because the potential costs for petrol companies to report on the C&SD aspects of ‘their’ biofuels was a major amount on the cost side set

out in the second and final IA reports.

With respect to creating a level playing field with biofuels from third (non-EU) countries, the biofuels industry favoured “green” biofuels. It supported measures to ensure the promotion of “good” biofuels such as the implementation of mandatory C&SD requirements, and later on double-rewarding for waste and non-food feedstocks (Upham and Tomei 2010, REA 2011).

Biofuelswatch had the stand that any form of reporting was insufficient because they would be inherently flawed and would only be a weak measure on the industry, compared to the scale of the issue itself (Interview No. 2, 2013).

Among those in favour of such a reporting system, guidance development was extraordinarily participative and cooperative. It is still considered as an exemplary approach of policy development in the UK transport department. In the beginning DfT had to do a lot of persuading government and stakeholders to agree on C&SD reporting, though (e.g. Interview No. 1, 2014). For the development of the C&SD reporting guidelines DfT and LowCVP set up a hierarchy of committees. The RTFO steering group with government representatives oversaw work of the development of the C&SD reporting methodology and guidance. DfT, Defra, the LowCVP Secretariat and representative from the Renewable Fuels Agency (RFA) as RTFO administrator were members. Initially this Steering Committee would meet on a monthly basis, later on the met every two months. Moreover, the reporting scheme was piloted in a number of test runs.

Two consultancies were commissioned by LowCVP by the end of 2004: One developed the carbon certification guidance. After RTFO implementation, obligated suppliers had to use the guidance to submit a monthly report⁴³ on their biofuels’ lifecycle GHG savings. The RFA as RTFO administrator would report annually to the Parliament on the overall operation of the RTFO. Another consultancy was commissioned with what later became the sustainability meta-standard⁴⁴ to inform about biofuels’ sustainability in terms of social and environmental concerns.

Two stakeholder groups running in parallel oversaw the work of the consultants and provided technical input. The group working on carbon certification included the Renewable Energy Agency, FiveBarGate, Concawe, HGCA, IEEP, UKPIA, WWF International, and Greenergy. Representatives from the Biofuels Corporation, Imperial College, Neste Oil, NFU, RSPB, Senter Novem, BP, UKPIA, Wessex Biofuels&EIC, Oxfam UK, and the Department for International Development were members of the stakeholder group on sustainability criteria. The overall development of the reporting scheme was again overseen by a steering group, including DfT, Defra, LowCVP, and the RTFO administrator (DfT 2006).

6.2.2.3.2 *IA and Wider Evidence-Base*

In total three feasibility studies on carbon certification were delivered which informed the partial IA. They established the cost effectiveness, administrative feasibility and regulatory burdens

⁴³ Information to be provided in the monthly reports in form of excel sheets included volumes of fuel type (e.g. biodiesel, bioethanol), source country; the feedstock (e.g. used cooking oil, soy); volumes of fuel meeting sustainability standards; and lifecycle GHG savings.

⁴⁴ It was called meta-standard because it was considered to be a higher standard than most existing sustainability standards, covering seven key environmental and social principles (RFA 2008a).

of an RTFO and concluded that such a measure was feasible (DfT 2007f, 3). Comments on these cost approximations were invited to be made by consultees (DfT 2007a, 3).

The first study⁴⁵ set out the cost effectiveness, administrative feasibility and regulatory burdens of an RTFO. It addressed if and how GHG, wider environmental and social issues should be linked to an RTFO. It concluded that a carbon certification should be key component of an RTFO. Three options to link the obligation with carbon accounting were suggested, including the carbon reporting scheme, varying the level of Renewable Transport Fuel Certificates (effectively carbon linkage), and introducing a carbon target (Bauen et al. 2005, 25). A carbon certification system could represent a standardised and transparent way to quantify environmental impacts from biofuels from overseas. A criterion on deforestation could be integrated in such a system.

The following report⁴⁶ looked at how an obligation system could be designed and in how far this was feasible. In more detail, an option appraisal was carried out, in most parts as a qualitative evaluation of potential alternatives to core aspects of an RTFO; and an assessment of relevant cost parameters (to industry and consumers, administrator); and finally determined an optimised approach to the design of an RTFO (Meeks et al. 2005, 6 & 20).

On this basis an RTFO was drafted and in March 2006 Exchequer Gordon Brown delivered his budget speech in which he addressed biofuels measures: "To further reduce carbon emissions, 5% of fuel will be made from biofuels by 2010. And I can announce new support and incentives that will, with the 20p duty differential, by 2008, be worth up to a 35p per litre. It is our policy that each year fuel duties should rise at least in line with inflation, as we seek to meet our targets for reducing emissions and to fund our public services. But for the fourth successive budget, because of high and volatile prices in the oil market, I propose to defer the usual inflation increase until September 1st." (Brown 2006) With that the obligation rate, buy-out price and fuel duty incentive had been specified for the first years of the scheme. Having established the feasibility of an RTFO and having drafted an obligation was the moment for DfT to open the second round of consultations on the draft RTFO.

The third study⁴⁷ described the carbon calculation for one biofuel supply chain to show how such a methodology could work in practice. A carbon calculator tool⁴⁸ was developed to standardize carbon intensity calculation and showed main areas of uncertainty and sensitivity in carbon calculation (Bauen et al. 2006b, 1). In November 2006 E4tech published a project initiation document about "Methodology and Guidance for Carbon Reporting under the Renewable Transport Fuel Obligation" (Bauen et al. 2006a).

⁴⁵ Bauen et al. (2005). Feasibility Study on certification for a Renewable Transport Fuel Obligation. Final Report, E4Tech, ECCM, Imperial College London. (Bauen et al. 2005)

⁴⁶ Meeks et al. (2005). Optimising the Design of the RTFO – Final Report, 4th (July 2005). Climate Change Capital on behalf of DfT. (Meeks et al. 2005)

⁴⁷ Bauen et al. (2006). Methodology and Tool for Calculating the carbon intensity of Biofuels. E4tech, ECCM and Themba's study on behalf of DfT (January 2006). (Bauen et al. 2006b)

⁴⁸ this tool was the carbon calculator

In the final study “Sustainability Reporting under the Renewable Transport Fuel Obligation”⁴⁹ environmental and social criteria and indicators were identified and based on that a meta-standard for sustainability reporting was developed, together with suggestions for monthly and annual reporting requirements for obligated suppliers.

Together with the carbon reporting studies this report led to the “Requirements and Guidance for Carbon and Sustainability Reporting” (DfT 2007c) which was part of the C&SD reporting consultation document. In the reporting guidance the question contested was whether reporting the origin of a biofuel as “unknown” and whether the evaluation of indirect land use changes (ILUC) were sufficient (and whether biofuels causing ILUC should be eligible), and whether there sufficient incentives to avoid GHG impacts of land use changes (Upham et al. 2011). Before the consultation started though, the certification system was piloted with volunteering companies.

Based on the feasibility studies costs to the industry as a whole were estimated to be 3.7 million € million per annum and 2.4 million € costs for suppliers (DfT 2007f, 29), annual costs of 54.000€ for each supplier (cf.

Table 10). DfT explained that the compliance costs were revised following round two consultations, particularly based on UKPIA estimates. The compliance costs now amounted to about 111.000€, with several additional tasks included such as “work with suppliers on an ongoing basis to improve the quality and collection of C&S data”. The ministry verified that the reporting system had been developed under full consideration of the Hampton principles – e.g. suppliers could report electronically (no paper work), additional work for the suppliers was kept to a minimum (DfT 2007f, 19). Environmental and sustainability risks were seen to be the same as under duty incentives, however with a reporting system these risks would become more visible.

Table 10: DfT’s estimates of businesses C&SD reporting compliance cost (DfT 2007f, 28)

	Suppliers required to report		
Number	Maximum 44		
Cost item	Hourly cost	Annual hours	Annual cost
Cost (a)	£30	4	£120
Cost (b)	£30	24	£720
Cost (c)	£521	21	£1080
Cost (c) – External	–	8	£1000
Cost (d)	£381	680	£26400
Cost (e)	–	–	£7500
Total cost per firm			£36,820

⁴⁹ Sustainability Reporting within the RTFO: Framework Report. Ecofys on behalf of DfT (May 2007) (Dehue et al. 2007)

In the Annex of the final IA, DfT explained how the RTFO would operate, including the information required from suppliers about the carbons savings of their renewable fuels as well as their sustainability impacts in order to be able to acquire certificates (DfT 2007e).

6.2.2.3.3 IA in the Decision-Making Procedure

In June 2007 government announced the C&SD reporting requirements. It reserved itself however, to not making them mandatory before April 2010, two years after the RTFO would enter into force. It argued that an earlier introduction was not practicable, providing the following reasons: no agreed sustainability standards for most biofuel feedstocks existed, the testing period would be too short. UK government moreover attached the introduction of mandatory reporting to the compatibility with WTO rules and EU Technical Standards requirements, consistency with the policy framework in the light of the RED Directive, and previous consultations on their economic and environmental impacts (DfT 2007g, 5).

Adoption of the 2007 RTFO by parliament (October 2007)

In late October 2007 the RTFO was adopted against massive public protests and after the adoption the biofuels conflict really sparked off. The Campaign against Climate Change for instance “joined forces with Biofuelwatch to protest against the RTFO and the devastating impacts caused by a massive increase in biofuels. The protest [...] was the largest demonstration yet against biofuels and was widely reported on the day” (CCC 2008). At a later stage, biofuel critics received support from the scientific side. With the publication of Timothy Searchinger’s article “Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change” (Searchinger et al. 2008) in *Science* in February 2008 (Searchinger et al. 2008)(Searchinger et al. 2008)(Searchinger et al. 2008)(Searchinger et al. 2008)(Searchinger et al. 2008)(Searchinger et al. 2008)(Searchinger et al. 2008)(Searchinger et al. 2008)it was suggested that biofuels were essentially worse than oil and did not yield any carbon savings.

“What we had been measuring were the direct emissions; we always knew that biofuels had to be grown on a piece of land, and there would always be a risk that it could replace some other crop and that itself would have some carbon intensity or land use change effects itself; but nobody knew how to quantify it. The Searchinger et al. paper caused so much sensation because it had for the first time quantified ILUCs on a global basis. It showed that that the indirect effects were much bigger than previously estimated.” (Interview No. 1, 2014)

It led to the “The Gallagher Review of the indirect effects of biofuels production” (RFA 2008b) by the UK Renewable Fuels Agency and the slowing down of renewables development in the UK. The review concluded that biofuels contributed to rising food prices, and that therefore future feedstock production had to avoid agricultural land that would otherwise be used for food production due to the displacement of existing agricultural production, lower biofuels targets and stronger controls as well as technology advancement needed to be enforced.

6.2.2.4 Renewable Transport Fuel Obligation Draft Post-Implementation Review (December 2013)

About six years after the RTFO’s adoption and after first amendments had been made to the obligation in 2011 the same desk officers who had developed the RTFO issued an evaluation of the

policy's actual effects. "As part of government's overall commitment to improving regulation and to reducing the burdens it imposes, ministers committed to reviewing the effectiveness of the RTFO [...]" (DfT 2013, 5). The review asked whether the RTFO had achieved its objectives, how costs and benefits had developed, and in how far unintended effects had occurred. Data for the evaluation was mostly taken from DfT statistics but also commercial data suppliers (on biofuel and fuel prices) while ILUC factor assumptions came from the EU IA. All in all the impacts of the RTFO were presented as overall positive and differences between impact expectations and actual effects were explained and justified.

Against the original assumptions, the policy officers assessed whether the RTFO had saved GHG emissions. They found the RTFO had saved 1.6 mtCO₂/year compared to assumed 2.7 mtCO₂ (differences were due to a lower biofuels target and thus supply) and found the numbers showed an average CO₂ saving of 56%, with ILUC factors already included. They also examined, whether the biofuels supplied had been certified as being sustainable (99% of the biofuel supplied had been certified as being sustainable), and the costs of reducing GHG emissions in the UK transport sector via biofuels (they had remained high); costs of administering the RTFO could be reduced significantly over time, by some 40% over the baseline. With respect to the wider environmental impacts the review recalled the debate back when the RTFO was implemented, when LCA methods were questioned whether to appropriately reflect net effects on GHG emissions and when the Gallagher Review concluded that ILUC could occur. REDD (reducing emissions from deforestation and forest degradation) requirements had helped to minimize ILUC impacts from biofuels supply and at the same time amendments to control for ILUC effects were negotiated in the EU, they stated.

6.2.3 Conclusion – Role of the IA Process for Environmental Policy Stringency

The course and timing of the IA process was mostly determined by the IA cycle as set out in the UK guidance on IA procedure. But it went beyond standard practice and the IA and wider policy process can be considered as best or good practice respectively in terms of environmental consideration and consideration of other impacts, stakeholder involvement, and transparency. It thoroughly explained (e.g. options and various scenarios considered, assumptions behind DfT's lines of action laid open) and justified government's approach to biofuels policy and the challenges and risks linked to that, also for the potential environmental effects.

The process was unstructured and characterised by a high uncertainty, notably regarding the knowledge dimension. Government had to determine its course for renewables policy in general and biofuels were just one pathway among others (e.g. hydrogen driven vehicles). DfT officials tackled this uncertainty inter alia by extensive stakeholder engagement. According to interview partners, the RTFO process was one of the very few bottom-up processes that produced a piece of legislation and guidance. Key questions and conflicts of the RTFO formulation were resolved cooperatively and enabled a high level of consensus among stakeholders and government staff. Both the stakeholder engagement and the consultancy reports fed into the IA reports which were used to present the results of the process (and not vice versa as common practice). The IA was thus used for structuring the work of DfT officials and for ministerial clearance.

In terms of contribution to environmental policy stringency, the role of the IA and wider assessments produced was to help estimate the feasible and realistic levels of (domestic) biofuel sup-

plies. Its role was moreover to demonstrate feasibility and costs of a C&SD reporting system as a first step towards more sustainably produced biofuels. As Upham and Tomei (2010) remarked, reporting itself does not prevent GHG emissions, though, and in 2013 carbon linkage was not yet established (Ecofys 2013). The GHG calculations showing significant carbon savings were also used to justify policy since the RTFO was an unusual piece of legislation in that the costs of introducing the policy clearly exceeded its benefits.

Labour's focus on reducing the regulatory burden for businesses and the IA procedure's orientation towards this explain DfT's detailed calculations on the costs for introducing such a reporting system. The issuing of the Hampton review in 2005 certainly reinforced this aspect and DfT officials discussed the risks with each policy option suggested of (not) achieving desired policy objectives. However, government needed to transpose the EU directive but did not want to continue or increase with duty incentives burdening public budgets. It therefore pushed through the RTFO, although the cost-benefit analyses in the IA had shown that the costs of the policy would clearly outweigh the policy's (environmental) benefits. Environmental and development NGOs pointed to these risks, which in the later phases became the big issue of ILUC and biofuels actual carbon balances. But only after the adoption of the RTFO, scientific arguments presented in government's so called Gallagher Review were strong enough to support their position.

The assessments, particularly in the early phase, focussed on the wider renewables questions and not on biofuels as sole policy. And the wider evidence commissioned and referred to in the transposition process was critical of the effectiveness of biofuels as means to reduce carbon intensity of UK road transport. In comparison with other means biofuels were assigned a niche or intermediary role only, or just as one approach of many needed (e.g. next to reducing transport demand). With respect to a biofuels policy the central issue was how much GHG emissions biofuels would save and to what extent ILUC were linked to biofuel feedstock production in third countries – a question which is still contested today and which prompted environmental and development NGOs to make a U-turn and turn against the RTFO. DfT coped with it, by applying a range of CO₂ saving values and acknowledging the problems with biofuel imports: And, as set out in the carbon feasibility report, the reporting requirements were about the transfer of transport-induced GHG emissions to other sectors: "So, whilst all biofuels will lead to carbon savings in the transport sector, some, and in extreme cases all, of the emissions will be displaced to other sectors (such as agriculture and industrial manufacturing)." (DfT 2005b) However, policy-makers continued with the RTFO and in that sense policy was ahead of science. DfT did not have to be too considerate of an immature UK biofuels industry and could address the likeliness of imports and their implications much earlier than their German counterparts. These aspects can be considered as driver for the UK's leading role in developing C&SD reporting requirements, although it was highly resource intensive.

For the question of biofuel savings DfT carried out extensive GHG analyses in form of cost-benefit analyses. The GHG assessment of the EC's indicative biofuel targets was a DfT internal exercise, mainly carried out by DfT economists in cooperation with the policy team. Applying a wide range of further methods (e.g. literature reviews, LCAs, surveys, on the ground observations, scenario studies and a case study) almost all wider assessment studies looked at environmental impacts of biofuels in terms of GHG savings. Some considered or mentioned wider aspects such as biodi-

versity or soil impacts. Carbon benefits though clearly dominated and non-intended environmental impacts were largely considered qualitatively in the IA reports with references to more detailed studies produced outside the IA. That Defra did not insist on looking at other unintended consequences (e.g. biodiversity in the UK and third countries) more intensively can be related to administrative-organisational aspects. It was representatives from Defra's agricultural units who were involved in the interdepartmental exchange. They were rather allies of the National Farmers Union (NFU) which welcomed the Biofuels Directive. And at an early stage particularly one study by the WWF addressed the potential international ramifications of creating an EU demand for biofuels feedstock.

There seem to be two explanations for extensive consideration GHG considerations. Overall, the Labour government had declared to demonstrate leadership in the battle against climate change. Departments were therefore in need to show action in this regard. DfT compared unfavourably to other departments since emissions had continuously increased during the last decades and emissions from UK transport were high compared to other sectors. Not many easily achievable and effective means were in sight to change this situation. Carbon savings from biofuels in transport were a central argument for introducing the RTFO in the first place, so that DfT focussed on these. It did so by performing carbon appraisal widespread in UK policy-making from 2002 onwards (Watkiss et al. 2005). In addition, agricultural and rural development opportunities did not provide strong arguments for the transposition of the Biofuels Directive, so the carbon savings remained as main argument to justify the policy. A further explanation for a high level of environmental consideration can be found on the micro-level. DfT's dominant ethos lay on improving the transport network and the promotion of car ownership (DfT 2005a, Dorey 2005, 94) but not on environmental integration. But two of the central persons for transposing the Biofuels Directive (at the responsible ministry and the support agency) both had an environmental qualification background, and had worked together at Defra and a high awareness level of environmental issues and a very good and professional work relationship (Interview No. 1, 2014).

In the final IA, DfT officers set out the criteria which had been used to compare the policy options. They represented a form of sustainability-oriented multi-criteria analysis since addressing economic, environmental, and social aspects. The fact that DfT performed a sustainability assessment during the transposition process can be ascribed to the HoC committee which asked government to look at economic, social and environmental aspects of biofuel promotion. The IA process was not the only evidence-based venue during the RTFO process, though. During the House of Commons inquiries evidence was compiled too.

6.3 The IA Process on the German 2004/06 Mineral Oil/ Energy Tax Act and the 2006 Biofuels Quota Act

6.3.1 Introduction to the Policy Field – Biofuels Policy and Production in Germany

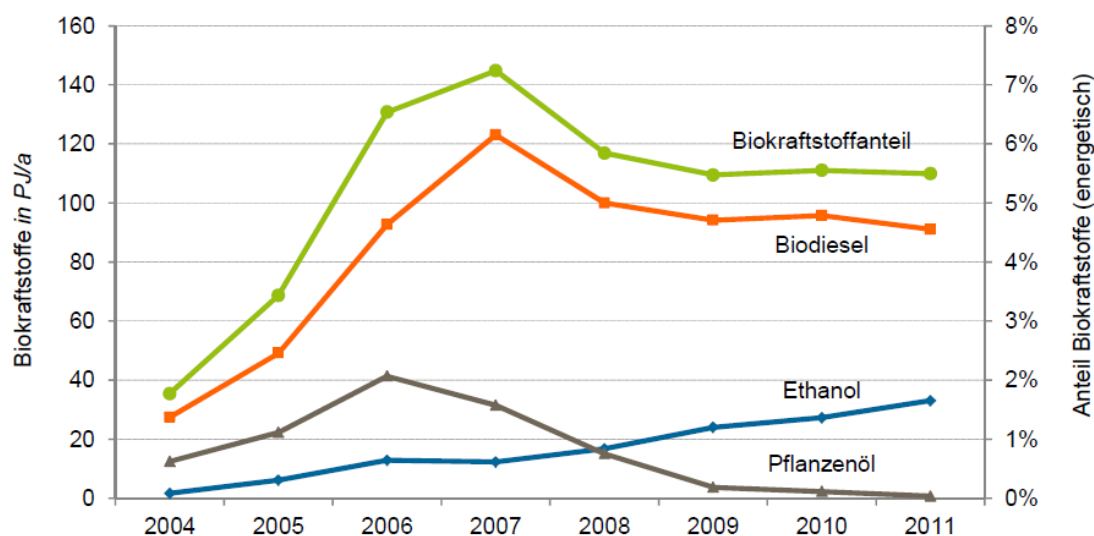
Biodiesel and vegetable oils for transport were available in Germany since the 1980s, usually closely linked to agriculture (Kuhn and Pickhardt 2009). At the EU level Germany had pushed for a biofuels policy and in comparison with other EU member states, it was a biofuels pioneer (Hildingsson et al. 2011). When the Biofuels Directive was adopted in 2003 it had already over-achieved the 2% indicative target. “The high share of pure biodiesel (B100) distinguishe[d] the German market from virtually all other markets, where biodiesel is primarily sold as B2 or B5 blend.” (Kuhn and Pickhardt 2009, 184)

Supporters of biofuels in Germany saw biofuels production as a support instrument for greening transport, rural areas by creating new income opportunities, and to diversify energy sources to increase security of supply. This view was in full line with the EU Biofuels Directive (cf. section 6.1).

Biofuels Production in Germany

In the beginning biodiesel and pure biofuels were relevant in the market, bioethanol only later. In 2000 biodiesel production capacities added up to 0.35 million tonnes/year. After moderate growth rates in the following years, capacities rose significantly with the introduction of biofuels quota in 2006. In 2007 production facilities reached over five million tonnes/year. During these peak years, over 50 biodiesel plants existed, of which in 2012 37 were still operating, with capacities between 2000 – 580.000 tonnes/year. In 2012, they had a workload of 50% in average, due to the opportunity of cheaper imports (mainly American subsidised B99 biodiesel) as well as higher supply than demand on the German market. Industrial production capacities for bioethanol were established in Germany by 2005. They developed from 0.48 million tonnes/year in 2005 to about one million tonnes/year in 2011. Succeeding the introduction of biofuels quota (see section 6.3.3.4) a large part of small and medium sized facilities ceased production. For instance, many of the decentralised oil mills producing vegetable oil stopped production or were not working to capacity (Thrän and Pfeiffer 2011). In 2011, 274 of the formerly 585 (in 2007) oil mills were still operating (DBFZ 2012).

During the peak year 2007 the share of all biofuels of the total transport fuel consumption was 7.2%, rising from about 2% in 2004 as shown in Figure 8. Total turnover of the German biofuels industry from selling biofuels (biodiesel, bioethanol, and vegetable oil) came to 3.01 billion € in 2010. In the same year about 23.100 persons were employed in the biofuels sector (biofuels production and production of biofuel feedstock) (VDB 2012).



(Blue= ethanol; grey= vegetable oil; orange= biodiesel; green= biofuels share; left= biofuels in PJ/year; right= share of biofuels (energetic))

Figure 8: Amount and share of biofuels of total transport fuel consumption (DBFZ 2012, 23)

6.3.2 IA Process

6.3.2.1 Overview of the IA Process

The transposition process ran from the implementation of the Biofuels Directive in May 2003 and the adoption of the Energy Taxation Directive in October 2003 until October 2006, roughly three years. The IA/wider policy process can be divided into three phases: 1) the Mineral Oil Taxation Act adopted in November 2003 which introduced a tax exemption for all biofuels from January 2004 onwards; 2) the 2006 Energy Tax Act (adopted in July 2006) transposing the Energy Taxation Directive (2003/96/EC); and 3) the Biofuels Quota Act (adopted in October 2006) which transposed the Biofuels Directive by introducing biofuels quota. The Act functioned as an ‘umbrella law’ for the Biofuels Quota and Energy Tax Act. The policy process was „messy“ (Interview No. 6, 2014), notably because the taxation of biofuels and the biofuels quota were not implemented together but subsequently. One reason for this certainly was the change in government from an SPD-Greens to a CDU-SPD government in 2005.

When the Biofuels Directive was adopted in May 2003, the German IA procedure and guidelines had been in place only since three years (the sustainability assessment requirement was only introduced in 2009), together with a weak de facto implementation (cf. section 5.4). One of the interviewed persons put the IA practice in a nutshell (Interview No. 23, 2014):

“IA is a routine which in the end consists of one sentence about how the economy or in other cases how the environment is affected, or whatever aspects had to be considered. Oftentimes the IA would be rather “homespun”. In principle, the IA in the Biofuels Quota Act was what the responsible policy officer had thought of impacts at his desk. In few cases, he would have asked the departmental research agency to assess potential impacts. [...] Essentially the IA comes into the world in the moment when we start the necessary procedures of which the IA is an integral part of. For instance, in the hearing of concerned circles the impacts on businesses affected come automatically. Afterwards we must deal with businesses’ objections, and the competing ministries which ensure

that we are doing it. If the business sector complains the responsible head of division from the Ministry for the Economy will ask us as lead ministry for an explanation down to the last detail. At this point it oftentimes happens that we commission further expertise, since the information on impacts must be balanced. Some information originating from the economy is verifiable; some may be of a strategic nature or a bit exaggerated. Then the decision is made, if measures must be reformulated or how otherwise the negative effects can be dealt with. So, the IA is integral part of the procedure.”

6.3.3 Financing Biofuels Production

6.3.3.1 The Conflict and Actor Constellation

Major line of conflict in the IA and wider policy process was the change from a tax exemption of biofuels introduced by a SPD-Greens government to the introduction of tax rates by the following CDU-SPD government. The German biofuels industry which had dynamically developed with the tax exemptions (see section 6.3.2.1) saw itself to be put at risk by the taxes: The compensation for the higher production costs of biofuels opposite to fossil fuels formerly achieved with the tax exemptions were to be reversed and German biofuels less competitive vis-à-vis biofuels produced outside the EU.

Under the SPD-Greens government the promotion of renewable energy sources was embedded in its programme for an “ecological modernisation”, linked to a transformation of the energy system (cf. SPD and Bündnis 90/die Grünen 1998). Central in this was the Ecological Tax Reform. It was aimed at internalising the external costs of energy consumption and to promote climate protection⁵⁰. The transport sector was not a key field of action for the government but biofuels were a “cornerstone” among many (e.g. decision of the nuclear phase-out) (BMVEL 2005).

The Agriculture Ministry was the main governmental driving force for biofuels in this first phase (van Thuijl and Deurwaarder 2006). The Green Party minister called the German farmers “tomorrow’s oil sheiks” (Kölnische Rundschau 2004). Biofuels were seen as a means to facilitate a primarily decentralized and medium-sized energy sector. The ministry and other actors in this group operated based on the question ‘what are the alternatives’ – remaining with petrol fuels and few major businesses controlling the fuels market (Interview No. 22, 2014). The ministry acknowledged the risk of biofuel feedstock monocultures, but maintained the position that sufficient agricultural land was available in “central Europe and other developed regions” to reconcile food and energy plant production, even in case of a further agricultural extensification of agriculture and land use for other purposes (e.g. nature protection, housing). Regarding the competition between the different uses of biomass, the ministry argued that lower energy efficiency in the mobile sector was not only a characteristic of biofuels but also of fossil fuels. The domestic and worldwide bioenergy potentials were sufficient to provide for the different use paths in a market relevant form. BtL were presented as a future option, though would only significantly contribute to the EU targets after 2010. Under favourable technical circumstances they could yield 25% of the total diesel consumption. Technical, economic, and life-cycle aspects still had to be resolved

⁵⁰ Government inter alia targeted at doubling the share of renewable energy of the primary energy consumption to 4.2% in 2010

before a large-scale production was possible (BMVEL 2005).

Like its agricultural counterpart, the Environment Ministry saw biofuels as a central means to address the negative trend of steadily increasing CO₂ emissions in transport (BMU 2004a). Its line of thinking which saw the necessity of increasing efficiency transport in view of peak oil. However, a demand of fuels would remain. In the long-run the fuel sources available would be coal or biomass. For this reason, coal and biomass needed to be compared to assess their efficiency, and not fossil oils. Regarding the eco- and cost-efficiency balances of liquefied coal and Biomass-to-Liquids (BtLs, 2nd generation biofuels), the latter would perform better. That is why the promotion of their grand technical realisation (= vs. decentralisation) should be the ministry's priority. Studies had shown biomass to be more efficient if used for heating or electricity. If however, BtLs or oil price increases would be integrated into life-cycle considerations, these results had to be relativized. The demand would be covered with imports from many countries, more diverse than for fossil fuels. This would increase the security of supply for Germany. At the same time markets would be created in exporting countries with new agricultural structures and job opportunities. Already now a large part of the biomass was being imported. Securing nature protection issues was challenging. Therefore it was even more important to introduce the certification of biofuels (Lahl 2006).

The Environment Ministry was however in constant dispute with its own research institution, the German Environment Agency which was a strong opponent of biofuels. It emphasized efficiency increases in the transport sector. Its position was to a large part based on an early and comprehensive life-cycle analysis (Kraus et al. 1999). "The promotion of conventional biofuels RME and fermentative bioethanol-paths, motivated by short-term policy objectives (EU Biofuels Directive), can [...] only be a transitional step, and should be critically scrutinized with respect to the impacts on the efficient allocation of biomass potentials. [...] Imports of liquid biofuels can contribute to achieving national biofuel targets, their ecological and social impacts at the international level should be part of the overall assessment" (Ramesoh et al. 2006).

The German farmers as producers of biofuel feedstock were a major player in the process⁵¹. They were represented by the Union for the Promotion of Oil and Protein Plants⁵² as the biofuels organisation for the German Farmers Association. From its beginning in 2001 it was closely connected to oil suppliers⁵³, particularly to the Federal Association of Decentral Oil Mills⁵⁴ (VDB 2011). These oil mills stood for a decentralised fuel supply with a large share of direct and regional selling points and consisted mainly of agricultural or medium-sized businesses (Stotz and

⁵¹ The agricultural reform in 1992 served as major incentive for German farmers to grow more rape than any other farmers in the EU. They grew more because the yields were higher in Germany than anywhere else in the EU. Quantity-based payments for farmers were abolished and instead a hectare-related support introduced. Farmers had to leave a certain percentage of their land left fallow. However, non-food crops could be grown on these areas. Farmers would receive the routine payment plus compensation payments for yields (Beneking 2011, 52).

⁵² Union zur Förderung von Öl- und Proteinpflanzen, UFOP

⁵³ mostly from rape, for biodiesel as well as vegetable oil

⁵⁴ Bundesverband Dezentraler Ölmühlen, BDOel

Remmele 2005). Other central actors were the German Renewable Energy Federation⁵⁵, promoting biomass production, and the Federal Association BioEnergy⁵⁶ as the umbrella organisation of actors active in the renewable energy sector (BBE et al. 2006), and the Association of the German Biofuels Industry⁵⁷ representing the interests of biodiesel producers.

With the 2005 general elections the red-green government was replaced by a CDU-SPD government. The conservatives could neither be considered as a pro-active actor of renewables, including biofuels, nor as an opponent of them (Brand-Schock 2010) due to the German farmers forming important constituents of the CDU. Its key priority was the consolidation of the state budget⁵⁸ and not a transformation of the energy system.

The established German environmental NGOs were divided over the question of biofuels. Friends of the Earth Germany, and particularly Greenpeace and the Federation for Protection of Nature and the Environment⁵⁹ were critical in the early years and remained sceptical regarding the increased production and use of biofuels (see for instance Greenpeace 2008). With reservations, the Nature and Biodiversity Conservation Union⁶⁰ on the other hand predicted biofuels to “have a great future” in September 2005. Due to its great potential for GHG emission reductions and thus to climate protection they would be a real alternative to fossil fuels (Nabu 2005a). However, biodiesel and ethanol could only represent a bridging technology, due to their environmental impacts. Therefore, biofuel demand should be covered from imports. Standards needed to be established for their production, excluding GMOs. An energy transformation could only be successful in combination with an agricultural transformation. In the medium-term BtL should be preferred, for which all parts of a plant would be used. It was more reasonable to use biomass for electricity and heat, the most efficient mode to avoid further climate effects from traffic were to avoid and shift it and increase the overall efficiency though. The Nabu referred to the many open questions related to the use of renewable energy sources and varying estimates about the potential of them (Nabu 2005b). Also, Germanwatch, a German development NGO advocating global justice and the preservation of natural resources, promoted biofuels as GHG reducing alternative to fossil fuels in the beginning (Grossarth 2012). By 2006 its position towards biofuels had changed. In its study “The dark side of biofuels” it stated: “[...] for the fuels from the fields not only rainforest is cleared but food directly ends up in fuel tanks. Million poor people therefore live with the threat that their daily bread becomes unpayable.” (Bals and Hamm 2007)

⁵⁵ Bundesverband Erneuerbare Energie e.V., BEE

⁵⁶ Bundesverband BioEnergie, BBE

⁵⁷ Verband der deutschen Biokraftstoffindustrie, VDB

⁵⁸ Next to the taxation of biofuels, the Energy Tax Act would regulate the taxation of energy products in general, including hard coal, lignite, coke, or natural gas. This enabled Finance Minister Peer Steinbrück (SPD) to free energy intensive industries (e.g. metals and chemistry) from energy and electricity taxes. He would finance these costs (eight million Euros in the first and 20 million Euros in the following years) from the reintroduction of taxes on biofuels (Schwenn 2006).

⁵⁹ Bund Umwelt und Naturschutz, BUND

⁶⁰ Naturschutzbund Deutschland, Nabu

6.3.3.2 *The 2002 Mineral Oil Tax Act – Tax Exemptions for Biofuels*

With the 2002 Mineral Oil Tax Act the red-green government introduced tax exemptions for all biogenic fuels⁶¹ (blends with fossil fuels were taxed according to the share of fossil fuels). They were introduced to compensate for the differences in the costs for biofuels and the price for fossil fuels (Bundesregierung 2005). Under EU provisions this was a legal limbo, but the tax exemptions were tolerated by the European Commission (BMF 2003), if they were restricted until 2009 (Europäische Kommission 2004). With the EU Energy Taxation Directive from October 2003⁶² tax exemptions became legal across Europe. However, tax advantages had to be adapted continuously to avoid overcompensation of additional biofuels' production costs (Article 16(3)). In the process of the Energy Tax Act, this restriction would represent an argument for the CDU-SPD government to abolish tax advantages of biofuels (see section 6.3.3.4).

Backed by the EU directive and due to further increasing relevance of biofuels, the decision to tax exempt biofuels was extended to *all* biofuels in November 2003. Though government made no use of quota as enabled by the Biofuels Directive (adopted in May 2003), supporting rather decentralised and domestic solutions to energy supply. The tax exemptions now applied to pure biofuels and to *blends* of bio- with fossil fuels until including 2009 (BMU 2004b). These amendments caused a further expansion in biofuels feedstock and production capacities (Bockey 2006). As a compromise between the Bundestag and the conservatives-led Bundesrat, biofuel subsidies were expanded to promote an environmentally friendly mobility, although many other subsidies were cut (BMU 2004b). This push for biofuels originated from a cross-party group of seven parliamentarians heavily promoting biofuels against strong resistance from their own parties (Interview No. 22, 2014).

6.3.3.3 *IA and Wider Evidence-Base*

Formal IA – First Phase

Renewable energies in general and biofuels in particular were new and the enthusiasm for them widespread in this early phase. Even within the Environment Ministry the sustainability discussion was hardly present, biofuels were simply positively connoted (Interview No. 22, 2014). For this reason and due to the novelty of the policy field, the development of renewables policy was first based on little evidence. The general environmental 'calculation' was done off the top of one's head (ibid.). A minor interpellation in 2005 to the Agricultural Ministry on the potential of renewable raw materials showed that at this point government had "no detailed information" about the overall effects of restructuring the energy sector. Yearly turnovers and investments, or job effects, inter alia in the biofuels sector were largely unknown (Deutscher Bundestag 2005b). Assumptions about the effects were largely based on studies delivering first estimates (e.g. Nitsch et al. 2004, Deutscher Bundestag 2005b).

⁶¹ At that point only biodiesel and vegetable oil were on the market, with a high share of biodiesel (Europäische Kommission 2004)

⁶² The Energy Taxation Directive (2003/96/EC) aimed at harmonizing the taxation of energy products. The directive allowed the member states to introduce a reduced rate or to exempt biofuels from energy taxes.

Estimates of the Agricultural Ministry on biomass' contribution to and further potential for CO₂ savings were based on a preliminary assessment from March 2005. It was carried out by the working group Renewable Energies-Statistics⁶³. The numbers for the CO₂-savings were based on a study commissioned by the working group on the emission factors for biomass (AGEE-Stat without date), whereas specifications on the abatement costs originated from a report commissioned by Research Association for Combustion Engines and the Union for the Protection of Oil and Protein Plants (Gärtner et al. 2004).

In summer 2005, the Finance Ministry (with the involvement of the Agriculture, Economy, and Environment Ministry) issued the so called Biofuels Report (Bundesregierung 2005). The report built the basis for the formal assessment of the Energy Tax Act's financial impacts as required by the IA provisions. It had to be prepared under provisions of the Energy Taxation Directive (Article 16) to monitor whether member states' biofuels tax policies lead to overcompensation. Moreover, climate and environmental impacts, impacts on natural resources, and external costs of biofuels promotion had to be considered (2003/96/EC).

The assessment saw an overcompensation of 5 and 10 cent/litre of biodiesel in its pure and blended form adding up to 77 million Euros. The Finance Ministry therefore suggested introducing a proportionate biodiesel tax (Bundesregierung 2005). Regarding environmental effects, the ministry explained that biofuels could play an important role, next to increases in efficiency inter alia. Not least because of their high GHG reduction potential, ranging between 18-89% for biodiesel, 13-60% for bioethanol, and above 90% for BtL. These numbers were taken from the report of the matrix group (which again had used numbers from the CONCAWE et al. (CONCAWE et al. 2003) study). Based on a study commissioned by the UFOP (Gärtner and Reinhardt 2003), the Biofuels Report saw that in 2004 in Germany, 2.2 kg of CO₂ were saved per litre biodiesel based on rape feedstock grown in Germany compared to fossil fuel. These positive effects were contrasted with the subsidy costs of biofuels needed to mitigate climate emissions, costing 215€/per tonne biodiesel and 574€ of bioethanol. The Finance Ministry did not discuss other environmental impacts found by the study (acidification etc.). Due to their low market relevance in 2004 vegetable oils were not considered in the report (BMF 2006, 75). Data for bioethanol was not complete and these were only blended in small amounts. For this reason, the report suggested to not impose a tax on this fuel (Bundesregierung 2005, 6).

Most experts in the parliamentary hearing on the Energy Tax and Biofuels Quota Act considered the way the overcompensation had been calculated as inappropriate (cf. Hearing in the Bundestag on the Energy Tax Act in combination with the Biofuels Quota Key Issues Paper (17 May 2006)). The Trade Association of Medium Sized Mineral Oil Associations⁶⁴ claimed outdated data had been used in the calculation. An average value should not have been used by the Finance Ministry given the volatility of the biofuels market with daily changing prices. The German Energy Agency and Union for the Protection of Oil and Protein Plants remarked that the scope of the

⁶³ the group was established by the Environment, Economics, and Agricultural Ministries in 2004 in response to the renewables boom (AGEE-Stat without date)

⁶⁴ Interessengemeinschaft mittelständischer Mineralölverbände

overcompensation calculation was too narrow. Moreover, they asked for impacts of the different biofuels shares on climate, environmental, natural resources, external costs of the different fuel types, and aspects of security of supply to be included, as asked for in the Biofuels Directive and implemented in § 50, paragraph 4 of the Energy Tax Act proposal. The Energy Agency representative commented that revenues from regional biofuel industries could currently not be quantified; but a study (dena 2006) commissioned by government and industry was to look at potentials and costs for 2nd generation biofuels.

In a second hearing on the Energy Tax and Biofuels Quota Act in October 2006 the central issue was the handling or flanking of the tax rates to be introduced. An FDP member of parliament (MP) pleaded for proportionate taxes for biofuels in relation to oil prices (in line with the Green Party). Biofuel taxes could with the current mechanism only be adapted retrospectively, which would create unreasonably high costs for biofuels since oil prices were highly volatile (at that time crude oil prices had just dropped by 20%). A Green MP suggested building in an under-compensation screening (checking whether biofuels were excessively taxed, in contrast to the overcompensation check – if tax rates set were too low). The Federation Plant Oils as well saw an under-compensation screening an appropriate means as to ensure that vegetable fuels would not become more expensive than fossil fuels (Hearing in the Bundestag on the Biofuels Quota Act (Deutscher Bundestag 2006h)).

Wider Evidence-Base – First Phase

With the dynamics in the biofuels sector achieved and the targets set out in the Biofuels Directive, government and other actors began assessing the feasibility and effects of its overall biomass policy and the wider implications of the transformation programme more strategically. According to the responsible officer in the Environment Ministry IAs are performed by the responsible agency – in the biofuels case by the Environment Agency.

“The assessment will feature in the rationale part in an aggregated form. You will put a sentence that no one is affected because you know with this clause you will achieve your objective faster.” (Interview No. 23, 2014)

The Environment Agency’s position was primarily based on a comprehensive life-cycle assessment of rape oil and RME from 1999⁶⁵. It attested renewable fuels only to have only a limited CO₂-balance. The Environment Department on the other hand assumed that pure biodiesel and pure bioethanol would save 50% of CO₂ compared to fossil alternatives (BMU 2004a). Particulate matter emissions were positively assessed, though their soil and water impacts were critical. This started a dispute with the Agriculture Department and the Union for the Promotion of Oil and Protein Plants who commissioned counter studies.

⁶⁵ The Environment Agency’s 1999 Update-Assessment of Biofuels was based on two expert reports prepared by ifeu (1998) and Ruhr-Universität Bochum (1998) and represented an updated study incorporating new data and developments in the LCA method to a report prepared in 1993 (as the first comprehensive life-cycle analysis in this field, the first to integrate economic impacts and the first to demonstrate the negative impacts of biofuels) (Interview No. 23, 2014)

“The life-cycle analysis results were the opinion of the whole house [Environment Agency]. The analysis was developed in a long process by all relevant experts of the agency – from the water, agricultural, economic, to the legal divisions.” (Interview No. 23, 2014)

The head of the responsible division saw the biofuels issue to be too complex for some people to be able to oversee it.

“This issue has so many driving factors, the oil market, but also the soy and timber market and so on, it really goes crazily far. You cannot represent this in an assessment, and you cannot represent such a system in a life-cycle analysis.” (ibid.)

In a later hearing, he put forward that life-cycle analysis' results depended on the scope of the analysis. The problem with LCAs related to biofuels was that they focussed on climate aspects, though water and air quality footprints as well as biodiversity had to be incorporated too; then, biofuels would usually perform worse than other options (Deutscher Bundestag 2006g).

The two environmental advisory councils were on side of the Environment Agency emphasizing the priority of efficiency increases in the transport sector; if energy use in transport was drastically reduced biofuels had a role to play, though critically remarking their high abatement costs. The German Advisory Council on Global Change recommended limiting efforts for “biogenic fuel and to reduce current levels of support.” Priorities for support should be fuel cell drives, natural gas and hybrid vehicles, telematics and multi-modality” (WBGU 2003, 100). The German Advisory Council on the Environment demanded an integrated concept comprising the production and use of renewable resources (SRU 2005). Only then, the optimum use path of biomass could be examined. Both councils found biofuels to have a big technological and GHG reduction potential compared to fossil fuels. Still, their widely varying climate balance (referring to several life-cycle studies, e.g. the CONCAWE well-to-wheel analysis) had to be considered rather critically and they were performing worse regarding acidification and eutrophication. Restrictions for biomass use resulted mainly from nature protection requirements (e.g. Federal Nature Conservation Act) and the domestic and international spatial requirements for growing feedstock. Biofuels should only be pursued as an option if produced with sustainable agricultural methods and if in total a positive climate balance could be achieved. Imports should be subject to certification.

Also an expert group installed by the Transport Ministry saw that a higher priority should be given to increasing efficiency of motors and drive technologies. They were an important precondition for a broader use of biofuels. The expert group ‘Fuel Matrix’ was set up in context of the development of the ministry’s fuel strategy (cf. SPD 2005, 25) and comprised members from the automobile and oil industry, science, consultancies and private-public representatives of the biofuels industry. It was formed to assess the climate reduction potential, availability and quantities, profitability, environmental impacts/energy balance of different types of fossil fuels as well as pure and blended renewable fuels. Due to limited data availability, the expert group did not consider environmental impacts in the end. The main source of information provided the 2003 CONCAWE et al. (2003) well-to-wheel study already used in the English IA process (cf. section 6.2). They inferred a 5.75% biofuels share until 2010 to be possible. For a share above that, existing biofuels had to be further developed or new renewable fuels introduced. For BtLs

no bigger production capacities could be expected until 2010 though. Pure biofuels were not a practicable solution, since a stable product quality could not be ensured. With a 5.75% target imports were moreover likely; sustainably grown feedstock needed to be ensured. The expert group also addressed potential competition between domestic uses (e.g. organic agriculture, biomass for electricity, protection, biofuels). With increasing demand of biofuels, the competition would intensify⁶⁶. If all of the agricultural non-food area would be used for biofuels, a 9% share could be realised in 2010. If other uses were given priority, there would be no potential for renewable fuels (BMVI/ BMVBS 2004, 4-31).

Also the Environment Ministry's flagship report "Material flow analysis for a sustainable energetic use of biomass"⁶⁷ gave a mixed account of biofuels. They could be a part of the energy transformation process (particularly second generation biofuels), though would not be the major option for the transport sector. Biofuels from environmentally friendly produced feedstock could not be realised without imports which again would create a demand for sustainability criteria for biofuel feedstock production worldwide. The study itself was a comprehensive scenario analysis involving a wide circle of stakeholders (e.g. an advisory body with members of the Agency for Nature Protection, the EC, WWF, the German Energy Agency). It looked at the options of an expansion of biomass, identifying "promising techniques and types of facilities". The potential impacts of the different usage options of biomass on climate and nature protection, jobs and the overall economy until 2030 were assessed. Four scenarios were developed to examine the likely effects: They concluded that under a scenario of biomass extension under organic farming, the 5.75% target could not be achieved until 2010, due to spatial restrictions and lower yields. Against the backdrop of an increased efficiency in transport, the environment and the sustainability scenario (combination of the previous and a baseline scenario) showed cost savings against the baseline scenario, taking tax exemptions as a basis. Though even with partial tax rates on biofuels after 2020, the sustainable scenario would still be less cost intensive. A "drastic" reduction of GHGs until 2030 could be expected from the measures.

The Advisory Council on the Environment criticised the Environment Ministry's set up of the biomass extension scenario⁶⁸ in the above material flow analysis. The environmental requirements taken as a basis were technically incorrect (e.g. in the basis scenario, minimum requirements for a biotope network had not been incorporated into the scenario). Therefore, the results on the areas available for growing biofuel feedstock were problematic (SRU 2005).

A positive account of bioethanol was given by a study⁶⁹ by the Agriculture Ministry. It examined bioethanol and their impacts on GHG balances since their use for climate protection was contested and existing studies came to different findings, depending on the scope and

⁶⁶ Based on Reinhardt et al. (Reinhardt et al. 2004)

⁶⁷ (Fritsche et al. 2004)

⁶⁸ The scenario had been developed in the previous LCA-based report "Ecologically Optimised Expansion of Renewable Energies in Germany" (Nitsch et al. 2004)

⁶⁹ "Innovations in bioethanol production and its impacts on energy GHG balances: new processes, optimisation potentials, international experiences and market developments" (Schmitz 2005)

assumptions made (Schmitz 2006). Many of the publications on energy and GHG emissions were using outdated data and assumptions. This 2005 update study examined 29 national and international scientific papers on energy and GHG balances of bioethanol production processes and technologies. The diverse authors from consultancy, research, sugar and bioethanol producers, Shell and BP found that the negative energy balances in the “old” analyses had caused the hostile attitude towards bioethanol, whereas the new studies found positive energy and climate balances in contrast.

Similarly positive was a report⁷⁰ commissioned by the Research Association for Combustion Engines and the Union for the Protection of Oil and Protein Plants. It argued more optimistically, though coming to similar conclusions than the previous studies. It provided an overview of the large number of studies examining the environmental, cost and potential implications of biofuels. The comparison included large number of international studies on each type of biofuel, including BtL, many of them being well-to-wheel studies. It attributed biofuels to have advantages regarding resource and climate protection, though regular disadvantages regarding acidification, eutrophication, and ozone depletion. Further disadvantages were their cost intensive production; secondly, due to spatial and usage competition they could only replace a small share of fossil fuels. However, the advantages would outweigh the disadvantages of the latter by far. New technologies were needed to advance BtL (Gärtner et al. 2004).

6.3.3.4 The 2006 Energy Tax Act – Taxes on Biofuels

In this second phase the key conflict was the question in how far the introduction of tax rates would impact on or destroy the just evolving biofuels industry in Germany: 1) Introducing tax rates would set at risk the compatible production of biofuels, 2) in combination with quota, which would shift the responsibility for supply to major oil companies. These would search for the cheapest supply and use imports to fulfil the quota and hand on extra costs for the supply to consumers. This again centred on the question in how far biofuels were overcompensated with existing taxation.

This second phase of the transposition process was triggered by the outcome of the earlier general elections in September 2005. The SPD-Green coalition was replaced by a CDU-SPD government. Key objective of the conservatives-socialist democrats’ was the consolidation of the state budget. In this context a number of tax privileges were to be removed, including the tax exemptions for biofuels (BMF 2005). The new coalition government intended to

- increase the share of biofuels but replace the tax exemption of biofuels with a blending obligation;
- advance the market introduction of BtL to an industrial scale (CDU 2005a, 52).

In the SPD-led Ministry of Finance, the Unit of Energy Taxes held responsible for the Energy Tax Act. In late 2005 its Parliamentary State Secretary affirmed the introduction of reduced tax rates for biodiesel and vegetable oil. In January 2006 the Finance Ministry issued a ministerial draft

⁷⁰ “CO2 Mitigation through Biofuels in the Transport Sector” (Gärtner et al. 2004)

bill of a new Energy Tax Act⁷¹. It was planned to be implemented together with the Biofuels Quota Act and to be adopted in August 2006. So, government had only seven months to implement the act. The suggested tax rates until 2009 were as follows and would be adopted with the Energy Tax Act in July 2006 (BMF 2006):

- Biodiesel in pure and blended form would be taxed with 10 and 15 cent/litre
- Vegetable oil would be taxed with 15 cent/litre (BMF 2006, 75).

The higher tax rate for vegetable oil was justified with the fewer production stages needed and the therefore lower costs for fuel use (*ibid.*, 75). The proposal for the taxation of pure biofuels caused a stir in the biodiesel industry (VDB 2006), since shortly after the agreement on a coalition agreement in 2005, the vice president of the German Farmers Association had assured that these would remain tax exempted (DBV 2005). In the act that would be adopted in combination with the biofuels quota in September (see section 6.3.4), the taxation of other biofuels types would remain the same in the draft issued in January. The CSU-led Ministry for Agriculture however achieved that compared to the January draft that biofuels used in agriculture and forestry were excluded from taxation (Bundesregierung 2006a).

The Association of the German Biofuels Industry would generally accept the step-wise reduction of tax advantages, though under the precondition of biofuels' competitiveness. The association suggested a full taxation of the blending market, but a partial taxation for the B100 market. Otherwise it would shift from national supply to palm or soy bean imports with according consequences for German agriculture. Like the biodiesel industry the Association of the German Automotive Industry supported the continuation of tax advantages for duty vehicles. At the same time the prospects of technical feasibility and the according norms to allow for a 10% blending until 2010 were presented (VDB 2006).

As clarified in the answer to "written questions" to the government, the Parliamentary State Secretary explained that with view to impacts of the changes in taxation government was expecting continued biodiesel production and national demand, with increasing shares of biofuels, positively affecting the CO₂ balance and domestic agriculture (Deutscher Bundestag 2005a). Government drew on the outcomes of the 2005 Biofuels report (see section 6.3.3.3) to justify the introduction of biofuel taxes for all of the above biofuels (*cf.* BMF 2006, 55). The report had shown the overcompensation of biodiesel (pure and blended) which was not compliant with EU energy taxation and national provisions (*ibid.*). Moreover, the development of the Energy Tax Act (and Biofuels Quota Act) fell together with continuously rising oil prices, reaching a historical high in 2005⁷². Biofuels would become more profitable with rising crude oil prices.

Even representatives of the Federal Agricultural Research Centre⁷³ argued against further tax

⁷¹ The fundamental, systematic, and legal changes required by the Energy Taxation Directive could not be made in the Mineral Oil Taxation Act (see section 6.3.3), so that the Finance Ministry transferred it into an Energy Tax Act (BMF 2006, 54).

⁷² in 1996 the oil price was at about 20 USD/Barrel, in 2000 at about 28USD/Barrel; in 2005 the price climbed to 55 USD/Barrel (Tescon 2016, 2017)

⁷³ Bundesforschungsanstalt für Landwirtschaft (FAL)

promotion of biofuels⁷⁴. They discussed policy options on the promotion of biofuel feedstock production. The key point made was that German policy should rather promote German technology know-how and export it to the worldwide growing renewable energy industry, instead of subsidising the production of biofuel feedstock in Germany with only little spatial capacity at disposal. Mainly because German or EU biofuels would not be profitable, neither in the short nor long-run, in comparison with biofuels produced in third countries. The paper accused policy of having started a new policy field with key questions left unanswered, such as: Should bioenergy be promoted at all? Should production or the use be promoted? What should be promoted: biofuels, heat or electricity? How should land use competition be handled? With 900€/year and hectare of rape subsidies bioenergy was too costly for German tax payers and the achievement of the objectives linked to it uncertain. While support for food production was reduced in the EU, the new bioenergy policy would lead to new and unreasonable dependencies. They suggested rethinking quota, particularly for bioethanol. A bioenergy business plan should be developed to reconceptualise bioenergy policies (Isermeyer and Zimmer 2006).

Moreover, the change to the Energy Tax Act provisions coincided with a tilting public attitude towards biofuels, however slower than in other countries of the EU (Interview No. 22, 2014). With growing evidence of the environmental and social implications of biofuel production in third countries all major environmental and (international) development NGOs had by 2006 adopted a negative view towards biofuels and the public opinion about biofuels began to change (e.g. Reinhardt et al. 2007, EUtech 2008, Greenpeace 2008). In this line, also the major media reported increasingly critical about biofuels (see for instance Berchem 2006, Donner 2006).

6.3.3.5 IA and Wider Evidence-Base

Formal IA – Second Phase

The formal and wider evidence-base of the second IA phase was limited. The Biofuels Report provided sufficient arguments for government to introduce taxes on biofuels. Using the proposed tax rates, the Finance Ministry calculated the additional revenues for the following years as shown in Table 11 (under number four, in million Euros). Otherwise, no further types of impacts (e.g. impact on public budgets) or justifications were provided.

⁷⁴ Working Paper from the Federal Agricultural Research Centre “Theses on the German Bioenergy Policy” (Isermeyer and Zimmer 2006)

Table 11: Finance Ministry's calculation of additional tax incomes/loss of revenues from the Energy Tax Act (draft) in million Euros (BMF 2006, 56)

Finanzielle Auswirkungen eines Gesetzentwurfs zur Neuregelung der Besteuerung von Energieerzeugnissen und zur Änderung des Stromsteuergesetzes
(Steuermehr- / -mindereinnahmen (-) in Mio. €)

lfd. Nr.	Maßnahme	Steuerart Gebiets- körper- schaft	Volle Jahres- wirkung ¹⁾	Kassenjahr				
				2006	2007	2008	2009	2010
Artikel 1		EnergieSt						
1	<u>§ 2 Abs. 1 Nr. 9 EnergieStG</u> Besteuerung von Kohle	Insg.	33	14	33	31	30	28
		Bund	33	14	33	31	30	28
		Länder	.	.	.	.	.	.
		Gem.	.	.	.	.	.	.
2	<u>§§ 3 u. 53 EnergieStG</u> Neuregelung der Inputbesteuerung bei der Stromerzeugung und für KWK-Anlagen	Insg.	- 76	- 30	- 76	- 76	- 76	- 76
		Bund	- 76	- 30	- 76	- 76	- 76	- 76
		Länder	.	.	.	.	.	.
		Gem.	.	.	.	.	.	.
3	<u>§§ 27 u. 52 EnergieStG</u> Neuregelungen bei den Steuerbefreiungen für die Schiff- und Luftfahrt	Insg. ²⁾	- 32	- 13	- 32	- 32	- 32	- 32
		Bund	- 32	- 13	- 32	- 32	- 32	- 32
		Länder	.	.	.	.	.	.
		Gem.	.	.	.	.	.	.
4	<u>§ 50 EnergieStG</u> Einstieg in die Besteuerung von Biokraftstoffen	Insg.	370	130	370	420	450	450
		Bund	370	130	370	420	450	450
		Länder	.	.	.	.	.	.

(1 column= measure; 2= type of tax, territorial authority; 3= full annual impact; 4= funding year)

The calculation remained the same for a later draft of the act, except that state costs for the tax exemption of biofuels in agriculture were set out separately. An additional section with "Other impacts" was inserted, briefly arguing that the introduction of taxes of biofuels could to a small extent result in an increase of fuel costs for consumers. Impacts on the general prices levels were not being expected (Bundesrat 2006, 3).

The biofuels industry saw different impact chains and rejected the plans of the CDU-SPD government to abolish tax exemptions. It had invested in facilities too big to fail (Interview No. 20, 2014) and feared exemptions would lead to a collapse of the German market for biogenic, pure transport fuels. It moreover demanded a more long-sighted policy framework for biofuels for after 2009, protection of EU biofuels against imports under WTO regulations; international trade of biomass according to the Agenda 21 criteria and standards for biofuels to ensure a high quality (BBE 2005, BBE et al. 2006). The German biofuels industry with many medium-sized companies, strong in plant engineering and construction and export, 30 thousand employees in agriculture for production and distribution saw itself set at risk with the imposed taxes (see Deutscher Bundestag 2006g).

6.3.3.6 IA in the Decision-Making Procedure

The Bundestag Finance, Agriculture, Environment, and Economy Committees demanded from the government to develop a comprehensive biofuels concept until 2007, based on a second "Biofuels Report" (Deutscher Bundestag 2006d). The concept should set out the financial impacts and the impacts on biofuels use and on the competitiveness of producers and buyers of biofuels expected from the tax reductions and a blending obligation. The Bundesrat further demanded from the government to swiftly prepare an updated Biofuels Report to appropriately determine new tax levels. The data used to determine the overcompensation should be set out in more de-

tail in the revised report. For instance, the prices set for rape oil would not match with prices calculated by the Union for the Promotion of Oil and Protein Plants. For vegetable oil the responsible ministry should collect robust market data in order to set an appropriate tax rate. Until these data were provided government should disdain from introducing a tax rate of 15c/litre.

Government or the Finance Ministry respectively confirmed its intentions to prepare an updated Biofuels Report for the year 2005 to scrutinize overcompensation. In fact, the second biofuels report would only be published in October 2007, after the Biofuels Quota Act had been adopted (Deutscher Bundestag 2006b).

Moreover, the Bundesrat asked for BtL to be tax exempted until 2020 to create planning and investment security. The tax rates for the other biofuel types should be reduced. Currently suggested levels would not create incentives to further produce biofuels and for the consumers to buy biofuels. In the contrary, planned expansion of capacities would be stopped and existing production facilities were set at risk. A study carried out by the Leibniz Institute for Economic Research at the University of Munich in 2002 had shown that up to 83% of the lost tax revenues would be compensated by backflow from tax returns and additional social security revenues (Schöpe and Britschkat 2002). It further asked the government to soon specify the planned blending obligation. It argued that taxing biofuels detached from the blending obligation would further increase the planning insecurity for investors and operators. The tax exemptions for biofuels used in agriculture were appropriate and should be kept also under a blending regulation (and a certain compensation for the high taxation of agro-diesel) (Deutscher Bundestag 2006d).

In the Bundestag committees⁷⁵, the draft was approved with the votes of the CDU and SPD. The Liberal Party voted against the draft due to the breach of the protection of confidence, particularly relevant to the medium sized businesses until 2009. For the same reason the Green Party rejected the recommendations of the Finance Committee, particularly for vegetable oil. The Green Party and the LINKE further objected the quota due to the likely cheap imports from transition and developing countries. The committee therefore asked the government to incorporate measurable sustainability criteria and positive CO₂ balances to provide information about the origin and production of biofuels (Deutscher Bundestag 2006d).

One day later the Bundestag deliberated the Energy Tax Act. The realisation of the Act was criticised by opposition MPs for the “unbelievable” constant back and forth” (Deutscher Bundestag 2006a, 136). Many MPs from the coalition parties did not back the Energy Tax Act; some pleaded for a two-way strategy as a compromise (pure biofuels next to a blending obligation) (Deutscher Bundestag 2006a, 133 & 143). The Energy Tax Act was adopted with the votes of the CDU/CSU party groups and most votes of the SPD MPs on 15 July 2006.

⁷⁵ the leading Finance Committee, Committee for the Economy and Technology, Agriculture, Environment, Technology Assessment, Budget, and the Transport Committee

6.3.4 Level of Biofuel Quota

6.3.4.1 The Conflict and Actor Constellation

The legislative chaos (introducing energy taxes not simultaneously with quota) was to be abolished with the introduction of the Biofuels Quota Act⁷⁶ as ‘umbrella law’. The Biofuels Quota Act implemented the EU Energy Taxation and the Biofuels Directive. The Finance Ministry would remain the lead ministry, while the Environment Ministry was responsible for the immissions-related part (Bundesregierung 2006a). These biofuels quotas were to be achieved by the large petrol companies. From January 2007, they were obliged to sell a growing share of biofuels in relation to their annual turnover of diesel or petrol. With the Biofuels Quota Act the government shifted the responsibility of achieving a certain biofuel share from the German biofuels industry to the major oil companies.

The act was seemingly facilitated by a mix of financial, political, and technical arguments and the conflict lines manifold. Financial-wise the rising production of biofuels was a critical point.

“This created a small panic in the Ministry of Finance, with a predicted tax loss of about a half billion Euros. The responsible Environment Ministry unit then suggested the quota, particularly a net quota with GHG reduction as benchmark. Since the finance minister had a great interest in stopping the tax reliefs due to fiscal reasons, our idea was accepted quickly.” (Interview No. 23, 2014)

For the biofuels industry the quota was problematic because the petrol industry would use cheaper biofuel imports from third countries bypassing the domestic biofuels, and passing on the extra costs of achieving the quota to motorists. The petrol industry would control the feedstock flows and the selling points for benzene (Deutscher Bundestag 2006g, 33). The fuel market was large⁷⁷ and economic interests were strong. The shift to imports redistributed potential wins and losses.

“And the oil industry, the nutrition oil industry, or the ethanol/sugar industry (mainly two big sugar companies), all were engaged in massive lobbying activities. [...] And from the beginning the necessity to cover the biofuels share with imports was clear to all involved.” (Interview No. 20, 2014)

The major oil companies such as BP, Esso, Shell, and Total, represented by the Association of the German Petroleum Industry⁷⁸, obviously opposed biofuels, with “significant conversion costs” entailed in blending and providing them (Adolf and Breloh 2014). With increasing relevance of biofuels they were also the ones to be threatened to lose a part of their fossil fuel market; particularly, if biofuels were intended to be a part of regional/decentralised supply cycles. In contrast to the tax exemptions however, the quota gave them the control over biofuel supply chains. The oil companies based their arguments on BtLs and long-term change, opposing *first* generation

⁷⁶ The regulation’s full title was “Regulation for the Introduction of a biofuels quota by changing the Federal Immission Control Act and for the Amendment of Energy and Electricity Tax Related Provisions”.

⁷⁷ With a fossil fuel consumption of private households in 2005 of 37.5 billion litres of fossil fuels (cf. Statista 2015)

⁷⁸ Mineralölwirtschaftsverband

biofuels. The latter would cement overcome agricultural structures and would increase prices for mobility, since costs of the quota would have to be borne by consumers. They were neither economically or socially accepted, nor environmentally efficient in comparison with their fossil counterparts. Policy-makers would ignore market realities with promoting the market penetration of expensive and subsidised first generation biofuels. The scientific basis was lacking for changing farmers from agro to energy businesses. Mineral oil would be available, even in the long-run, providing sufficient time to develop appropriate alternatives to it, such as BtLs (Picard 2006).

The German automobile industry opposed biofuels in the beginning, fearing extra expenditures for the new technologies and infrastructures needed for enabling biofuels use in automobiles; and it feared fewer car sales from additional costs for biofuels paid by the consumers. The automobile industry had to cope with two issues at one time: Its cars had to be fit for blending biofuels and the Environment Ministry negotiated hard with the automobile industry about the limits for that. The industry argued that motors were not compatible with biofuels, threatening the Ministry to not warrant for their cars any more. It was “convinced”⁷⁹ with the EU emission standards for CO₂80. Having in mind the first wave of policies on GHGs and cars⁸¹ (Interview No. 23, 2014) it would see biofuels as a chance to reduce GHG emissions from their cars⁸². Preconditions for this though were Europe-wide quality standards for further development of fuels and tax promotion of biofuels to cover the cost gap of biofuels to fossil fuels. In addition, it called for measures to promote BtL (VDA 2006). BtL were feasible, because they could be tailor-made for their motors. However, everyone knew that BtL processing was technically challenging (Interview No. 22, 2014).

The Biofuels Quota Act also emerged because chancellor Merkel had set a GHG benchmark for Germany in the context of the Kyoto Protocol entering into force in February 2005. The Environment Ministry was asked to “collect” all measures which could contribute to this goal. This opened a window of opportunity for the Environment Ministry’s biofuels’ unit to forward its draft for a Biofuels Quota Act to the cabinet (Interview No. 23, 2014). The SPD-led Environment Ministry with Sigmar Gabriel as minister, was responsible for the act, more precisely the responsible unit was the Technology of Air Pollution Control in Transport and in Heating and Motor Fuels, and Biofuels. As such a unit with close connections to industry was in charge of the biofuels issue. According to one of the interviewed persons, the head of the responsible unit for biofu-

⁷⁹ The coalition government agreed to support the voluntary arrangement of the European Automobile Association to not exceed the average emissions of 140 g CO₂/km until 2008. For the 2012 target of 120g CO₂/km biofuels should be allowed to be counted against the limit target with a certain percentage (CDU 2005b). Without blending biofuels the threshold were to be 130g CO₂/km.

⁸⁰ with Directive 2005/78/EC of November 2005, with the technical requirements taking effect from October 2008 for new type approvals and new registrations from October 2009

⁸¹ see for instance http://ec.europa.eu/taxation_customs/taxation/other_taxes/passenger_car/index_de.htm

⁸² For example, DaimlerChrysler’s 2006 production series was in average 69% above the future Euro norm with hardly any chances to achieve the standards in the near future.

els in the Environment Ministry promoted the Biofuels Quota Act and urged and pushed the responsible minister to implement it (ibid.).

Further conflict lines evolved when government responded to the Bundesrat's demand for an outline of a quota regulation in April 2006 (see Bundesregierung 2006c). The following debate was actually about the specific design of the quota, how it would escalate over time, and how it would be defined. Questions included whether to introduce a mixed quota, maximum and minimum blends, or whether pure biofuels could be counted towards the quota (Interview No. 22, 2014).

The paper proposed quota for diesel and petrol from 2007 on. Pure biofuels were not included and remained without a quota. With 5.7% and 6.0% the quota suggested were below those which were passed with the Biofuels Quota Act. Government rejected the recommendations of the Bundesrat on the marketing of pure biofuels because no taxation would result in unfair competition. Businesses marketing exclusively pure biofuels could offer them to clearly lower prices than businesses selling also fossil fuels. A lot of medium sized mineral oil businesses would also sell pure biofuels (Deutscher Bundestag 2006c). In this act, the total quota for 2009 and 2010 were 6.25% and 6.75%. The government expected tax revenues of 1.7 billion € in 2007 (rising to 2 billion € in 2009) from abolishing tax advantages for biofuels and changing to quota Biofuels within the quota would be subject to the full energy tax from 2007 on.

Contested were the limited tax exemptions for pure biofuels until 2009. Their share had continuously increased. And until 2007 biofuels were mainly used as pure biofuels, particularly in agriculture and forestry and for road freight transport⁸³, since heavy weight vehicles had been cleared for B100 in large numbers (DBFZ 2012). The high emissions of particulate matter of B100 were not future-proof. The upcoming Euro 5/5a norms for cars were stricter than the existing ones. With B100 complying with them was impossible. And for cars, B100 was not a future option in any way, because cars with particle filters could not be equipped for biodiesel use which is why the Environment Ministry welcomed the quota. And the ministry did not intend to include heavy duty vehicles only. So, tax advantages for pure biofuels would be kept for fuels *above the quota* until the end of 2009 due to investments made trusting in tax exemptions existent at that time. Tax reductions for pure biofuels would remain on the existing ones, and then adapted to the results of the annual overcompensation assessment (Bundesregierung 2006c). Government rejected the recommendations of the Bundesrat on the marketing of pure biofuels, because no taxation would result in unfair competition. Businesses marketing exclusively pure biofuels could offer them to clearly lower prices than businesses selling also fossil fuels. A lot of medium sized mineral oil businesses would also sell pure biofuels (Deutscher Bundestag 2006c).

⁸³ In 2005 40% of the total share of biodiesel was sold as pure fuel use in heavy duty vehicles (BMVEL 2005).

Table 12: Suggested biofuels quota (Bundesregierung 2006c, 2), German/English

<u>Höhe der Quote (ohne steuerbegünstigten Reinkraftstoff):</u>			Level of the quota (without tax advantaged pure fuel)		
Diesel:	ab 2007	4,4 %	Diesel:	from 2007	4.4%
Otto:	ab 2007	2,0 %	Otto:	from 2007	2.0%
	ab 2010	3,0 %		from 2010	3.0%
zusätzlich			Additional		
Gesamtquote	ab 2009	5,7 %	Total quota:	from 2009	5.7%
Gesamtquote	ab 2010	6,0 %	Total quota	from 2010	6.0%
Die Unterquoten bleiben erhalten.			Sub-quota will be remained.		

The major biofuels industry organisations pleaded for a 2-way strategy: the combination of regulatory biofuel quota and tax advantages for biofuels [...], ensuring an “efficient, sustainable and widely-covered market introductions of biofuels”. But tax advantages only applying for three years would particularly put SMEs in the biofuels market at risk. They asked for appropriate tax rates and guaranteed tax advantages for pure biofuels until at least 2015; tax advantages for all biofuels, and tax exemptions for pure fuels in agro-forestry without sun setting. Regarding the biofuels quota they demanded a swift increase of biofuel shares to 10% vol. and in fuel standards. In light of Germany taking over the EU presidency in the first half of 2007, they demanded to make mandatory biofuel shares a central objective of this presidency (BBE et al. 2006).

For the Union for the Promotion of Protein and Oil Plants, the suggested quota meant an under-utilisation of the available biodiesel capacities (1.5 million tonnes covered by the quota, versus 3.5 million tonnes available). Therefore, the B100 market needed to be maintained in the long-run instead of choking it off with a full taxation. In combination with the stepwise tax increases for pure biodiesel, the stepwise enhancement of the biofuels quota was too late. In light of the expected overcapacities, the maintenance of the pure fuels market had to have absolute priority. The Union demanded to halt increased tax rates with the third step of 21 cent/litre for biodiesel in 2009 and the doubling of the biofuels quota (UFOP 2006).

The competent ministries intended to subsequently set higher quota, with the European Commission’s announced changes of the fuel standard after 2010 with blending shares of up to 10% (Bundesregierung 2006c). The Environment Ministry thereby further declared, particularly the available capacities of second generation biofuels would be taken into consideration (Bundesregierung 2006a).

Another conflict arena was the introduction of separate quota for biodiesel and bioethanol, which had been produced on an industrial basis in Germany since 2005. The bioethanol industry was represented by the Agricultural Biofuels Union⁸⁴. It comprised members such as the German

⁸⁴ Landwirtschaftliche Biokraftstoffe e.V.

Farmers Association and the German Economic Association Sugar⁸⁵. For the sugar farmers the biofuels quota was a welcomed sales market in light of the EU sugar market reform from November 2005 with drastically reducing guarantee prices until 2010 (DW 2005).

Considering the changes in the EU sugar regime, the rising oil prices, policy programmes to promote bioethanol of the United Nations, G8, and the EU as well as increased pressure for climate protection measures, German Watch carried out a meta-literature study⁸⁶ to examine the social and ecological impacts and chances of bioethanol. It identified three core studies on bioethanol life-cycle-analyses. The joint study of the Research Association for Combustion Engines and the Farmers Association's Union for the Promotion of Oil and Protein Plants (Gärtner et al. 2004), the Environment Ministry's life-cycle-assessment study (Schmitz 2005), and the 2003 Well-to-Wheel analysis by the CONCAWE/EUCAR/JRC consortium (CONCAWE et al. 2003). The author addressed the lack of bioethanol assessments examining a broad variety of impact categories, such as consumption of fossil energy sources, eutrophication or acidification. Additional analyses were therefore needed. However, analyses' findings always depended on the compared alternative (e.g. petrol replaced by sugar cane, sugar beet or wheat). Despite all this, biofuels and ethanol could contribute to reducing GHG emissions though still facing the problematic spatial needs to grow biofuel feedstock. And biofuels were not the priority with respect to the climate problem. Instead increased efficiency or the use of biomass for electricity production should be preferred (Bernhardt 2006).

The Trade Association of Medium Sized Mineral Oil Businesses⁸⁷ supported blending obligations in general, but not separated quota. In order to blend bioethanol basic petrol was needed. This would usually be supplied by big petrol companies. Though already now, medium sized refineries were faced with difficulties of getting basic petrol from big suppliers. It had already informed the Federal Cartel Office. This problem would get worse when quota would be established. Blending ethanol into gasoline would be resource demanding: it would be necessary to refit warehouses, refineries and permission procedures. They asked for lowering the target level in the first years to 1%.

Sustainability criteria

With the Biofuels Quota Act the likelihood of imports became more obvious. Evidence of the negative environmental and social impacts of biofuels in export countries grew. Strongly rising food prices in the beginning of 2007 would trigger the "fuel or food" debate (Burdick and Waskow 2009). The public opinion about the benefits of biofuels turned (Interview No. 22, 2014) and the calls for sustainability criteria became stronger. The larger part of the key actors welcomed sustainability criteria – the biofuels associations to differentiate (EU) agriculture from an overexploiting agriculture in third countries and to use them for taxation; the Environment Agency supported carbon/eco criteria linkage, but was critical about the lengthy process and technical difficulties of implementing such schemes (see Deutscher Bundestag 2006c); the

⁸⁵ Wirtschaftliche Vereinigung Zucker

⁸⁶ German Watch literature study "Life-cycle Analysis of Bioethanol" (Bernhardt 2006)

⁸⁷ Interessengemeinschaft mittelständischer Mineralölverbände

Laender because they were “concerned that for the production of biofuels particularly in Asian or South American countries tropical rainforest is deforested or destroyed by slash-and-burn [...] and for the livelihoods of indigenous people are thereby threatened which need the forests for their daily needs as well as the survival of their cultures and traditions [...]” (ibid., 3)

As one of the few actors, the German Farmers Association opposed sustainability criteria for European farmers since they were already implemented with the EU Cross Compliance provisions. While the responsible Environment Ministry had intended to provide ecological criteria for biofuel production from the beginning (Interview No. 23, 2014), government rejected the demands by the Bundesrat to include environmental and sustainability criteria for biofuels directly into the Quota Act. It had already integrated the power to issue statutory instruments in the draft of the Biofuels Quota Act. Further, the capacities to develop sustainability criteria were not available within the Environment Agency, because only one person was responsible for the Biofuels Quota Act (ibid.). The tax reductions and the consideration of the quota would be linked to the compliance with the relevant quality norms (e.g. certification). Bonus/malus provisions would set incentives for the development of innovative and particularly 2nd generation biofuels (Deutscher Bundestag 2006c).

“It was the usual procedure to plan a statutory instrument, because the Federal Immission Control Act in itself only roughly regulates the substantial issues. And particularly the Federal Immission Control Act already has over 40 statutory instruments regulating the details. You cannot do this in the context of the wider policy process. Besides this, it is a question of capacity. For the whole sector one person was responsible who could not do all at once.” (Interview No. 23, 2014)

6.3.4.2 IA and Wider Evidence-Base

The development of the Biofuels Quota and Energy Tax Act was seen by many as lacking an evidence-base. The representative of the German Renewable Energy Federation for instance referred to a lacking evidence-base with view to many elements in the Biofuels Quota and Energy Tax Act. The share from which on bioethanol as advanced biofuel should be tax advantaged (arbitrarily that tax advantages should work only for those fuels with a minimum share of 70% bioethanol as advanced biofuel, and not starting with 40 or 50%); or the differentiation between first and second generation biofuels was chosen without factual basis or without justifying it (it was based neither on the same-space productivity nor ecological efficiency) (see Deutscher Bundestag 2006g).

Formal IA

Elements of impact consideration or of a rationale were hardly existent. The Finance Ministry did not consider the effects of taxation, quota or biofuels use on the climate, although these were the core of major conflicts during the transposition phase. Neither did it address environmental concerns.

In the rationale part of the Biofuels Quota Act the Finance Ministry presented the additional revenues from the act; the costs for enforcement of the policy as well as impacts on the economy and price levels were discussed. The additional revenues would lie in a range of 950 to 1.200 million € between 2006 and 2010. Costs for enforcing the policy were not included in the calculation. The Finance Ministry expected the enforcement costs to be marginal because of the

close linkage with the existing Energy Tax Act. On the costs for the economy and general price effects it indicated that the economy would have additional costs because of biofuels' higher production costs in comparison with fossil fuels.

The tax provisions and the quota would lead to additional costs because production and market costs were higher than those for fossil fuels. Prices at petrol stations for fossil fuels prices would slightly increase "as far as additional costs were handed on to consumers". The level of the price increase for consumers could not be calculated and quantified, since these were calculated internally by obligated companies (Bundesregierung 2006a, 22 & 23).

6.3.4.3 IA in the Decision-making Procedure

The unsettled impacts of the Biofuels Quota Act remained central during the final decision-making procedures of the policy. One week before the final debate of the proposal in the Bundestag a three hours public hearing on the introduction of the Biofuels Quota Act took place. Several questions of the parliamentarians referred to potential or already occurring changes in the biofuels industry and rural areas taking place with respect to the production of biofuel feedstock or processing regarding investments (Deutscher Bundestag 2006e).

On 26 October 2006, the responsible Finance Committee and the other five involved committees agreed to the draft bill with the votes of the CDU and the SPD and against the opposition (Deutscher Bundestag 2006d). The Biofuels Quota Act was adopted two months later. It passed the parliament in 2nd/3rd reading. Central issue were the likely imports of biofuels and the resulting environmental impacts in third countries (Deutscher Bundestag 2006f). The act did not require approval from the Bundesrat.

In July 2007, 29 companies producing biofuels and selling retrofitting systems for diesel motors issued a constitutional complaint against biofuel taxation. They argued the Energy Tax Act would violate their property rights, freedom of profession, and against investor protection. On 25 July 2007 (after adoption of the Energy Tax and Biofuels Quota Act) the constitutional court decided negatively on their complaint and declared taxation as legal.

6.3.5 Conclusion – Role of the IA Process for Environmental Policy Stringency

The policy problem tackled with biofuels policy was highly unstructured and the process characterised by its multifacetedness. Its mix of normative, technical, political motivations of the many and influential actors defined the process. The conflict involved contradicting economic and energy policy related believes. Biofuels promotion was a new policy field with many unknown variables, with many influential factors and a change in government. A large amount of expert information was produced on the biofuels issue, from the side of the many disciplines involved (e.g. from engineering, to agricultural, environmental, development-related research). Due to the broadness of the issue (affecting regional to third country biomass production, issues of food security and international trade provisions, etc.) the expert community itself was (and still is) divided over the biofuels issue. There was neither consensus nor certainty on the values (e.g. regionalisation of energy supply vs. biofuel imports) and knowledge involved (e.g. in how far did EU/German biofuels demand contribute to the displacement of food production land uses and the destruction of valuable forests).

The two different government coalitions responsible for the policy-making process entailed two varying approaches to the IA process. Formal IA provisions at that time (between 2003 and 2006) were new and hardly institutionalised. And under both governments the formal IA component was weak and an IA process as set out in section 1 was not carried out. The formal IA was symbolic but with respect to established German IA practice adequate to satisfying IA provisions. Due to the few and weakly implemented environmental IA requirements (environmental impacts only had to be considered if the lead ministry saw it as necessary or if other ministries requested their consideration), this aspect of the institutional impact on environmental consideration in the IA process was low. For the members of the parliament and Bundesrat the evidence dimension was important during both phases of the IA and wider policy process. They repeatedly demanded governments to underpin decision of policy options and levels of objectives with evidence and criticised the lack of justification, including the environmental dimension. Notably the Bundestag hearings were relevant for publically debating and demonstrating the expected impact chains of the different stakeholders involved, all the more since the CDU-SPD government officially did not address the likely unintended effects of taxes and quota for the biofuels industry. They however did not represent a *systematic* assessment of the expected impacts of the policy measures.

When the transposition process of the Energy Taxation and Biofuels Directive began under an SPD-Greens government biofuels policy was new and based on little evidence. Analyses were to a large part based on approximate assumptions (e.g. spatial availability for growing biofuel feedstock). As in the UK, policy was ahead of science. This was facilitated by the enthusiasm for renewable energies which was wide-spread. Biofuels were pushed as one element of government's wider "ecological modernisation" and renewables agenda. The Green-led Agriculture Ministry wanted to promote first of all vegetable oil (which in contrast to FAME needs no chemical processing, but makes a motor conversion and structural changes in fuel supply necessary). And, in the early phase of the process a large share of biofuels did indeed originate from regionally operating oil mills. In this context biofuels were connoted positively regarding their environmental impacts, contributing to closing decentralised economic cycles and climate protection in contrast to centralised and international fuel supply system. Unlike in the UK the environmental impacts were therefore not at the forefront of the process during this phase.

With the objective of regionalised fuel supplies, biofuels policy was advanced against the evidence from key actors with various backgrounds (e.g. both scientific environment councils, the Environment Agency, the automobile industry, even the Agriculture Department's research organisation) that other options, such as the increase of efficiency, were more efficient to reduce GHG emissions in the transport sector. The Environment Agency for instance advocated against biofuels and was in strong technical disagreement with its own ministry (whose own flagship study revealed that a sustainable biofuels feedstock production – as intended – would be difficult to achieve). Since a policy in this field could not have been enforced against the German farmers, other policy options such as promoting biofuels consumption or increased technology development, played a marginal role only. Despite warnings of the environmentally degrading effects of biofuels, the limited potential to replace fossil fuels, and repeated suggestions of the higher effectiveness of other means to reduce emissions from transport (e.g.

increasing efficiency), the fiscal measures were preferred by the government. Support for technology development would have been a policy option. Its ramifications would have been less predictable and presentable only in the medium-term showable though. Moreover, rather over-optimistic assumptions regarding BtL were used by decision-makers to advance policy.

The responsible ministries, and notably the Agriculture Ministry, did not assess the implications of its biofuels tax policy individually. The comprehensive wider assessments which were commissioned at a later stage under the SDP-Greens government were instead used to consider the overall coherence of its socio-ecological transformation. They were not used for the formal assessment in the rationale part of the regulatory text, though. Notably the departmental flagship assessment studies carried out by the Environment and Agricultural Ministry were arranged as feasibility studies (e.g. exploring spatial limitations or alternative drive technologies).

In these wider key assessments environmental impacts were extensively considered. Central aspects explored were in how far biomass used in transport compared with other potential uses (electricity, heating); biofuels' spatial competition with other environmental targets (areas for nature protection), variance of GHG reduction potential and mostly negative effects on soil acidity and eutrophication. In contrast to the later discussion, biofuels' climate balance was not at the centre of the debate. Biofuels reduction potential was assumed to fluctuate in a range but not to be negative. The critique was aimed at biofuels being a costly option to reduce GHG emissions from transport and to be inefficient compared to other usage options for biomass.

Due to the strong presence and development of the German biofuels industry the issue of impacts created from EU or German biofuels demand in third countries only emerged late during the process (compared to the UK). In the central assessment studies they played a marginal role. Evidence on the environmental and social impacts mainly originated from development and environment NGOs during the process.

In the second phase of the process (lasting only about eight months), the newly elected CDU-SPD government would implement two related biofuels policies – the Energy Tax Act and the Biofuels Quota Act. This process was considered by many actors as chaotic, since the policies were not developed and adopted together but consecutively. This and the divided ministerial responsibilities for the two acts (Finance and Environment Ministry) meant that their consequences were not considered in combination.

Central government objective of the CDU-SPD government in the second phase was budget consolidation. It abolished the tax exemptions for biofuels established by the previous government because they would create long-term and inappropriate tax assistance (and because it intended to redistribute the released money to support energy intensive industries). This approach to financial biofuels policy was underpinned by a formally required report scrutinizing mainly potential overcompensation and a calculation of the benefits in terms of additional revenues of abolishing tax exemptions. While it explained the approach proving the overcompensation of biofuels, environmental implications of the policy were described only in a cursory manner. The climate benefits of biofuels were set out briefly, other environmental effects were not addressed. The report was highly contested among stakeholders. Primarily the way the overcompensation had been calculated was a critical aspect. But stakeholders (e.g. the

Renewables Energy Agency) also asked the Finance Ministry to elaborate on the environmental and climate related impacts.

The issue which was most debated – the impacts of the tax introductions and biofuels quota on the SME biofuels industry – were not assessed or set out officially. The Finance Ministry calculated and demonstrated the benefits of reintroducing tax rates, without contrasting it with benefits of maintaining support to the biofuels industry (e.g. job creation in rural areas or impacts in biofuels feedstock exporting countries).

6.4 The Waste Framework Directive

The “Directive on waste and repealing certain Directives” (hereafter called the Waste Framework Directive, 2008/98/EC) marked “the most significant changes to EU waste management legislation for over 30 years”⁸⁸ (ENDS 2008). While its predecessor focussed on the disposal and recovery of waste, the 2008 directive put a focus on life-cycle thinking. In fact, “the mission of the new Waste Framework Directive (EP and Council 2008) was no longer to protect the integrity of the internal market but “to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste” (EEB 2012).

The Waste Framework Directive is considered as horizontal legislation, in contrast to ‘vertical’ legislations, such as the 2000 Landfill Directive which regulated the *treatment* of waste, or the 2002 WEEE Directive which regulate(d) certain *waste streams*. Generally, the 2008 directive was largely determined by the European Commission’s Waste Thematic Strategy published in 2005. It proposed many of the activities found in the 2008 directive.

EU waste policy is strongly influenced by German law. In 1996 the Circular Economy and Waste Act⁸⁹ was implemented which first included aspects of a circular economy (Webersinn 2010). Central targets of the Waste Framework Directive with relevance⁹⁰ for the England and German transposition processes were the

- Waste hierarchy: Key reform element was the waste hierarchy which introduced life-cycle thinking into the waste sector, including waste prevention and recycling. The 5-step waste hierarchy as shown in Figure 9 became a non-binding “priority order” of what was to constitute the best overall environmental option. The measure with the best environmental outcome had priority over the following one “where this is justified by life-cycle thinking on the overall impacts of the generation and management of such waste”. Moreover, the technical and economic feasibility had to be taken into account. In contrast, the 2006 Waste Framework Directive set out a three-step waste hierarchy (prevention/reduction, recovery by means of recycling or re-use and energy recovery).

⁸⁸ Predecessor of the Waste Framework Directive was Directive 75/442/EEC, the first EU legislation to regulate waste policy in the EU. The 75er Directive was codified in 2006 (2006/12/EC) and was revised, resulting in the 2008/98/EC Waste Framework Directive.

⁸⁹ Kreislaufwirtschafts- und Abfallgesetz

⁹⁰ The Waste Framework Directive moreover targets on self-sufficiency and proximity (requirement to establish an integrated and adequate network of waste disposal installations extended by the WFD to installations for the recovery of mixed municipal waste), hazardous waste (adding new properties and allowing for mixing only when mixing operations conform with BATs), waste oils (must be regenerated if technically feasible), and Waste Management Plans. These are however not included in the comparison of stringency, since they were only subject to minor changes or extensions, and only of minor relevance/contention in the overall IA processes.

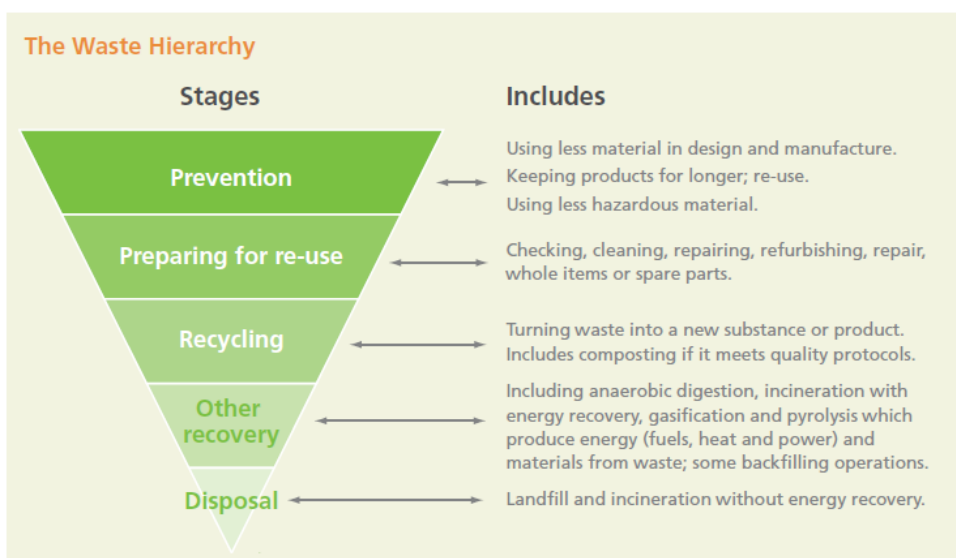


Figure 9: The Waste hierarchy (Defra 2011a, 5)

- National waste targets: The directive set out recycling targets to be achieved by 2020 – the first non-waste stream specific targets to be set by legislation ever (Nash 2009, 145). Household wastes were to be prepared for re-use and recycling in such a way that their overall weight would be decreased by at least 50% by weight; for construction and demolition waste (the largest waste stream across Europe) the new target was 70% by weight.
- Separate collection of wastes: the target of separate collections of at least paper, metal, plastic and glass until 2015 was set, where technically and economically feasible. This requirement served to meet the re-use and recycling targets. The directive moreover demanded measures for the separate collection of bio-waste, though it did not quantify this target or set a time-line.

Linked to the first two stages of the waste hierarchy were the following two targets which however played only a minor role in both transposition processes (both countries shifted according activities to ordinances to be implemented at later stages):

- Prevention & re-use measures: the prevention of waste is highlighted, though no concretized targets for prevention were set. Member states were asked to take measures to encourage for instance the establishment and support of re-use and repair networks, the use of economic instruments, procurement criteria, quantitative objectives or other measures. Annex IV of the directive lists exemplary measures to encourage waste prevention.
- Waste prevention programmes (WPP): WPPs were a new instrument in European waste policy and reflected the new focus on waste prevention. The aim of WPP measures was to break the link between economic growth and the environmental impacts associated with the generation of waste. The WPPs had to be established by member states by mid December 2013 (EP and Council 2008).

In the following two sections 6.5 and 6.6 the IA processes on the transposition of the Waste Framework Directive in England and German are presented.

6.5 The IA Process on the 2011 (England and Wales) Waste Regulations

6.5.1 Introduction to the Policy Field – Waste Management and Policy in England

Waste policy is a neglected area of UK public policy. It has not received much attention by policy-makers, the broader public, or the media. It has been a policy area in which the EU has largely provided the impetus for change (cf. Weaver 2005). In comparison to other EU member states a circular economy and policy in England only develops slowly. Considering this “the UK has some way to go in developing a waste management industry that is a positive contributor to the climate change issue. Under current trends this is unlikely to be achieved before 2020” (EEA 2013, 15). The 2011 Waste Regulations have been the main legislation transposing the Waste Framework Directive.

UK Waste Policy

Waste policy is a devolved matter in the UK. Governments in England, Scotland, Wales, and Northern Ireland are self-responsible for waste management strategy and policy in their regions. As a result, waste policy and strategy has developed at different pace in the regions (i2i Events 2014). At the UK’s biggest professional waste conference in 2012, Defra was heavily criticised for its lack of vision on waste (as missed opportunities in creating a circular economy) and its uninspiring waste policies. Wales, Scotland and Northern Ireland on the other hand were admired for their visionary approaches (ENDS 2012). The House of Commons (HoC) criticised a lack of coordination and cooperation between the competent departments and a lack of clear government leadership in waste and resource management. This manifested in sometimes antagonistic departmental policies and interventions as well as a “myriad of overlapping and sometimes conflicting messages from the various government departments” (HoC 2014a, 9).

While central government is responsible for setting overall waste management policy, the local authorities (LA) are responsible for waste collection and disposal and its organisation. The Waste Collection Authorities have to arrange household and commercial waste collection in their jurisdiction. Collection from private households is largely free of charge. The Waste Collection Authorities are moreover responsible for investigating the potential for recycling in their area and for preparing a recycling plan.

Central for UK waste management are the waste strategies. They form the basis for coordinating waste management policy in England. They outline how the UK intends to cope with wastes and cover aspects such as the government’s vision, time-related targets, the role of key organisations, issues relating to specific waste streams, and key principles such as the “waste hierarchy”. In 2000 the first Waste Strategy was issued in England, followed by the 2007 and 2011 Waste Strategies. The strategies have tended to establish increasingly ambitious targets for recycling of household and municipal waste, and for diversion of waste from landfills. The transposition of the Waste Framework Directive was not of high relevance to the actors affected. More awaited was government’s Waste Strategy (cf. the statement of the representative of the Confederation of British Industry – CBI – in the House of Lords debate on the Waste Regulations (HoL 2011). The England waste management market has been driven by EU legislation, particularly the Landfill Directive (Council of the European Union 1999) but not by the Waste Framework Directive (cf. i2i Events 2014).

The EU Landfill Directive is transposed by the Environmental Permitting (England and Wales)

Regulations 2010 and the Landfill Allowance Trading Scheme transpose (Law & Your Environment). They determine that untreated waste is no longer accepted in landfills. Until 2013 the Landfill Allowance Trading Scheme (LATS) was England's primary means for enforcing the Landfill Directive and divert bio-waste from landfills. Councils had to meet targets for reducing the amount of bio-waste they would send to landfills, otherwise facing high fines (FoE 2007). By 2010 the LATS was replaced by the landfill tax escalator as key instrument for meeting targets of the Landfill Directive. Since then it has been a major driver of rapid landfill diversion and increasing recycling rates. The landfill tax was introduced in 1996, aimed at incentivising waste producers to send less waste to landfill. Operators of landfill sites have to pay the tax (passing it on to businesses and local councils as part of the gate fee) which is steadily increased: a standard rate per tonne on active (e.g. plastic packaging) and inactive waste (e.g. rubble). When the tax was first established the standard rate was about 10 €/tonne (ca. 3 € for the inactive waste) (Seely 2009). The tax would continuously escalate until 2014/2015.

Waste management and industry in England

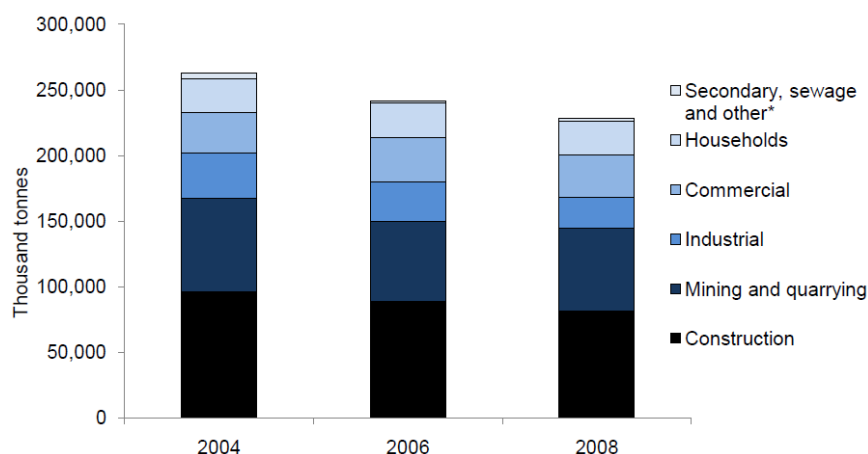
The Thatcher government introduced market competition into formerly public service provision by local government. This process was continued under New Labour. Since then the UK municipal waste management has become one increasingly provided by few large multinational companies (cf. Davies 2007a). This development is more intense than in the rest of the EU.

“Hardly any waste management is operated by the public sector in any way. For example all waste management facilities are operated privately. Mostly household and business waste as well as non-municipal fractions such as construction, demolition, and excavation waste (CD&E waste) are collected by private companies on contract to LAs or businesses.” (Interview No. 13, 2013)

This development has led to a sector in which government has to indirectly manage key policy objectives and environmental goals and shows close entanglement with the private sector. “The ambitious interventionist policy goals now “have to be realised through the orchestration of fragmented networks of providers” (Davies 2007b). Bowman et al. (2015) argue that this has resulted in strong co-dependencies of state actors and “giant” outsourcing contractors. According to the 2014 HoC this has triggered an “evolution of privately owned public monopolies, who largely, or in some cases, wholly, rely on taxpayers’ money for their income” (HoC 2014b). The UK waste industry has a total annual turnover of approx. 10 billion €. 70,000 people were employed in the sector across 3,000 companies (DIT 2014).

Waste streams

As Figure 10 shows, construction and demolition is the sector generating the most waste, followed by mining and quarrying, commercial and industrial sectors, and household sources. 66% of that waste originated from mineral waste, 21% general and mixed waste, 5% of paper and card waste, and 2% metal and scrap waste (Defra 2011c).



* 'Other' includes healthcare wastes, batteries & accumulators, dredging spoils and solidified/stabilised/vitrified wastes.

Figure 10: Total waste generation in England (2004-2008) (Defra 2011c, 8)

For the other separate waste streams the recycling situation was as shown in Table 13. Paper and glass have the highest recycling rates, while plastics rank low with a recycling rate of 22.5%.

Table 13: Recycling rates split by packaging waste material, UK 2012 (Defra 2015, 14)

	Total packaging waste arising (thousand tonnes)	Total recovered / recycled (thousand tonnes)	Achieved recovery / recycling rate (%)	EU target recovery / recycling rate (%)
Metal	808	421	52.1%	50.0%
of which Aluminium	162	62	38.5%	n/a
of which Steel	646	358	55.5%	n/a
Paper	3,848	3,328	86.5%	60.0%
Glass	2,399	1,627	67.8%	60.0%
Plastic	2,554	644	25.2%	22.5%
Wood	1,024	525	51.3%	15.0%
Other materials	23	0	0.0%	n/a
Total (for recycling)	10,655	6,544	61.4%	55.0%
Total (for recovery)	10,655	821	7.7%	n/a
Total (for recycling and recovery)	10,655	7,365	69.1%	60.0%

6.5.2 IA Process

6.5.2.1 Overview of the Actor Constellation

The problem structure of the Waste Regulations process was moderately structured. There was a wide spread feeling that England needed to improve and keep up with other European countries in waste management. The best means to design a progressive waste policy were contested, however. For all three targets – separate collection of waste, implementing the waste hierarchy, and recycling/recovery targets – the status quo (the “no further measures approach”) was maintained in the 2011 Waste Regulations.

The Department for Environment, Food and Rural Affairs' (Defra) Waste Framework Directive Unit was responsible for transposing the EU directive in England⁹¹. Generally, Defra is responsible for policy on waste management and for producer responsibility legislation. Other relevant institutions are the Department for Communities and Local Government (DCLG, with responsibilities for minerals and waste planning (Defra 2007a), and the Department for Business Innovation and Skills (BIS) with specific responsibility for waste under the WEEE Directive, and WRAP (Waste and Resources Action Programme⁹²), as a not-for profit, independent government and public sector organisation, funded by all four British Governments.

The departmental bodies and agencies were part of Defra's Waste Framework Directive programme board. It was set up early for government-internal coordination of the directive's transposition process. It structured and brought together the different affected Defra units and government departments to "negotiate and transpose the Waste Framework Directive in a coherent way" (Interview No. 12, 2014). It was the first time in Defra that a policy initiative had been handled by a programme board. It arose from the general feeling that although good in policy work in general, Defra wasn't doing too good on connecting policy with the delivery of policy. The board was to ensure that Defra would transpose the directive so that it was practical for the local authorities and the Environment Agency. The board had a broad representation, including Defra's legal and economists' team which was very important and closely involved in the IA/policy process (ibid.), members from other waste policy teams within Defra (e.g. household waste or recycling policies units), representatives from other departments with competences on waste, primarily the BIS, the DCLG, the DECC (Department for Energy and Climate Change). With the Environment Agency and WRAP – as the main body for capacity building and the provision of advice on waste reduction, recycling and resource efficiency in England (EEA 2013, Watson 2013, HoC 2014a) – there were two governmental non-departmental organisations. The Environment Agency as main regulator for waste in England (and at that time also for Wales) kept an eye on the practicability of the implementation, and WRAP, which delivered advice and evidence for the transposition process.

Parallel to the Waste Framework Directive Programme Board, Defra established the Waste Framework Directive stakeholder board for communication and involvement of external stakeholders. They represented the key non-governmental actors in the process. The board comprised about 30 organisations "with closest interest in the Waste Framework Directive" (Interview No. 12, 2014), and brought in the professional bodies (such as ESA – Environmental Services Association, CIWM – Chartered Institution of Wastes Management as the principal professional body for organisations and professionals in the sustainable waste and resource

⁹¹ Scotland and Northern Ireland with different legal frameworks were doing the WFD transposition separately, though following closely the decisions of the English transposition process.

⁹² WRAP was set up in 2000 as a capacity building organisation to help set off a recycling economy in Great Britain and to promote resource efficiency (WRAP 2016).

management sector (CIWM 2016), the Local Government Association⁹³ as the “national voice of local government”, trade associations (e.g. scrap metal, cement associations, Federation of Small Businesses), large waste management companies (e.g. Biffa as or Smurfit Kappa) and other waste actors (e.g. car dismantlers, demolition companies), but also local authorities, ‘green’ NGOs (e.g. Greenpeace, FoE⁹⁴) and charities (Interview No. 12 &16, 2014), and the Campaign for Real Recycling (as a coalition made up of reprocessors and Friends of the Earth, inter alia). Meetings took place quarterly on average, to inform stakeholders about further developments and decisions of the WFD transposition (Interview No. 12, 2014).

Additionally, Defra carried out informal consultations with these key stakeholders throughout the negotiation and transposition phases of the Waste Framework Directive. The department also held workshops with stakeholders, including trade bodies representing SMEs, on key aspects of the revised Directive (e.g. the waste hierarchy) (Defra 2011b).

6.5.2.2 Overview of the IA Process

The policy process ran from October 2008 to the end of March 2011, so roughly two and a half years. The way of proceeding with the IAs and consultation was in line with IA guidelines and the good practice code of consultation⁹⁵. Consequently, there were two rounds of consultations (as required by provisions for consultation processes⁹⁶) to help prepare the regulations. They were each accompanied by an IA report (all roughly 30 pages) and a subsequent report summarising the responses. Defra stated: “The responses to the stage one consultation have been considered and taken into account in preparing the current proposals. How this has been done is explained against each of the relevant Articles in Chapter 2 of the consultation document.” (Defra 2010d) The third and final IA report was annexed to the explanatory memorandum⁹⁷, forwarded to the two Houses of Parliament to inform decision-making.

During the IA and wider policy process there was a change in government. While the EU negotiations and first phase of the transposition process proceeded under Labour, the second stage of the transposition process continued under a coalition government of Tories and Liberal Democrats from May 2010 and the general elections. The change of the government marked a turning point almost in the middle of the IA process. The newly elected government significantly changed the processes’ outcome as indicated by several interviewees.

In each of the consultation documents, consultees were directly asked about the quality of the IA (see figure below). The IAs were however not central for the consultees.

⁹³ With few exceptions, all English local authorities were members of the association

⁹⁴ Whereby FoE put its resources rather into the Waste Framework Directive development process at EU level and not so much into the Waste Regulations process (Interview No. 12 &16, 2014)

⁹⁵ See for instance BIS 01 April 2010 (BIS 2010c)

⁹⁶ cf. HM Government (HMG 2008), see page and a minimum of 12 weeks

⁹⁷ An Explanatory Memorandum describes the purpose of a Statutory Instrument provides information about its policy objectives and implications. It intends to explain SIs to readers who are not legally qualified and accompanies any SI laid before Parliament (from 2004 onwards) (HMG without date).

Impact Assessment

2.224 The Impact Assessment (IA) at Annex 2 (page 66) assesses the costs and benefits of the transposition and implementation of the rWFD. The IA specifically covers 10 provisions of the rWFD.

Question 9: Do you consider that the costs and benefits of the transposition and implementation of the provisions of the rWFD that are addressed in the Impact Assessment have been accurately assessed? If not, please provide whatever evidence you can to enable a more accurate assessment to be made in the Impact Assessment that will accompany the post-consultation draft of the transposing Regulations that is laid before both Houses of Parliament and the Welsh Assembly Government.

Figure 11: Question on the IA in the consultation document (Defra 2010d, 58)

The initial IA was issued in the so called “policy phase” which was aimed at a discussion about the main objectives of Waste Framework Directive. In terms of the IA content this meant that a business as usual scenario under which inter alia the landfill tax was continued and a Waste Framework Directive implementation scenario were considered. Defra stated the latter was the preferred one, since the other alternative would impose significant additional costs to UK stakeholders. For the three targets considered in this analysis (implementing the waste hierarchy, 50% household waste recycling target, separate collections of waste), Defra argued that no further measures were needed in order to comply with the directive’s provisions⁹⁸. Except for the 50% target⁹⁹, no wider environmental impacts were assessed accordingly.

The second stage IA was issued in the so called “implementation phase”. Here the process intensified and concentrated with the development of the draft regulations (Interview No. 13, 2013) which accompanied the consultation documents. In this phase the IA and policy process focussed on the assessment and operationalization of the 10 provisions implementing the directive. The IA was issued shortly after the general elections which were won by Tories and Liberal Democrats which would form a coalition government.

The final and third IA report included the standard IA Summary sheet setting out the costs for implementing the Waste Regulations within a ten year period and a discount rate of 3.5% as shown in Figure 12.

⁹⁸ Also for most other targets (including extended producer responsibility, waste prevention, and C&D waste, bio-waste targets) Defra proposed a no further action approach.

⁹⁹ In case of the C&D waste target, it was argued by Defra that the 70% recovery target would be over fulfilled without any extra activities; in the 2nd IA report evidence was incorporated to substantiate this stance. The cited WRAP report from 2010 into C&D waste in England gave proof of a recovery rate of (at least) 89%. In the 2010 IA the assumed recycling rates in the scenarios were increased, incorporating updated information (e.g. new landfill tax rate announcements continuing the tax escalator resulting in changed recycling pressure factors).

Summary: Analysis and Evidence			Policy Option 1		
Description:					
This summary represents the summary for the preferred set of policy options in the IA. Detailed CBA for each of the policy options can be found within the IA.					
Price Base Year 2010	PV Base Year 2010	Time Period Years 10yr	Net Benefit (Present Value (PV)) (£m)		
			Low:	High:	Best Estimate: -£60.9m
COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Cost (Present Value)
Low	£28.5m		£1.6m		£40.5m
High	£51.0m		£3.9m		£81.3m
Best Estimate	£39.7m		£2.7m		£60.9m
Description and scale of key monetised costs by 'main affected groups'					
Many of the provisions incur no additional costs, but there are 4 areas where costs may be incurred in the preferred set of policy options - Waste Hierarchy, Hazardous Waste, Waste Management Plans and Carriers. These are discussed in detail in Table 1. The largest component of the costs, are the one-off costs to business of reading and understanding the guidance under Stage 3 of the Waste Hierarchy actions.					
Other key non-monetised costs by 'main affected groups'					
There are no key non-monetised costs within this IA.					
BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Benefit (Present Value)
Low					See box below
High					See box below
Best Estimate					
Description and scale of key monetised benefits by 'main affected groups'					
.					
Other key non-monetised benefits by 'main affected groups'					
Waste hierarchy: Switching point analysis assesses the level of incentivisation up the waste hierarchy (combination of benefits from increased paper/card recycling and increased food waste prevention) required for measures to be cost neutral and indicates only a small percentage increase recycling (2-4%) and food waste prevention (0.3-0.5%) over the 10 year period. Measures on hazardous waste and carrier registration may reduce potential damage to environment, health and disamenity costs.					
Key assumptions/sensitivities/risks					Discount rate (%)
					3.5%
The assumptions in the modelling of costs are discussed in detail in relevant sections					
Impact on admin burden (AB) (£m):			Impact on policy cost savings (£m):		In scope
New AB:	AB savings:	Net: p. 4	Policy cost savings: n/a		No

Figure 12: IA summary sheet (Defra 2011b)

6.5.2.3 *Separate Collection*

6.5.2.3.1 *The Conflict and Actor Constellation*

The conflict for this target evolved around the question which type of waste collection represented a separate collection and which one would in fact lead to more recycling. Advocates of source-segregation (kerbside sort) or co-mingled collection¹⁰⁰ opposed each other. From the 324 English local authorities about 40% had co-mingled and ca. 32% provided for kerbside collection (and about 28% authorities offering a 3-stream collection) (Beasley 2012). Linked to co-mingled waste collections were the about 87 so called Materials Recovery Facilities¹⁰¹ (MRFs) which receive the co-mingled wastes for subsequent separation; afterwards wastes are sent to reprocessors to produce recyclates. Advocates of kerbside-sort held that the MRF interim stage was unnecessarily raising waste fees for local authorities and citizens and was at the same yielding worse quality of recycling material. They wanted Defra to phase out co-mingled collections. A “sub-conflict” in this was whether plastics collection meant the collection of all types of plastics or just plastics bottles – as interpreted by Defra which saw the collection of plastics as a particular challenge in waste collections.

The Waste Framework Directive provided that member states should set up separate collections for paper, metal, plastic, and glass to promote re-use and recycling. Separate collections were defined as “collection where a waste stream is kept separately by type and nature so as to facilitate a specific treatment” (Article 3, Definitions).

Already at the Environment Council in 2008 (before the Waste Framework Directive was adopted), Defra tabled the following minutes statement which was cleared with the European Commission beforehand. This was done to ensure that co-mingled collection would be acknowledged as a form of separate collection.

¹⁰⁰ Co-mingled means that households mix all dry recyclable materials (paper, glass, cans, plastic, etc.) in one bag which is then collected by one vehicle which takes the waste to a sorting facility (materials recovery facility); in case of kerbside collections residents are asked to sort recyclables and put them into containers. The refuse collections will then sort the recyclables into different compartments of their vehicles to keep the materials separate. These types of collections do not have to be sent to a sorting plant.

¹⁰¹ For 2010/2011 Defra estimated for 87 MRFs to be in operation in England (Defra 2012).

In implementing the requirements of Article 11 of the revised Directive on re-use and recycling, the United Kingdom intends to:

- encourage the separate collection of wastes where this is technically, environmentally and economically practicable, while allowing the co-mingled collection of paper, metal, plastic, glass and other recyclable materials for subsequent separation in material recycling facilities to continue after 2015 where this is the most effective means of increasing recycling rates in the local circumstances.

Figure 13: UK minutes statement to the Environment Council (Defra 2009, 69)

Defra defended the maintenance of the co-mingled approach against kerbside sort proponents. It argued that on the one hand a growing number of local authorities was increasing the collection of materials for reprocessing. On the other hand local authorities would develop quality management systems of MRFs “combined with effective monitoring of both input and output quality” due to the recent downturn in recycle markets (Defra 2009, 27). Moreover, the choice of a collection system was in the responsibility of each local authority (ibid.).

The European Commission approved the UK’s approach arguing that if “...co-mingled collection [...] followed by ... subsequent separation assures that the [...] quality standards are met and that high quality recycling is being promoted, Member States would be allowed to continue such practice” (Defra 2010d, 27). In line with the European Commission were the waste collectors, particularly MRF operators, and waste associations, many local authorities, and the Tory-Liberal-Democrats government. In their 2010 election manifesto they stated to work towards a zero-waste society and to make politics more local. In this context they aimed for giving more power to local government, e.g. by allowing them to take control of relevant services (Tories 2010).

Local authorities and the Local Government Association were in favour of free choice of a collection system. They did not necessarily believe that it was impossible to introduce (kerbside sort) separate collections by 2015 (Defra 2010a, 53). However, “it would be technically difficult and economically expensive to switch to separate collections of these materials by 2015, considering the ongoing expansion of co-mingled dry recyclables collections and their associated contracts and MRFs build programmes. Many LAs and waste partnerships [...] have entered into complex and long-term contracts, delivering high levels of waste infrastructure investment and collection systems based on the co-mingled collection of recyclables. Clearly, a separate material collection requirement would have serious consequences for these investments and the LAs involved”. (Defra 2010a, 56) This comment from a union of metropolitan boroughs represented typical reasons behind these views.

Also the Environmental Services Association¹⁰² (ESA) as the main trade association for the UK’s Resource and Waste Management Industry did not favour one collection system over the other.

¹⁰² Members of ESA were operating in all segments of waste and resource management with all major waste management companies represented as well as small, locally based businesses (ESA 2016b).

Both were offering equal opportunities for cost-effective waste handling. And the association was committed to developing (environmental) quality standards for both collection systems. With close linkages to MRF operators (Interview No. 15, 2014) it called for government to provide waste management actors with sufficient long-term security for planning and investments (ESA 2010).

The 'pro-kerbside collection' fraction largely "felt that Defra had "fudged" the wording of the revised directive and that there was no explicit approval in the directive for co-mingled collections." (Defra 2010b, 9) This fraction included actors active in the later stages of the waste management process, e.g. reprocessors and businesses processing recyclates. Chase Plastics declared: "Co-mingled single bin collection is quite simply a disaster for all reprocessors in the UK" (ENDS 2010b). Also the Confederation of Paper Industries (CPI) advocated source-segregation. This would maximise efficiency of remanufacturing waste paper as well as reducing potential costs for contamination from other materials "resulting in lower waste disposal costs to the reprocessors themselves". It saw the collection conflict in the context of paper export markets. The quality of materials collected needed to remain high as to conform to European standards. It challenged Defra to set out how it would control and ensure that materials after being sorted at a MRF would comply on a continuous basis with the quality requirements of the global reprocessing industries (CPI 2010).

Even WRAP (Waste and Resources Action Programme) was critical of Defra's interpretation of the separate collections term. It wrote "it is not clear that the directive is intended to be read in this way", and believed that all councils could source-separate collections by 2015 "at low cost" (ENDS 2010a). WRAP saw kerbside sort systems to have lower net costs than co-mingled systems. "This reflects the effect of MRF gate fees and the opportunity for kerbside sort collections to sell materials direct to reprocessors." (WRAP 2009, 4)

Also most campaign groups and other third sector organisations found the (source-segregated) separate collection target to be achievable. They also saw Defra in the situation to prove that co-mingled collections and MRF treatments would be appropriate to meet the required quality standards for the different recycling sectors (Defra 2010a). Key representative of this group was the Campaign for Real Recycling (CRR), with about 19 members and supporters, including the "UK's leading materials re-processors", such as glass and plastics material manufacturers and suppliers, recyclers, Friends of the Earth and the community recycling sector. It saw a problem in an unawareness of local authorities of the difference in the value for money of kerbside versus co-mingled collections. It highlighted a report by the Welsh Assembly Government (see section 6.5.2.3.2) providing evidence for the higher net costs of co-mingled collections. MRF operators had no incentives to improve ex-MRF material quality because their income primarily derived from gate fees. CRR called on Defra to implement a policy phasing out MRFs and co-mingling collection systems by 2015.

The Welsh Government thereby demonstrated how this could be done. It made the source segregation obligatory for all local authorities. As one interviewee put it:

“England has gone down the road of compliance only, so implementation of minimum standards; Wales and Scotland have gone down the challenging route; the two regions are ambitious, in the UK it’s a lost opportunity¹⁰³.” (Interview No. 16 & 17, 2014)

They suggested that these different approaches could be attributed to England’s and Wales’ different developments in the waste sector, with “long-standing relationships between local authorities and MRF facilitators in particular (Interview No. 15, 2014)” in England, as well as Wales’ latent competition with ‘London’ in excelling where England does not (Interview No. 18, 2014).

Defra would still maintain its broad interpretation of the term “separate collection” throughout the process. In previous years though, it had clearly spoken in favour of source-segregation, supported by Labour Government which wanted to “extend kerbside collection of at least two recyclables and bio-waste to all households in England by 2010” (Labour Party 2005). “Market research has shown that the value of any recyclates is significantly reduced if it is contaminated, even if the contaminant is another recyclate. It follows therefore that source separation of materials is the first step to maximising the value of recycling. The Government fully supports this approach and encourages Waste Collection Authorities to consider this [...]. Separate collection of each recyclate is likely to reduce contamination and increase the value of the recyclate more than collecting two or more recyclates together but separate from the rest of the waste.” (Defra 2005)

One reason for Defra’s change regarding the status of separate collections certainly was the new Tories-Liberal Democrats government. It handled the separate collection question differently than the Defra waste team had suggested: the issue of separate collection of wastes had previously been set out in the waste regulations’ guidance document. On behalf of the new government, the issue had to be clarified and made explicit in the regulatory text though, which in the end led to the judicial review of the 2011 waste regulations (see below) (Interview No. 12, 2014).

In the final IA Defra argued that independent from any requirements, the recycling situation could have moved on by 2015 and other drivers would lead local authorities to introduce collection of sorted plastics (Defra 2011b).

6.5.2.3.2 IA and Wider Evidence-Base

Formal IA

In the initial IA Defra assumed that no further action would be required to transpose the directive (cf. Defra 2009). In stage two, Defra focussed on the separate collections of different types of plastics. For other waste streams (paper, metal, and glass) it assumed separate collections would be established until 2015. Two options were considered in the second and full IA: In the first and preferred one, plastic was defined as plastic bottles, in option 2 local

¹⁰³ Lost opportunities in the sense that recycling generates green growth as green jobs; measures could include tax breaks, VAT incentives, green taxation; at least some of the money has gone back to the industry for research (Interview No. 16, 2014)

authorities would be required to collect all types of mixed plastic¹⁰⁴ (bottles, tubs, pots, plastic films) (Defra 2010a).

Defra discussed the costs of both options. For option 1 no additional costs were assumed since by 2015 all local authorities would have introduced separate collections of plastic bottles (at that time seven local authorities did not provide for their separate collection). Under option 2 almost all authorities (304 out of 375) would need to establish separate collections of mixed plastics. Defra valued those additional costs, using a report issued by WRAP (Grant et al. 2009) in which the financial costs for collections of mixed plastics had been examined (see below). The distribution of co-mingled and kerbside-sort collection systems between these authorities was split half-half entailing different costs of establishing plastics collections (between roughly 29 to 92 million €/year). These numbers represented the costs of adding mixed plastics collections to the existing one in each community but not the benefits of providing such a service. For Defra it was unlikely to be technically, economically, and environmentally feasible for all local authorities to establish separate collections of mixed plastics until 2015. Further work was needed to establish the costs of such type of collection. So option 1 was the preferred one, also due to lack of data on the potential benefits of option 2. “[...] But we do not believe the additional benefits to be large enough to justify option 2 which is very costly.” (Defra 2010d, 15)

According to one of the interviewed actors this shortcoming could be traced back to a lack of economists in Defra. There were only two or three economists working on waste regulation. They had had a lot of projects and were busy giving economic advice at that time.

“It was always a bottleneck in the system, do we have enough economist input to provide economic input to produce a really detailed IA in the time scale that we needed for the transposition period.” (Interview No. 12, 2014)

Defra discussed with the Department for Communities and Local Government whether there would be additional costs for local authorities to set up separate waste collections. They agreed on the assumption that authorities recontracted waste collection every 5-7 years on average.

“Since local authorities would be retendering in an open procedure with private companies competing to offer whatever collection service the local authority wanted to have, there wouldn’t be significant additional costs to measure from heading towards a separate collection system. Local authorities would still be able to choose from a competitive bid price to work for them. And if an authority could show that a separate collection wasn’t practicable they could go on with co-mingled system. So it would have been very difficult to show for 400 or so local authorities whether there would be any additional costs or not from this new provision ... that’s why it is not a big deal in the IA.” (Interview No. 16, 2014)

The Confederation of Paper Industries did not find the IA to be helpful in understanding the costs linked to the implementation of the separate collection target for the paper industry (CPI 2010).

¹⁰⁴ In 2009 domestic plastic accounted for 11% of the waste arisings (Grant et al. 2009).

Wider Evidence-Base

The report¹⁰⁵ on which Defra's cost analysis build on had been commissioned by WRAP to examine the financial costs of mixed plastics collection in detail. Environmental benefits from an increased recycling of plastics were not addressed. The findings demonstrated that "mechanically recycling collected mixed plastics packaging was achievable economically, technically and environmentally." The costs were modelled using a proprietary consultancy model already used for the 2007 Waste Strategy. In the model, the collection costs for one hypothetical average-type local authority offering co-mingled collections and two-stream kerbside recycling systems were calculated with according uncertainties involved. While the costs for collecting mixed plastics ranged between 59 to 289€/tonne in kerbside sort, they ranged between 200 to 289€/tonne in co-mingled systems. A significant cost factor in co-mingled collections costs were the MRF gate fees. For kerbside collection systems the relevant cost factor was the additional recyclables loading time and partially limited collection volume. WRAP concluded that to increase mixed plastics packaging recycling the focus should be on authorities using co-mingled or kerbside-sort re-tendering contracts. These authorities would be able to introduce new vehicle designs.

A report¹⁰⁶ commissioned by WRAP on behalf of the Welsh Assembly Government (WAG) also arrived at the conclusion that kerbside sort was cheaper and environmentally preferable. The report explored the relative merits of the three relevant collection systems with respect to WAG's objective of 70% recycling of household wastes by 2025. "The central aim of the work has been to inform the long-running debate on the relative performance of [...] collection systems [...]" (Eunomia Research & Consulting 2011, 7) The study took into account the financial, environmental and social impacts associated with each system. Findings were based on a literature review, six case studies of all three collection systems, and a cost-benefit analysis based on the previous steps. Environmental benefits were operationalised as reduced CO2 emissions and improved air quality. The climate-related valuation methodology was based on government's carbon valuation appraisal approach (cf. Holland and Watkiss 2002, DECC 2009). Environmental advantages associated with reprocessing the recycled material were largely based on the LCA-based tool from the Welsh Environment Agency. Kerbside sort performed better when rejected material (e.g. at MRFs) was taken into account. Concluding the authors stated that it "must be acknowledged that a project such as this is not likely to 'put to bed' a debate so long-standing and often polarised as that between supporters of co-mingled and kerbside sort collection. However, it does bring together thinking and evidence accumulated over a long period" (Eunomia Research & Consulting 2011, 50 & 52).

The Environmental Services Association (ESA), Biffa, and WYG argued against the findings of the WRAP study. They commissioned counter studies investigating the implications from different

¹⁰⁵ Eunomia on behalf of WRAP (June 2009). Financial Costs of Collecting Mixed Plastics Packaging (Grant et al. 2009)

¹⁰⁶ Eunomia Research & Consulting, Resource Futures and HCW Consultants – Kerbside Collections Options: Wales (Eunomia Research & Consulting 2011)

collection systems. In a 2010 report¹⁰⁷ they turned to WRAP, the Campaign for Real Recycling (CRR), Friends of the Earth, and the Welsh Government and criticised their partially unequivocal support for kerbside-sort collections: “Others [...] suggest that there is ‘no evidence that co-mingling yields higher diversion – reverse seems true over time’. However, our research provides strong evidence to the contrary.” (WYG 2010, 3) WYG emphasized that its report was based on information from potential proponents and opponents of co-mingling. WYG reviewed information on the performance of the different collection systems. Data on costs etc. was analysed in detail from a representative selection of 30 local authorities operating with both collection systems. MRF operators and reprocessors were contacted to obtain information on the quality of waste from them. Overall WYG found co-mingled collection to cost less and to yield higher collection rates. And it found materials from MRFs to be just as good as those from kerbside sort. In a later report WYG reacted to comments on being biased in their 2010 study: “Commentators who suggest that WYG has a vested interest in one system over another are misguided. We strongly believe that each case is unique [...] and that the choice of appropriate systems must take local preferences and factors into account.” (WYG 2010, foreword)

A further report¹⁰⁸ commissioned by WRAP determined the environmental and economic implications of introducing landfill bans or restrictions inter alia in England. It demonstrated the linkages between landfilling and separate collections. Environmental benefits were understood as reduced GHG emissions and increased resource efficiency. Two change options were modelled: Under the first one “any form of ‘sorting’ of materials prior to landfilling would be considered sufficient (ibid. 3). The second option included detailed measures for waste actors for complying with sorting requirements. Key sensitivities were the assumptions made about the costs of waste collection and treatment as well as the modelling of the environmental costs and their quantification. Environmental benefits were greatest where restrictions to landfilling were combined with sorting provisions. Overall benefits would be greatest in case of landfilling restrictions of paper/card, textiles, metals and wood, not plastics however. For plastics “the additional financial costs of collection and reprocessing appear to exceed the associated environmental benefits”, although the potential for quantitative improvements was seen as significant. The report was based on i) a literature review of international experience; ii) discussions with regulators regarding existing bans; iii) stakeholder workshops; iv) preliminary environmental modelling; v) and a cost/benefit analysis”.

6.5.2.3.3 *IA in the Decision-making Procedure*

In February 2011 the Waste Regulations and the IA were laid before Parliament (Defra 2011d) and adopted about one month later. The regulations had to be debated and approved by the House of Commons and the House of Lords. While the debate in the House of Commons rather

¹⁰⁷ WYG Environment – Review of Kerbside Recycling Collection Schemes Operated by Local Authorities. Amended version (May 2010) (WYG 2010)

¹⁰⁸ Eunomia on behalf of WRAP (2010). Landfill Bans: Feasibility Research (Eunomia Research & Consulting 2010)

focussed on the 50% recycling target (see section 6.5.2.5), the debate in the House of Lords¹⁰⁹ rather concentrated on the separate collection conflict. The Parliamentary Under-Secretary was questioned by a Baroness from Labour and from a Lord from the Liberal Democrats-Party (Waste (England and Wales) Regulations 2011. Considered in Grand Committee 2011). They criticised government for its “timid” approach to waste policy. It was doubted that government’s localism approach and light touch to the waste regulations were not at the expense to progress in England’s resource management. They raised widely shared concerns of the UK losing momentum in this issue (Waste (England and Wales) Regulations 2011. Considered in Grand Committee).

The Labour baroness Lady Quin criticised the IA for only including high cost options for local authorities to increase recycling rates. She wondered if other options had been discussed with the authorities. Evidence was available showing that kerbside sort was economically and environmentally more effective than co-mingling favoured by government. The Under-Secretary defended the approach to the interpretation of the separate collection term and for leaving the choice for a waste handling system to local authorities with government’s policy on localism. Local authorities would know best what type of waste collection fitted their situation. He moreover pointed to continuously improving MRF technology; once ready, a stricter regulation of recycling management was justified (Waste (England and Wales) Regulations 2011. Considered in Grand Committee 2011).

In the context of the regulations’ deliberation, the Campaign for Real Recycling (CRR) announced to seek to seek a judicial review¹¹⁰ of Defra’s decision to allow mixed collections. CRR’s chair announced: “We will be questioning Defra’s evidence base for the inclusion of co-mingling. [...] For a start, there is no definition for co-mingled material in the reference documents of the revised Waste Framework Directive.” (Real Recycling 2011)¹¹¹

6.5.2.4 Implementing the Waste Hierarchy

6.5.2.4.1 The Conflict and Actor Constellation

The five step waste hierarchy was already implemented in the 2007 Waste Strategy (cf. section 6.5.1). But until the adoption of the 2011 Waste Regulations only large industrial sites caught by the IPPC Directive were obliged to consider the hierarchy. Extending the sphere of the waste hierarchy to further actors (local authorities and individual waste producers and holders, particularly businesses) was disputed because of the costs involved with that. Accordingly it attracted much attention in the boards and workshops organised (see section 6.5.2.1). Particularly, representatives from the Confederation of British Industry (CBI) and the

¹⁰⁹ The House of Lords can only postpone the adoption of a policy but not prevent it.

¹¹⁰ Procedure to challenge the actions of the actions and decisions of a public body such as a government department or a local authority. If a court judges in favour of the plaintiff, the action or decision will be declared void (HM Court & Tribunals Service 2016).

¹¹¹ In 2013 the CRR lost the judicial review. The judge argued with the freedom of local authorities to decide on the practicability of the collection system (ENDS 2013).

Federation of Small Businesses were involved in these workshops (Defra 2011b). Generally, the basic rhetoric of the CBI is to argue with the significant costs of stricter regulations or higher environmental standards and the job losses involved (McRae 2005). This applied also to the transposition of the Waste Framework Directive. The CBI's and Department for Communities and Local Government's major concern during the transposition process was to keep the administrative costs entailed in the implementation of the waste hierarchy for businesses and local authorities to a minimum (Interview No. 12, 2014).

In the initial IA Defra suggested a 'no further measures' approach¹¹² (Defra 2009, 17). From stage two on Defra introduced a three-tiered approach to implement the hierarchy:

1. Option 1: through planning policy of local authorities, particularly Waste Development Frameworks;
2. Option 2: through the environmental permitting regime: the Environment Agency and local authorities should introduce an obligatory permit showing that facility operators have complied with the hierarchy when asking for new permits or significant amendments;
3. Option 3a and 3b: individual waste producers or waste holders applying for a Waste Transfer Notes under the duty of care regime should be obliged to add a declaration and a narrative of no more than 200 words about how the hierarchy has been taken into account; option 3b as the preferred option: same as option 3a, though waste holders using a standard declaration that they have considered the waste hierarchy (Defra 2011b, 11).

Option three was the most controversially debated option. It seemingly received specific attention in the IA, because it had been an issue for about a decade, particularly for small enterprises which had difficulties in complying with the system (Interview No. 16, 2014), as one of the interviewed suggested.

The Federation of Small Businesses 'overwhelmingly' supported Defra's preferred option on a standard declaration (ENDS 2010a). It suggested to back the approach with education and awareness-raising activities "while the IA had not assumed any such work would be needed" (ENDS 2010a). Also the Department for Business Innovation and Skills and the Department for Communities and Local Government favoured a standard declaration arguing with less red tape. The Chartered Institution of Wastes Management and the LGA (Local Government Association) on the other hand were concerned that a standard declaration in waste transfer notes would become 'a mere tick-boxing exercise'. It would not lead to a behaviour change of those handling waste and was more open to abuse. They therefore suggested making the non-compliance subject to civil sanctions. The LGA pointed out that a similar requirement on businesses to "pre-treat" waste prior to sending it for landfill had led to little change in behaviour since it came into force in 2007 (ENDS 2006).

¹¹² However, a do nothing option was not eligible since the hierarchy was not covered by existing English waste law (only policy).

Similarly, Waste Watch – a non-profit charity committed to inspiring people to reduce waste – was not convinced that a standard declaration would be sufficient for certifying that waste producers and holders had considered the waste hierarchy. Stronger enforcement and oversight were necessary to lead to a behaviour change. Moreover, key for ensuring that the waste hierarchy had been implemented was a separation of wastes according to the waste hierarchy as early as possible (Waste Watch 2010, 5).

6.5.2.4.2 IA and Wider Evidence-Base

Formal IA

One of Defra's biggest concerns was the administrative burden potentially evolving for businesses when complying with the Waste Hierarchy Guidance¹¹³. Different from Germany, guidance on the waste hierarchy was already drafted during the transposition process (and was published soon after the 2011 Waste Regulations entered into force).

Accordingly, the IA concentrated on the costs for businesses to read and understand the hierarchy and on the costs of the implementation of the waste hierarchy through waste transfer notes (options 3a and 3b). As explained in the final IA summary sheet (Defra 2011b, 19): "The largest component of the costs [as overall costs of Waste Framework Directive transposition], approximately 50%, are the one-off costs to business of reading and understanding the guidance under Stage 3 of the Waste Hierarchy actions."

Other costs assessed included inter alia those for local authorities and other planning authorities to consider the waste hierarchy through the national planning system; they were assessed as being minimal (option 1); and those costs enshrined with the environmental permitting for new installations (option 2). Exemplarily Waste Watch criticised that the IA for instance missed the representation of costs which would arise from actual change in waste handling practices from considering of the waste hierarchy. It feared that Defra did not expect any real changes from the implementation of the Waste Regulations. In addition, it expected Defra to include a wider range of benefits in the cost considerations such as reduced GHG emissions, increased resource security or job creation (Waste Watch 2010).

For all three options the costs were calculated using the wages costs of employees and the amount of time for reading and understanding the Waste Hierarchy Guidance. For option 3 for example 20 million Waste Transfer Notes were estimated to be issued by the Environment Agency per year in England and Wales. 15 minutes to 1 hour reading time with about 7€ wage costs were used for the calculation and resulted in transition costs to businesses of 29 to 50million €.

¹¹³ A draft version of the Waste Hierarchy Guidance and an evidence paper to inform the development of the guidance was jointly issued by Defra, WRAP, and the Environment Agency along with the second stage consultation. Research used for the guidance built on life-cycle assessments. Environmental impacts associated with the materials (glass, paper, plastics, metal) considered were assessed for climate change, air quality, water quality and resource depletion. What choices would be made on the ground against environmental, economic, technical feasibility factors was left to decide for business and public bodies on a case-by-case basis. Defra just reminded them that in any case they needed be able to justify their choices, if departing from the waste hierarchy (Defra 2011d, 9).

The costs for waste producers and holders to fill in the Waste Transfer Note were calculated to be 77 million € –and the costs of formulating the narrative (about 1 to 1,6€) (Defra 2011b). Option b was consequently the option recommended by Defra since it would “meet the requirements of the revised Waste Framework Directive in a cost effective manner” (Defra 2011b, 14).

The Chief Executive of The Packaging Federation did not see himself “in a position to comment on the detail of the assessment but” assumed that the time estimated in the cost calculations in the IA for reading and understanding the waste hierarchy guidance was “significantly understated” (The Packaging Federation 2010, 4). In reaction to such stakeholder feedback Defra extended the cost range in the final IA for businesses for reading and understanding the Waste Hierarchy Guidance (depending on the wages for the employees digesting the guidance). At the same time, the assumed time required to digest the guidance was lowered as a result of shortening the guidance from some 70page to 14 pages guidance document (Defra 2010d, 2011b).

Consideration of environmental benefits

In the first IA no impacts were assessed. Like the German Environment Ministry, Defra found it “challenging to estimate the benefits of such a Directive, with many components cumulatively achieving incentivisation up the waste hierarchy” (Defra 2010d, 8). In order to still underpin the evidence of the potential environmental benefits, Defra cited own reports (see below) on the estimated savings from improved waste management of UK businesses through low-and no-cost interventions.

In the reports¹¹⁴ the authors quantified the overall waste arising in tonnes for the sectors with the highest consumption rates, as a baseline for all sub-sectors. From this the potential waste savings were quantified and transferred into financial benefits. The authors found that 41% of savings across the UK economy were possible, equalling an amount of 3.2 billion €. Next, the environmental benefits in terms of carbon savings were accounted for. Valuated savings from improved waste management were converted into GHG savings using the DECC 2009 ‘*Greenhouse Gas Policy Evaluation and Appraisal in Government Departments*’ as a guide. These CO₂e saving opportunities would arise in the three sub-sectors¹¹⁵. For each sector material savings were determined and how they were achieved. These numbers were converted into CO₂ savings based on LCA reports by WRAP, an LCA data base as well as reports from trade associations or companies. Approximately 15 MtCO₂e could be saved through low-and no-cost waste reduction measures. The report set out that most waste savings could result from improved waste management, such as improved segregation and recycling of wastes currently being sent as general mixed waste to landfill.

In the second and third stage IA Defra detailed the environmental benefits by conducting a switching point analysis. It was performed to understand when policy costs of moving up the

¹¹⁴ Oakdene Hollands on behalf of Defra (2007). Business Benefits of Resource Efficiency (Lee et al. 2007); and Oakdene Hollands on behalf of Defra (2009). Quantification of the potential CO₂ savings from resource efficiency in the UK. (Lee et al. 2009)

¹¹⁵ Food and Drinking Manufacture, Sports and Services, and Hotels and Catering, with Construction as another significant source

waste hierarchy would be turned neutral contrary to the benefits as reduced GHG emissions and reduced used of virgin material. In the analysis benefits from increased waste prevention and recycling were analysed, using the example of food waste and paper/card recycling¹¹⁶. Positive effects when preventing food waste were assumed to result from avoided disposal costs (land-filling) and saved methane emissions as well as saved food production. Citing WRAP, one tonne of prevented food waste could be valued with about 2,000 Euros. The value for one tonne of recycled paper was established at 115€ in 2010. Given the estimated 20 million tonnes of food waste each year, Defra found that over a 10 year period, food waste prevention needed to rise by 0.3-0.5% to make the policy cost neutral, and 2-4% for paper/card. The department deemed this improvement to be achievable in view of last years' increases in recycling. It was noted that these figures would document the cost savings to a company but could underestimate the social benefits in terms of GHG emissions and avoided extraction of virgin materials (cf. Defra 2011b).

At stage three Defra complemented the switching point analysis with three case studies (Defra 2011b). They were used to illustrate the potential savings from moving up the waste hierarchy for medium sized businesses and to examine the related costs and benefits. The first case study referred to a hotel and its efforts to eliminate, reduce, re-use and recycle as much waste as possible. The changes referred to the supply of toiletries, laundry treatment and purchasing habits. The necessary changes to save waste were considered small, though brought cost savings of ca. 12,000€/year. For this and the other two case studies WRAP provided the information. The further two case studies considered a pharmaceuticals company and a salad manufacturer. Again, while the cost savings for the businesses were set out in detail, the environmental benefits in terms of avoided GHG and reduced use of virgin raw material were just highlighted as being positive. Defra remarked that an evaluation to ascertain whether the estimated benefits were to be achieved would be carried out. Or government could conduct a more time and cost intensive but more comprehensive survey.

6.5.2.4.3 IA in the Decision-Making Procedure

Compared to the previous Labour government, the Tory-Liberal Democrats coalition put an increased emphasis on red tape in the IA procedure. This condensed in the IA's cost-benefit analysis.

“Towards the later stages particularly, representatives of the Cabinet Office joined the meetings of the Waste Framework Directive programme board with, overseeing whether Defra was following the least burdensome route in the transposition which was the new government's main concern towards the end of the process.” (Interview No. 12, 2014)

Accordingly, in both Houses of Parliament the Under-Secretary emphasized that with the transposition the directive was not gold-plated, keeping costs to business, local authorities, regulating agencies and taxpayers to a minimum.

¹¹⁶ in the partial IA Defra “only” considered paper/card

6.5.2.5 Household and Demolition Waste Targets (50% and 70%)

6.5.2.5.1 The Conflict and Actor Constellation

The 2007 Waste Strategy already contained a target level of 50% for household wastes in 2020. Since there was relatively not much controversy around the Construction, Demolition and Excavation (CD&E) waste, this section will concentrate on the household target. Additional policy measures for the CD&E waste were not introduced for this target because the recycling rate was already above the EU benchmark with about 89% of the (non-hazardous) CD&E waste recovered in England in 2010 (Defra 2015, 14).

Central question was whether the 50% target would be achieved. Defra argued that it was not certain whether England would meet the target in 2020 without any further measures¹¹⁷. Recycling rates had steadily increased during the past, though keeping this pace would become more difficult. At the end of the process, the Waste Regulations were adopted with a no further measures approach. As in the case of the separate collection target, the English was somewhat in competition with the Welsh Government which targeted a level of 64% household waste recycling. In this context Defra agreed with the European Commission to apply the 50% target across all household waste streams, rather than individually to the four specified waste streams (paper, metal, plastic, glass). It also sought agreement on its approach to “green wastes” from households (e.g. organic materials). These should count towards the 50% recycling target (Defra 2009, 37).

There was debate among stakeholders which measures were needed to push recycling. Responsibility for achieving the 50% target and providing disposal facilities for controlled waste was with the local Waste Disposal Authorities (EAUC 2016). In 2010 the England recycling rate from wastes from households was about 41% (Defra 2015). A great part of the debate however evolved around the question how waste treatment could be scaled up in the waste hierarchy from landfill to energy recovery. This was owed to the high levels of 42% of municipal waste which were still sent to landfills in 2010. About half of that was biodegradable waste. In Germany, no municipal waste was going to landfill anymore in comparison (Defra 2011c). The high share of biodegradable and recyclable waste sent to landfills was at the expense of overall negative effects of GHG emissions (EEA 2013, 15). Part of the problem was the in parts not very well developed UK waste infrastructure. The lack of waste treatment facilities resulted in UK waste exports to member states within the EU, particularly to the Netherlands, Sweden and Germany (Interview No. 13, 2013)¹¹⁸. In 2012, 13 energy recovery plants (none of them dedicated to the incineration of municipal solid waste), 65 incineration plants, and 478 landfill sites were operated in England (see Defra 2015, 13).

¹¹⁷ In 2015 the LGA stated that despite improvements in recycling, the UK would not yet be on track to meet the 50 % target by 2020 (LGA 2015).

¹¹⁸ Exports of plastics, paper, glass and metal have steadily increased between 2002 and 2011. Exports of recyclables to China have increased tenfold since 2002 (APSRG 2013).

Against this situation the coalition government wanted to promote a “zero waste” economy. The Tories had promised “a huge increase” in waste-to-energy and the Liberal Democrats a huge increase in anaerobic digestion to generate energy from food and farm waste. The Tories moreover intended to introduce measures encouraging local authorities to pay people for recycling. And they were in favour of a voluntary arrangement with producers to cut back on the production of waste and improve its disposal (Liberal Democrats 2010, 81, Tories 2010, 97). Generally though, the waste-resource issue did not rank high on the coalition’s agenda. It decided to cut Defra budget by 29% in four years and would for instance remove a great part of the funding provided under Labour (e.g. for WRAP) (Interview No. 13, 2013).

In support of the government position the Confederation of Business Industry (CBI) as the UK’s most influential business organisation (cf. Defra 2007b) and the Environmental Services Association (ESA) advocated investments in waste infrastructure and a stronger realisation of the value of waste. Both highlighted the role of energy from waste (primarily incineration) to meet landfill diversion targets. 300 of the UK’s largest landfill sites were to be closed down until 2015 on grounds of EU provisions (CBI 2016, ESA 2016a, Monbiot 2016). CBI stated that waste to energy could provide for a share of up to 20% of energy needs and the reduction of emissions without comprising recycling efforts. It referred to Germany with a high recycling but low landfill rate, the rest being energy-to-waste. Approximately 12 billion Euros (of private investment) were needed for 2000 new waste management facilities to meet the European Commission’s 2020 landfill and the 50% household waste recycling target in face of Defra budget cuts. Generally, the CBI expected a more integrated approach to waste policy from government. With respect to the Waste Regulations, CBI stressed the problem of the diverse ways of local authorities handling waste. Standardising local authorities recycling services could be a means to encounter this problem but also a useful tool to promote financial savings (CBI 2011).

Indeed the (Municipal Solid) Waste recycling rates varied broadly across England (EEA 2013), accordingly diverse were the positions of local authorities in the process. Asked in the consultations (stage one), a similar share of the 34 responding local authorities believed that the 50% target would or would not be achieved. All respondents of the latter group saw that local authorities were just not prepared to keep on track with the 50% target and because of general poor economic conditions over the last 18 months (Defra 2010a, 63). Similar diverse were the responses to the Defra’s approach to apply the 50% target across waste streams. Those disagreeing argued that a general target would result in perverse effects, particularly with respect to bio-waste (Defra 2010a). In a statement issued four years after the adoption of the 2011 Waste Regulations the Local Government Association suggested a bundle of measures to help local authorities meet the 50% target, demonstrating the complexity of challenges for local authorities: Suggestions included the redistribution of the landfill tax back to the local councils so that they could generate capital to invest in waste infrastructure and to better incentivising anaerobic digestion (which would be acknowledged by the EC as a form of recycling) to make the collection of food waste more cost effective (LGA 2015).

For CIWM the delivery of waste prevention/re-use strategies was a top priority. They ranked statutory recycling targets as the 4th most important factor for delivering successful waste and resource management. For the major waste producing sectors, CIWM believed that the Producer Responsibility Regime and the ‘Voluntary Deal’ approach needed to be complemented in the

longer run by other measures to drive behaviour change, such as more powerful environmental criteria in product standards and financial incentives to encourage the use of secondary rather than virgin resources.” (Owen et al. 2012, 24)

Friends of the Earth emphasized that the 50% target in the Waste Framework Directive was just a minimum target and that with its review in 2014 the European Commission would probably establish higher recycling targets. For packaging wastes it suggested progressively increasing recycling targets in the Packaging Regulations as this would enforce the extended producer responsibility principle and increase recycling efforts (FoE 2009).

6.5.2.5.2 IA and Wider Evidence-Base

Formal IA

Although Defra assumed for England to achieve the 50% target until 2020 it ran a model to scrutinize that. The LAWRRD model¹¹⁹ (Local Authority Waste Recycling Recovery and Disposal) already had been used for evidence-basing the 2007 England Waste Strategy. Back then it had shown that the 50% target would be achieved. Defra now used an updated version of the model to quantify the effects of the household waste recycling target and resulting environmental impacts. In short, the model showed that the recycling target for waste from English households would be achieved without implementing additional policy measures. On the grounds of these results, Defra proposed government not to take any further action. Hence, no additional environmental benefits needed to be represented in the IA's cost-benefit analysis.

The modelling exercise was revised in stage two and stage three: while in the initial IA the 50% target would not be achieved under all scenarios (A: 53%= default, B: 50, C: 48, D: 45%, see Defra 2009), all scenarios in the partial and final IA would exceed the 50% recycling rate (Defra 2011b). While at stage two, more recent information on the development of the landfill tax rate were included, at the final stage Defra included newly published data from the Municipal Waste Statistics for 2009/10 into the LAWRRD model. The statistics showed a recycling rate of 39.7% for England. Assuming this upwards trend in recycling would continue the 50% recycling target would be well met.

In the final IA report four scenarios with a time period up to 2020 were described (A: the baseline scenario represented an unchanged recycling pressure factor¹²⁰ in comparison to previous years and a continued increase in the recycling rate; scenario B, C, and D: assuming a constant decline of the recycling pressure factor of 80% and 50%; scenario D: the recycling pressure fac-

¹¹⁹ The LAWRRD model was developed by external consultants for Defra in order to evaluate the costs of waste management for local authorities in England, and how they changed with various policy initiatives such as the imposition of recycling targets. The model operated on a least cost optimisation basis – i.e. finding the cheapest way for local authorities (England only) to manage waste, given the constraints in place (from the prevailing price of facilities to recycling targets). “Using this approach allows modelling to simulate the behaviour of local authorities in different situations.” (Defra 2009, 83)

¹²⁰ pressure factors in the LAWRRD model were used to reflect non-financial drivers as the desire of LAs to achieve recycling targets (Brown et al. n. d.)

tor would have no effect at all) with an estimated waste growth of 0.75%/year) assumed across all four scenarios (in contrast to the initial IA in which four different levels were applied in the scenarios):

Scenario A: Recycling rate of 56% (default modelling assumptions).

Scenario B: Recycling rate of 55%.

Scenario C: Recycling rate of 52%.

Scenario D: Recycling rate of 51%.

Figure 14: Outcomes of the updated LAWRRD modelling exercise (Defra 2011b, 26)

The overall approach to the modelling exercise as well as key assumptions (e.g. about recycle prices, composition of waste recycled) were detailed in the IA. Further assumptions underpinning the modelling exercise were set out in the Annex of the consultation document (Defra 2009).

In the stage one consultation the majority of respondents did not see the costs and benefits of the directive's transposition set out accurately though. An example provides the response from the Campaign for Real Recycling: "There are benefits in terms of contributions to local authority efficiency, green jobs, lowering carbon impacts of recycling and long term material security. These appear not to have been taken into account within the Impact Assessment." (Defra 2010a, 142).

Consideration of environmental benefits

Environmental benefits were only considered in the initial IA as GHG savings and local disamenity benefits (e.g. reduced noise). For the latter Defra referred to earlier work (2003)¹²¹ in which a hedonic pricing method was used to estimate landfill sites' effects on adjacent housing prices. The overall value was about 12–30 million €, depending on the recycling rate.

For the consideration of climate benefits the additional tonnes and costs to achieve the 50% target were first calculated for those scenarios under which the 50% target would not be reached (scenarios C and D; see

Table 14 and Table 15). Next, the related GHG savings (as reduced methane emissions from landfill, reduced emissions from primary extraction and production, and the production of energy from waste) were quantified under three different scenarios (scenario 1= any necessary increase in recycling is spread across several of Defra's 'key' materials; 2= recyclates composition here is different depending upon the recycling rate scenario; 3= additional required recycling is targeted at high impact in terms of GHGs) as show in Table 16. Last, the value of these savings was calculated using a shadow price of carbon as suggested by Defra in an earlier document (DECC 2009) of 40€/t CO₂e (see Table 17).

Overall, the modelling demonstrated that a 53% target of household waste recycling would be met. If this turned out to be false, high impact materials needed to be targeted for additional re-

¹²¹ Cambridge Econometrics et al. for Defra (2003). A study to estimate the disamenity costs of landfill in Great Britain. London. (Econometrics et al. 2003)

cycling in order to have environmental benefits. As such, there were no additional costs and benefits for Defra resulting from the recycling target.

Table 14: Additional recycling (2009-2020) to meet 50% household recycling target (Defra 2009)

	% Recycling	Additional recycling (tonnes)
Scenario A	53%	0
Scenario B	50%	0
Scenario C	48%	3,463,742
Scenario D	45%	8,702,544

Table 15: Additional costs (2009-2020) of meeting 50% household recycling target (Defra 2009)

	% Recycling	Present value (PV) of cost (£M)
Scenario A	53%	£0.00
Scenario B	50%	£0.00
Scenario C	48%	£112.30
Scenario D	45%	£476.81

Table 16: Greenhouse gas savings, 2009-2020 (in CO₂e) (Defra 2009)

	Benefits Scenario	CO ₂ e savings (tCO ₂ e)
Scenario C (48%)	Scenario 1	5,197,953
	Scenario 2	1,951,583
	Scenario 3	6,611,695
Scenario D (45%)	Scenario 1	13,059,694
	Scenario 2	2,953,285
	Scenario 3	16,611,677

Table 17: Net Present Value for all scenarios (Defra 2009)

	Benefits Scenario	Net Present value (£M)
Scenario A (53%)	All	£0.00
Scenario B (50%)	All	£0.00
Scenario C (48%)	Scenario 1	£29.38
	Scenario 2	-£52.82
	Scenario 3	£65.18
Scenario D (45%)	Scenario 1	-£121.50
	Scenario 2	-£376.90
	Scenario 3	-£31.73

From the local authorities respondents of the consultation that were critical of achieving the 50% target one commented on the modelling approach in the IA, saying that there had been “too much change recently to be confident in any models” (Defra 2010a, 64). The business sector largely agreed with Defra’s approach, “with few reasons (e.g. the Landfill tax) given for agreeing other than a belief that the modelling showed the target would be achieved.” (Defra 2010d, 64) Other actors were more critical of the modelling outcomes as the following quote of SITA, a UK

recycling company, illustrates: “We caution against Government becoming too sanguine over the LAWRRD outputs. Formidable obstacles remain, not least the at times turgid, at times capricious waste planning system that still bedevils the UK.” (Defra 2010d, 64) One respondent from the third sector stated that decision-making should not be relied upon so heavily on the modelling, given that it was not based on the waste hierarchy (Defra 2010a). Friends of the Earth further saw the need for Defra to more transparently clarify how it had derived at the target set – WAG had done so. The LAWRRD model was not suited for the public to understand how targets had been established. Target-setting should moreover be more evidence-based, making more research necessary for more realistic and fact-based recycling targets (FoE 2009).

Specific Impact Tests

For the sustainable development impact test¹²² (see section 5.2) Defra stated: “This policy proposal contributes to the principles of sustainable development through strengthening the emphasis on waste prevention and resource efficiency.” (Defra 2009, 98)

6.5.2.5.3 IA in the Decision-making Procedure

In February 2011 the draft regulations were debated in a General Committee of the House of Commons¹²³ (Defra 2011d) with a focus on the separate collection conflict. The Parliamentary Under-Secretary was questioned by two Labour MPs (members of parliament) which referred to the IA twice. The MP asked how government intended to achieve the needed private and public investment in waste management plants to reach the 50% target. He cited the IA, saying that it made very clear that the English government sought to only achieve minimum targets for complying with the EU Directive. Two further issues which had not been addressed in the IA analyses were central during the committee debate: pending cuts to local authorities and governments. The Labour MPs inquired in how far this would affect waste targets and if local authorities would be fined individually, if not in line with EU targets or would whole society bear the costs. The Under-Secretary replied with the IA exploring in great deal what level of activity was required from local authorities to successfully reach the waste targets, believing firmly they were capable of achieving 50% recycling.

Drawing comparisons to Germany where the waste industry was seen an important industry sector contributing to economic growth one MP asked “given that evidence suggests that kerbside sort recycling collections deliver better economic and environmental results from household waste recycling, what steps is the government taking to end co-mingled collections?”

¹²² The sustainability special impact test serves to consider the impacts of policy options on principles of SD and specifically on future generations. It integrates the findings of the overall IA, since a consideration of sustainability through costs and benefits alone would not be appropriate in policy appraisal (BIS 2010b).

¹²³ General Committees consider proposed legislation in detail and reflect the political makeup of the House, with the government always having a majority (Parliament UK without date). The committees’ role is not to approve or reject a piece of legislation, but rather take place in the motion that the committee has considered the Statutory Instrument (wikipedia 2017).

Does the Minister accept that kerbside sort collection, if established as the norm, could transform the waste industry?" On this issue Parliamentary Under-Secretary referred to the agreement with the European Commission on the separate collections term (HoC 2011).

6.5.3 Conclusion – Role of the IA Process for Environmental Policy Stringency

The IA in this case had all components of an IA process as set out in section 1. Its progression was clearly structured and defined by the UK IA provisions. This refers particularly to presenting IAs as part of the consultation documents and the IA summary in a cost-benefit template. This refers also to the (limited) consideration of climate impacts in particular. They were calculated and monetarised by the responsible environment department as part of the obligatory carbon appraisal.

According to most interview partners the IA did not play any role in their perception of the Waste Regulations. For Defra officials the IA was an instrument to structure and explain their own approach to the transposition. They also had to keep track with IA provisions as otherwise external scrutiny (e.g. by the NAO) would show shortcomings in compliance.

The problem structure of the Waste Regulations process was moderately structured. The means to achieve policy targets were contested and so was the evidence. As characteristic for moderate problem structure: the status quo in waste management policy was maintained in the end with no further action taken for the policy targets considered. Central in this was the coalition government's key concern to keep red tape for businesses at a minimum level, backed by the Department for Business, Innovation and Skills, the powerful Confederation of British Industry and the Federation of Small Businesses. The IA was used by government to justify this "no further action" and was used to demonstrate that with no further measures implemented England would still achieve EU waste targets. Defra assured that minimum requirements were realised to transpose the EU directive, inter alia by engaging in regular discussions with the Federation of Small Businesses.

The overall orientation of the IA was accordingly: Defra focussed the IA analysis on costs of measures mainly for businesses (but also local authorities). If they were contrasted with the environmental benefits, it was mostly argued or demonstrated that the benefits were not large enough to justify environmentally more ambitious measures. For some of the environmentally more ambitious options the impacts were not quantified at all, due to complexity of the matter, a lack of data or manpower. To compensate for that to some extent Defra would refer to earlier studies illustrating the benefits of a more ambitious waste policy. The findings (or numbers) in these reports could however not directly be compared with the business costs entailed in the IA. The societal benefits of more ambitious Waste Regulations could as such not be adequately represented in the final IA or benefits "box" of the cost-benefit/IA template which would be forwarded to decision-makers.

The environmental impacts were mainly considered in form of climate change impacts. Other impacts such as reduced use of virgin material were considered qualitatively at the brink of the analyses. Although, from the eight central and wider evidence studies, five considered the value of environmental benefits or facilitated their consideration in IA processes. A wide range of methods were employed in the evidence studies and different phases of the IA process.

In the context of the 50% recycling target Defra monetarised disamenity effects (based on hedonic pricing). But the values of these were so small that they would hardly be of any consequence compared to the costs for businesses. The requirements for a Sustainability Impact Assessment Test were satisfied by writing that with promoting waste prevention and resource efficiency sustainability principles were supported, similar to the German waste cascade.

The IA focussed on selected impacts and was partially rather compartmentalised. For instance under the waste hierarchy target a standard vs. 200 words declaration in the waste transfer notes on how the waste hierarchy was considered though not the impacts from moving up the hierarchy. And not all issues which would impact on enforcement of the regulations were addressed in the IA, such as the budget cuts for local authorities. Against this backdrop the analyses performed by Defra and presented in the IA were contested among stakeholders and expertise and counter-expertise was prepared. Actors challenged Defra to include and value a wider range of benefits such as increased resource security or job creation in the IA analysis. Defra replied to this request with qualitative arguments but would not widen the monetarisation of environmental benefits. The IA also attracted attention and was contested in the Houses of Parliament and was as such one basis to inform decision-makers.

For the separate collections target Defra assessed two policy options (collection of plastic bottles only vs. collection of mixed plastics). While the costs were considered for both options the environmental benefits for the environmentally more ambitious option 2, were not assessed since necessary data was not available. Apart from the lack of data Defra justified its preference believing that the additional benefits would not be large enough to outweigh the costs. This was somewhat in contrast to a 2005 Defra study which had found for this option the environmental and resource efficiency gains to be the greatest. This turn by Defra may be explained by a change in government during the process – from a Labour to a Tory-Liberal Democrats coalition – for which an ambitious waste policy was not a priority. One interviewee further explained the limited assessment with a lack of economists in Defra which was always a bottleneck at the department.

The wider environmental benefits of the implementation of the waste hierarchy were not assessed. Defra argued that the many components in such an analysis would make the assessment too complex. With a switching point analysis the department exemplarily estimated how much of selected valuable wastes would need to be recycled in order to make the implementation of the waste hierarchy cost neutral. Counterbalancing the business centred analysis Defra demonstrated the benefits of moving up the waste hierarchy by citing a Defra research study which had valued the climate benefits from low-and no-cost waste measures. But overall, the analyses for this target were focussed at businesses and did not directly showcase societal environmental benefits. In contrast the costs for businesses, arising from reading and understanding the Waste Hierarchy Guidance were comprehensively monetarised. These one-off costs were central in the IA because they made up the largest share in the overall costs of the regulation's cost-benefit analysis.

For the 50% household waste recycling target Defra used a model which had already been used for the 2007 Waste Strategy. But only in the initial IA environmental benefits as reduced GHG emissions were assessed for different implementation scenarios under which the 50% target would not be achieved. In the second and final IA, under the new government and with updated

recycling statistics, the modelling showed that the England would meet the 50% rate so that no additional costs would incur but also no additional GHG emissions would be saved so no environmental benefits would need to be examined. For monetarizing the carbon saving-related benefits Defra draw on a standard shadow price of carbon derived in an earlier Defra publication.

This modelling exercise was criticised by many different actors (e.g. local authorities, business, third sector). One point of criticism was that the model was neither transparent nor understandable, and with that being of no use to the IA or for the public. The IA would not be sufficiently evidence-based and more research was needed for realistic and setting of fact-based recycling targets. Like the modelling exercise the switching point analysis was used to justify implementation costs of the waste hierarchy by demonstrating that consideration of the waste hierarchy was doable without entailing costly measures to businesses.

6.6 The IA Process on the German 2012 Circular Economy Act

6.6.1 Introduction to Waste Policy and Management in Germany

Germany is a leading country in the EU with respect to waste management and has significantly shaped EU policy in this field. It has a long tradition of national waste strategies and waste management plans in the federal states. In the 1990s Germany was the first country in the EU to introduce producer responsibility with the packaging waste regulation and to introduce policies to limit landfilling, and to set out a waste hierarchy. All three approaches were later on transferred to EU waste policy. After Austria, Germany had the highest recycling rates of municipal waste in Europe in 2010 (EEA 2013, Watson 2013).

Over the years, the amount of wastes generated in Germany has slightly decreased. construction, demolition, and excavation (CD&E) wastes are the main waste fraction, followed by waste from production and businesses, municipal, and waste from mining (see Figure 15), showing the waste generated in millions of tonnes, including hazardous wastes). Between 2002 and 2010 the disposal of waste decreased from about 35 to 25%, while recycling and composting of wastes increased accordingly from 65% to 75% (BMU 2008-2012). At the same however Germany ranked among the countries with the highest amounts of wastes generated (Eurostat 2012).

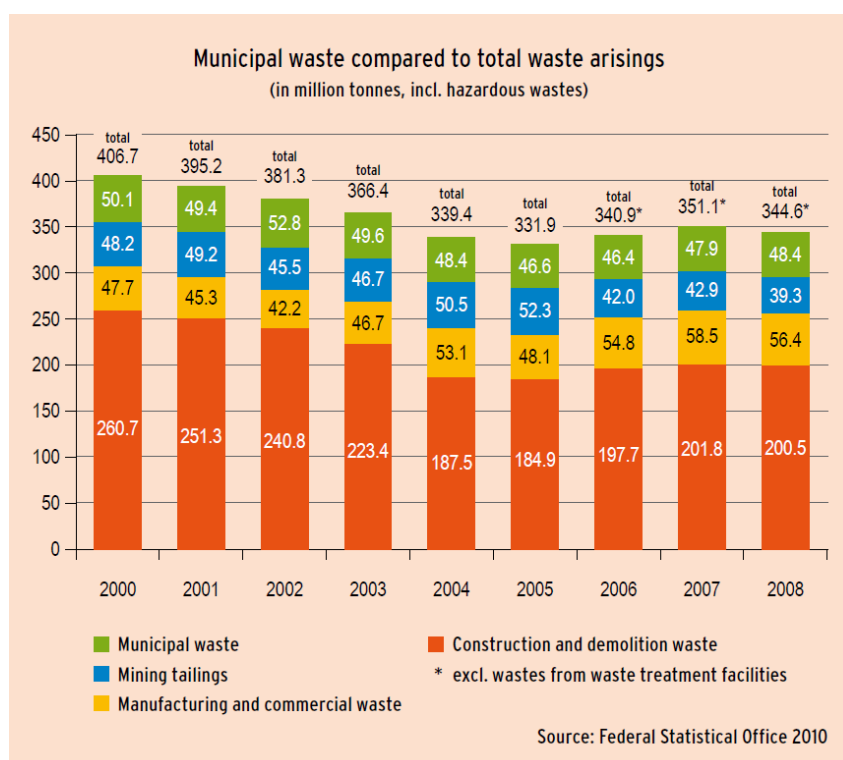


Figure 15: Waste generation in Germany (BMU 2011b, 30)

According to the Environment Ministry and in comparison to the UK the environmental record of the waste sector was positive. Since the 2005 ban of depositing untreated waste, climate damaging wastes could be continuously reduced. In addition positive effects could be realized from recycling and energetic recovery of wastes. These achievements contributed to more than 20%

to the Kyoto objectives of Germany (BMU 2008-2012).

German Waste Policy and Management

Precursor to the 2012 Circular Economy Act was the Circular Economy and Waste Management Act entering into force in 1996. It was the first waste act to promote a circular waste economy, to emphasize waste prevention and recycling over energetic recovery, to address producer responsibility and the consideration of environmental provisions in the disposal of waste. It is considered as a turning point in waste policy, from the provision of public waste services to the producer responsibility principle of businesses and consumers (Läpple 2007).

The Circular Economy Act and its predecessor are the centrepiece of German waste management policies. Special legal regulations exist for the following goods: Packaging, end-of life-vehicles, batteries, electric and electronic equipment, waste oil, waste wood, commercial wastes, biodegradable wastes, sewage sludge, and hazardous wastes. Voluntary agreements exist for CD&E waste and special paper. In addition, the federal government has issued a waste incineration ordinance based on the Federal Immission Control Act (BMU 2006).

The legal framework for waste in Germany is set at all three authority levels: by the federal level, the Laender, and at regional/municipal level. The federal waste act (plus Technical Guidelines) is complemented and specified by Laender law which inter alia determines public services for waste disposal. These for instance can set waste collection fees. Municipal statutes (of boroughs, cities, or municipalities) can moreover establish how, when and where municipal and commercial waste is collected or has to be delivered (Bilitewski and Härdtle 2013, Fischer 2013). Based on federal state law, the municipalities are responsible for waste collection and transport. They can use the services of private businesses to fulfil this task (Bilitewski and Härdtle 2013).

Waste Management in Germany

The waste management and disposal process is characterised by a strong division and allocation of tasks among diverse and numerous actors. These are at the same are linked to each other with in numerous and complex contractual relationships. All this is characteristic for the German management model (Läpple 2007, 49, Brenck et al. 2009).

Since the 1970ies a dominating industry sector of private businesses has evolved next and in collaboration with the public services (Kranert and Cord-Landwehr 2010). In Germany the waste industry is a relevant sector with about 3000 municipal and private companies (from one-man to large businesses), 200.000 employees and an annual turnover of circa 40 billion Euros. Municipal companies account for 35% and private companies for 65% in domestic waste handling (BMU 2008-2012). Four (international) companies dominate private waste management (among them Remondis and Suez), binding more than half of the employees in the sector (Kraemer et al. 2017).

The question of competences in waste management has thereby accompanied German waste policy since decades (Deutscher Bundestag 2011g). Generally, businesses can be distinguished as for waste collection and transport, preparatory plants (such as sorting, shredding, and refuse derived fuels (30 plants in Germany) and co-incineration plants, and plants for mechanical-biological waste treatment for pre-treatment of organic wastes, with 48 plants in Germany), plants for recycling (including 1000 composting and 85 fermentation plants in 2008) and ener-

getic recovery (69 recovery plants in Germany), plus waste incineration plants (mostly in the hand of public services), and landfill sites (BMU 2008-2012).

Regarding waste collection, the German law generally distinguishes between waste originating from private households and from commercial or industrial origin. Waste for disposal from all sources and waste for recovery from private households can only be handled by public waste management firms. On the other hand commercial/industrial waste for recovery can as well be recycled by private companies. Exceptions from the obligation of having waste from private households and waste for disposal exist for a range of cases, e.g. direct disposal by waste producer, transfer of obligation for disposal to third parties, or not-for-profit waste collection (RETech 2010).

6.6.2 IA Process

6.6.3 Overview of the Actor Constellation

Key stakeholders in this process were the private waste management businesses, and the public waste management businesses in coalition with the associations of the Municipalities' Self-Governments. The environmental NGOs played a smaller role in this process, while publically this case did not raise major attention by the public.

The overarching theme of the private waste businesses and industry associations and its representing organisations was their call for a liberalisation of waste management. They argued to be better equipped to recycle household wastes more efficiently. Existing rules were not EU-conform anyway. Municipalities should restrict themselves to mixed households and wastes for disposal (Petersen et al. 2012, 525). "No single innovation in the German waste management sector had been developed and made marketable by the municipalities", they argued (bvse 2010).

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU, in short Environment Ministry) was the responsible ministry for the Circular Economy Act and its assessment. Its unit "Legal Aspects of Waste Management" with a general, legal perspective on waste management was in charge of the process of the Circular Economy Act (BMU 2013). For the Federal Ministry for Economic Affairs (Economy Ministry in short) wastes were an element of industrial policy, raw materials and resources in particular. Economic use of resources and their recycling was important for a reliable raw materials supply for the German industry (BMW 2010). For the Ministry of Construction mainly the provisions on the Construction, Demolition and Excavation waste (CD&E waste), the biggest waste fraction in Germany, were a concern in the formulation of the Circular Economy Act.

A major actor on the private side was the Federation of the German Waste, Water and Raw Materials Management Industry¹²⁴ (BDE). It represented the private waste management industry with about 750 businesses of all sizes as members. According to its website this made the BDE the strongest private pressure group in this field in Germany and Europe (BDE 2015). The Ger-

¹²⁴ Bundesverband der Deutschen Entsorgungs-, Wasser- und Rohstoffwirtschaft e.V., BDE

man Association for Secondary Raw Materials and Waste Management¹²⁵ represented about 660 small and medium sized businesses in the secondary raw materials and waste management. It had a moderate tone towards the public-private split of labour: “We have never pursued the target to use the commercial collection as door opener for the so called house-to-house-fighting.” (bvse 2011) The Federation of German Industries¹²⁶ (BDI) as the central organisation of German industry associations saw that the privileges for the public waste services would prevent private businesses to win valuable resources from wastes with innovative recycling techniques. This line of argument was embedded in the BDI’s concerns regarding the German businesses’ supply with raw materials. Increased recycling could be a main means to mitigate potential future shortages of raw materials (BDI 2012). The Association of German Chambers of Commerce and Industry¹²⁷ was directly involved in waste management because businesses can report to the Chamber the amount and quality of returned waste under their product responsibility (§25 KrWG). More than the associations it asked the government to improve mechanisms for reducing red tape (DIHK 2010).

The Federal Association of Local Authority Central Organizations and its member organisations as the Associations of the Municipalities’ Self-Governments – the Association of German Cities¹²⁸ as the voice of cities¹²⁹, the German County Association¹³⁰, representing rural areas in Germany¹³¹, and the German Association of Towns and Municipalities¹³² fought for keeping their prevailing position managing municipal wastes. They were in a coalition with the Association of Public Businesses¹³³ (VKU) concerned with waste, waste water, water, energy management, and city cleaning. In 2013 429 waste businesses were member in the VKU. Basic orientation of the VKU was that “municipal businesses are committed to public welfare [...]. In a competition-based economic order they would ensure a service structure to counteract market concentration in the interests of citizens, and as integral element of a social market economy.” With regard to the Circular Economy Act “the Federal Association’s focus was on two aspects: 1) practicability of the regulatory provisions for local authorities, and 2) impacts on the fee payers” (Interview No. 24, 2014). In how far the proposals would impact on the Act’s environmental purposes was not relevant for the municipal organisations (ibid.).

¹²⁵ Bundesverband Sekundärrohstoffe und Entsorgung e.V., bvse

¹²⁶ Bundesverband der deutschen Industrie e.V., BDI

¹²⁷ Deutscher Industrie- und Handelskammertag, DIHK

¹²⁸ Deutscher Städtetag, DST

¹²⁹ and the national local-authority association of cities which are not belonging to a county as well as of most cities and towns within counties

¹³⁰ Deutscher Landkreistag, DLT

¹³¹ with the 295 German federal administrative districts (Landkreise) which cover around 96 per cent of the surface area of Germany

¹³² Deutscher Städte- und Gemeindebund, DStGB

¹³³ Verband kommunaler Unternehmen e.V., VKU

Generally the environmental associations (primarily German Society for Nature Conservation – Nabu, German Environmental Aid – DUH, Association for the Environment and Nature Protection Germany – BUND, and the umbrella organisation of German environmental associations, the German League for Nature, Animal and Environment Protection – DNR) criticized the insufficiency of the draft with respect to environmental issues. Substantively, the regulation would have hardly any impact on resource efficiency or resource security in Germany in their view. The Nabu for instance demanded the Environment Ministry to first substantiate the general purpose of the Circular Economy Act with ecological objectives and to complement §1 by reduction of emissions of GHG from the waste management (Nabu 2010a, 2011). In contrast to the other actor groups the environmental associations emphasised the aspect of waste prevention and re-use (e.g. DUH 2010). The Nabu and DUH for instance called for a prevention target. They proposed to exemplarily reduce the municipal and commercial waste per inhabitant by 5% until 2021. No incentives or obligations had been taken up to promote re-use. Climate protection from the waste sector would not be improved without promoting the first three steps of the waste hierarchy (Nabu 2010a). Different to the other actors they criticised the amount of wastes being incinerated and the surplus capacities incineration of wastes (Prognos 2009). They were the only actor group not focussing on the distribution of waste collection competences but advocating environmental progress of the Circular Economy Act. Overall, they represented similar lines of thinking on the revision of the Circular Economy and Waste Act and appeared as allies in the process. Different than a decade ago, the Circular Economy Act was not as high on the agenda of the environmental NGOs anymore when the Circular Economy Act was developed – with the Nabu as the most active in the process –, “otherwise we could have maybe achieved more in the process” (Interview No. 25, 2014). According to the interviewed person not even the members of parliament (MPs) had the waste issue in their focus much anymore so that they could “rap the knuckles of the Environment Ministry” (ibid.).

6.6.3.1 Overview of the IA Process

The Circular Economy Act was rather a continuation of existing legislation than a new policy with the environment ministry trying to maintain many of the old provisions: “With view to the practical users, we put emphasis on a high recognisability of the provisions” (Petersen et al. 2012, 522). As a waste management and recycling pioneer in the EU Germany already complied with many of or was close to the provisions and the pressure on the Environment Ministry to transpose the Waste Framework Directive’s targets was rather moderate compared to England. During the process the Environment Ministry issued six draft proposals which only slightly changed during process. More basic options which would have meant a structural change to the waste sector, such as strengthening the first two steps of the waste hierarchy – were addressed at the sidelines of the process by central actors¹³⁴.

¹³⁴ The implementation of waste prevention programs was postponed to later stages, after the adoption of the Circular Economy Act. The German government was repeatedly criticised for not fixing any binding targets for waste prevention or any minimum contents of the future waste programs (see for instance DUH 2010, KGV

Different to the biofuels case, the main target of the policy (§1, protecting natural resources, humans and the environment) was uncontested because actors could identify with the target. They all felt contributing to environmental improvements in the waste sector and saw the need to improve resource efficiency. Accordingly the discussion rather focussed on selected aspects of the targets (e.g. recycling bin for separate collection) or on the level of operational objectives (e.g. level of recycling targets).

In this spirit the environment ministry carried out a minimum IA, focussing mainly on the calculation of bureaucracy costs. The wider IA process was dominated by a battle of legal reports. They aimed for clarifying the question, whether keeping private businesses from collection of household wastes was against the European Commission's competition policy or whether it was in line with it.

The Circular Economy Act was adopted on 10 February 2012 (entering into force in June 2012). The transposition process thus took three years, overriding the Waste Framework Directive's transposition deadline for about a year.

6.6.3.2 Overview of the IA

6.6.3.2.1 Formal assessment – Evidence in the Rationale Parts of the Draft Proposals

The environmental or sustainability impacts were not assessed or quantified in the rationale parts. The environment ministry argued: "The impacts of measures and their ecological advantages are usually not clearly predictable; measures for the quantitative or qualitative regulation of production or consumption patterns are highly complex and are assessable only under great difficulties in the context of global economic relations." (BMU 2009)

6.6.3.2.2 Sustainability Assessment

An in-depth sustainability assessment of the draft was not carried out (e.g. assessing the GHG emissions saved under certain recycling options). Instead the Environment Ministry described the environmental achievements of German waste policy (of the Circular Economy and Waste Act) finding it to be a success story: "The regulatory concept of the law has proven to be environmentally successful and contributes significantly to the sustainable development in Germany." (BMU 2010c, 102) Generally, waste policy had relevantly contributed to climate protection with also positive economic impacts, 250,000 employees in waste management and an annual turnover of about 40 billion Euros (BMU 2010c, 102ff). "With improved regulations the [...] raw materials shall be even better captured and further replaced by secondary raw materials." (Deutscher Bundestag 2011a, 1)

As a minimal form of sustainability assessment as required by the Joint Rules of Procedure of the Federal Ministries (GGO) the Environment Ministry set out that the Circular Economy Act would significantly contribute to a sustainable development. "Altogether, the regulatory proposal is [...]"

2012). In fact, binding targets for waste prevention at the European level were not least prevented by the strong pressure of the German CDU-SPD government (KGV 2012).

directly aligned along the sustainability principle.” (BMU 2010b, 116, 2010c, 106) Particularly it would have an overall positive effect on the National Sustainability Strategy’s indicator “raw materials productivity” as increasing the raw materials productivity with an economic use of raw materials (BMU 2010c, 142, Deutscher Bundestag 2011d). As part of the sustainability assessment the Environment Department discussed the contribution of the future instruments of the Circular Economy Act:

- prevention programs would help to continue and dynamise the concept of waste prevention;
- the waste hierarchy and the waste quota would help to close the resource cycle and help to reduce resource use;
- the waste hierarchy and its provisions for energy recovery of waste (and the R1 formula as an efficiency criterion for incinerators) would moreover increase the energy productivity.

6.6.3.2.3 *Financial Impacts of the Circular Economy Act*

The Environment Ministry considered impacts under the heading “financial impacts of the regulatory proposal”. The compulsory impact categories (e.g. financial impacts on public budgets, cf. section 5.4) were qualitatively assessed. Administrative costs as informational duties were the only impact category for which the costs were calculated. Basically, the Environment Ministry assumed the Circular Economy Act to bring a “noticeable but in detail not quantifiable financial relief for the public budgets as well as the economy.” (Bundesregierung 2011, 143) This relief was the result of a simplification and better enforcement aimed for in the revision of the act. The information summarised below was part of the cover sheet as element of the short introduction of the act.

The Environment Ministry set out the potential impacts (BMU 2010c, Bundesregierung 2011, Deutscher Bundestag 2011d):

- financial impacts on the federal budget: the revision would unburden the federal budgets through the adoption of central terms of the Waste Framework Directive, a better enforceability, and measures for reducing red tape which would simplify administrative work flows. However, these could not be quantified. Costs for setting up a Waste Prevention Programme (WPP) would not exceed a five-figure, negligible Euro amount.
- costs for the Laender: if participating in the federal WPP or if setting up own programs negligible costs would incur; the costs could be kept low by integrating targets into existing waste management plans. Moreover the description of waste prevention measures was already part of federal states’ waste planning exercises, so that additional costs would not be high. Further financial relief was expected from opening up enforcement activities for electronic form, including electronic data transfer.
- Laender – costs for achieving the waste targets: due to the long-existing activities in waste management, the new recycling quota, requirements for separate waste collection, and the five-step waste hierarchy with a continuation of the heating value criterion as basic admissibility criterion would not significantly increase enforcement resources; cost were only considered to be likely, in case of non-achievement of targets.

Costs for economy

The costs for the economy would be reduced inter alia due to systematisation with the Waste Framework Directive and related increased planning security for businesses. However, they could not be monetarised. Increased waste prevention would in the long-run reduce the raw materials use of the economy and lead to cost-savings for waste disposal. Higher recycling quota would improve provision of secondary raw materials. The increased independence from world market prices of raw materials would have positive effects on the German economy. The flexible implementation of the waste hierarchy would prevent conversion or retrofitting costs for the various waste plants.

Additional costs could incur for some businesses, for instance from complying with the waste hierarchy. Primarily investments, for instance in new machinery would be one-off costs. The criterion of “economic feasibility” would however set limits for these additional costs.

In December 2010 government published an overview report on the application of the standard-cost model and status of reducing bureaucracy. The revision of the Circular Economy Act was among the projects for simplification. Existing costs for the economy were to be reduced by 5%, equalling 12.5 million Euros. This was to contribute government’s objective from January of the same year to reduce red tape by 25% until 2011 (Bundesregierung 2010).

Administrative costs

In 20 pages of the rationale part, the Environment Ministry elaborated the administrative costs as informational duties. They were calculated for businesses, citizens, and the administrations using the standard cost model. The Environment Ministry distinguished informational costs directly incurred by the Circular Economy Act and the statutory instruments adopted on the basis of it. Parts of the numbers for calculating the costs were determined in the hearings of the Environment Ministry, carried out in September 2010. Altogether the Environment Department resumed the administrative costs for businesses and administrations would be reduced due to the introduction of an electronic system for informational obligations. However for businesses no new informational duties were created. Three of the existing ones were changed and one dropped. These assumptions resulted in the cost calculation as shown in Table 18.

Table 18: Summary of administrative costs as set out in the work proposal of the Circular Economy Act (BMU 2010c, 123ff, Deutscher Bundestag 2011d)

	February 2010	June 2011
Costs for businesses: total 15 (later on 13) informational requirements from the CEA 222 informational requests from amended SIs → in the medium-term these costs would decrease so that the policy would reduce informational duties by 20%	247.854.000 €/year = 324.000€/year = 247.530.000 €/year	246.349.000 €/year = 429.000 €/year = 245.920.000 €/year
Costs for citizens	n.a.	
Costs for the administration (addressing the municipalities, inter alia)	The Environment Ministry stated that three informational duties were newly created with the Act, but provided no details on the costs.	

With the second draft proposal of the cabinet draft bill, the National Regulatory Council issued a one-pager statement on the administrative costs, annexed to the proposal. The council had no objections against the regulation. “The department has set out the impacts on the bureaucracy costs very detailed and transparent. Foundation for the assessment of the saving potential are the data and experiences collected by the Federal Statistics Office in the context of the baseline measurement in the administrative processes.” (Deutscher Bundestag 2011d)

6.6.3.3 *Separate Collection of Waste, Recycling Bin, and Return Obligations*

6.6.3.3.1 *The Conflict and Actor Constellation*

Key line of conflict during the transposition process was the introduction of a recycling and in this context to open up the collection of household waste for private businesses. Introducing a recycling bin originated from the Packaging Waste Order (its 5th amendment in 2007). The 2009 Order for the first time allowed the joint collection of packaging and similar non-packaging wastes which were to be collected in the so called “recycling bin”. The Circular Economy Act would now lay the ground for this recycling bin in the context of the return obligations¹³⁵.

The return obligations were the most contested provision in the process. The key question was: should the collection of separately collected household wastes (in the recycling bin) be subject to liberalisation? Two options to organise the recycling bin were debated: open up collection of valuable recyclables to the private waste management businesses or leaving them in the main responsibility of the public waste businesses. This divided the involved stakeholders and increased the already highly competitive pressure between private and public businesses. It began a controversy about potential cherry picking in valuable wastes. The provisions on the

¹³⁵ §17, duty of private households to leave their wastes to those responsible for waste disposal

return obligations were about environmental impacts in so far, as the private associations claimed that it was them which had advanced recycling technologies and made Germany a pioneer in this field.

When the Circular Economy Act was formulated not all recyclables were collected separately. Only sales packaging (plastics, paper, etc.) was collected in the so called yellow bin, since only for these wastes this was compulsory. Similar materials (though not used as sales packaging) were disposed in the “residual waste bin” and not brought to recycling (Nabu 2010b). Those wastes which are not collected separately have to be disposed into the “grey bin”. The larger part of this rest waste is used for thermal recycling (generation of energy), the smaller part is used in mechanical-biological waste plants and used as substitute fuel or metal recycling.

In the end, the policy adopted, contained a compromise which to a large extent maintained the status quo: The main competences for the collection of wastes from households remained with the municipalities. Private businesses could collect recyclables from households, if they proved to provide a more effective waste collection than the public services. This conflict marginalized a debate about the environmental ramifications of the act.

Basically two camps existed in this constellation: On the side of the business and industry associations, both parties of the CDU-FDP government, central for the transposition of the Circular Economy Act¹³⁶, called for equal opportunities of private waste management. The CDU and its environment minister Norbert Röttgen favoured an extension of a commercial waste management system, so that the most innovative and cheapest solutions could prevail. Primarily the FDP, leading the Ministry for the Economy (with Rainer Brüderle 2009-2011, and Philip Rösler 2011-2013) was the driving force behind the push for more competences of private businesses in waste management (Deutscher Bundestag 2011f). With view to the recycling bin conflict, the FDP spokesman for waste and environment, declared it was “not only unreasonable for the consumers but also ecologically insane” that principally local authorities were responsible for waste paper disposal, since they would not always ensure an optimal disposal. Private companies should not be kept from the market, since they could potentially offer better services. The FDP called for case-by-case regional decisions regarding the question of collecting valuable materials (CDU 2008, FDP 2009). Also the Federal Ministry for Economic Affairs (Economy Ministry in short) asked to strengthen competition in the waste disposal sector (private vs. public waste management) and not backslide to re-communalisation of waste management, since the economy, the environment and consumers would benefit more from “competitive solutions” (BMW 2010). Also the Federal Cartel Office as secondary agency to the Ministry for the Economy stepped in on the process: In a monopoly situation as the one for the municipalities in the waste sector, the municipalities could for instance ask the consumers for excessive prices, if they had not rationalised their waste businesses, resulting in high waste disposal and waste fees. This would be alleviated, if citizens could choose from competitors. Alternatively, municipalities could

¹³⁶ After the adoption of the Waste Framework Directive in November 2008 a CDU-SPD government was in charge of the transposition process. It however awaited the upcoming general elections in October 2009 so that hardly any action was undertaken regarding the transposition until then. In 2009 a CDU-FDP government replaced the former government.

be obliged to tender waste collection and recycling and disposal. Referring to the term “opposing public interests”, activities of private businesses would not impact on the functionality of public providers but would provide waste disposal to lower prices, higher quality, and with a higher level of environmental protection. So usually, opposing public interests would not be an obstacle. Like the other stakeholders the German Chamber of Commerce and Industry endorsed a recycling bin. Its introduction should not come along with expanded competences of the public waste management businesses, though. A clear signal for competition and further liberalisation of the waste management sector was missing. The exceptional provisions for return obligations of the Environment Ministry were not sufficient. Municipalities should have the responsibility for controlling waste management whereas the private sector should have the responsibility for the operative waste recycling (DIHK 2010).

Government was supported by the European Commission. In its notification (Europäische Kommission 2011) it showed concern that with the revised return obligations the functionality of public waste management businesses would already be at risk, if a commercial collection would for instance require structural changes in the system of the public business. According to the Commission this could reduce competition, since access of a new competitor would inevitably require changes (including structural ones). It therefore suggested changing the wording in the regulatory proposal from “impacts” on public entities to “significant impacts”.

The opposition parties, on the side of the Associations of the Municipalities’ Self-Government, saw that public waste management should have legal security and not be subject to liberalisation and privatisation.

The representative of a waste management consultancy suggested that whether the functionality of the public provider was affected by a commercial collection should not be assessed against the impacts of the overall functionality. Instead it should be assessed against the disposal services for a specific waste stream (Deutscher Bundestag 2011e). The municipal associations were relentless in their position. In a meeting with CDU MPs few days before the Committee’s hearing the representative of county associations had told that no compromise was available. “There was just one way, either to the left or to the right.” (Deutscher Bundestag 2011e) For the SDP resource efficiency and recycling should be promoted with regulatory measures as well as voluntary agreements and with view to the recycling capabilities and willingness of the producers (SPD 2009). Also the Environment Ministry, as the responsible ministry, supported a recycling bin under the existing distribution of competences for collecting waste from households. “From the perspective of the BMU this distribution of responsibilities has proved to be successful.” (BMU 2011a)

To accommodate the two opposing camps the Environment Ministry first formulated the following exceptions (from leaving the wastes to the public providers) into the return obligations: the return obligations would not apply to wastes collected from commercial providers, and which were subject of proper recycling, as long as prevailing public interests would not be opposed to such kind of collection. Public interests were opposed if the commercial collection would impact on the functionality of public providers or third parties commissioned by the public providers. And in the first and second government draft bill (March

and June 2011) the Environment Ministry would remain with the return obligations on the basis of “opposing public interests”.

Further the Environment Ministry would have to clarify which wastes would be collected in a recycling bin (the waste management businesses aimed for also collecting textiles and small electronic devices like mobile phones; the Environment Ministry wanted to restrict the collection to plastics and metals).

The Council for Sustainable Development issued a number of recommendations for government. The publication “How Germany turns into a raw materials country” examined the circulation of metallic and mineral raw materials as a “so far neglected cornerstone of a sustainable resource policy” (RNE 2011). The recommendation specified a roadmap for the development of a 100% circular economy as action guiding vision. Measures suggested included inter alia to clearly raise collection quota independent from who would collect them.

6.6.3.3.2 IA and Wider Evidence-Base

In the formal IA the potential impacts of the debated recycling bin options were not set out. To a large extent, the process concentrated on the legal opinions commissioned by various actors. Parallel to the legal opinions environmental assessment studies were carried out. They reflected the central controversy and considered privatisation and public waste businesses organisation scenarios. Moreover, the studies were used to assess which wastes were to be collected in a recycling bin.

Legal opinions on the legality of the return obligations

The ideological controversy of whether opening up household waste collection to private providers was argued out in form of legal opinions. All key actors commissioned legal opinions, except from the environmental associations. This conflict prevented a serious debate about the environmental and climate related impacts of the Act (KGV 2012). A hearing at the Environment Ministry was to prepare the first government draft bill. According to one of the interviewed persons, the hearing was an “unexcited and rather unilateral” event.

“A serious debate about the conflictual issues at stake did not happen.” (Interview No. 25, 2014)

As an expert would later say in the September hearing, the public and private actors invested too little into a direct dialogue during the process. Instead they staged a battle of legal opinions which could not replace the search for a balance of interests (cf. Ascopus in Deutscher Bundestag 2011e).

The environmental NGOs did not commission any legal opinions. They instead welcomed the introduction of separate collections and a recycling bin. The Nabu mainly called for integrating deadlines¹³⁷ into the provisions on separate waste collection, the recycling bin and recycling targets. In parallel it started an electronic petition “recycling bin”. The petition asked for a

¹³⁷ introducing the bin by end of 2011 and beginning with separate collections by 2015 and not 2020 as suggested by the Environment Ministry

general introduction of a recycling bin by 2012 in which not only sales packaging could be collected but could be used by citizens for disposing other sorts of recyclable materials (e.g. plastic toys, wood, electronic devices). Referring to experiences made in tests regions with a recycling bin, the Nabu argued that more recyclables could be collected, saving up to additional two million tonnes of CO₂. However, this issue did not prove to be of high relevance to citizens and the petition “had limited success” (Interview No. 25, 2014) but was still submitted to the Bundestag (Nabu 2014).

The opinions commissioned by the other stakeholders assessed the legal conformity of the return obligations. Two basic legal principles of EU and German law were thereby in the centre: The principle interpreted in favour of the waste public businesses and the current version of the return obligations were Article 106 on “Provisions for Businesses” in the Treaty on the Functioning of the European Union (TFEU) (EU 2012). It stated that businesses performing services of general economic interest are subject to the rules of competition, as long as the implementation of these rules does not prevent the performance, of the particular tasks assigned to them. Moreover, member states were obliged to design the tasks in the public interest in such a way as to ensure their functionality (Article 14 AEUV). Article 4(2) of the EU treaty stated that the EU respected national structures including those of regional and local self-government. On national level these provisions inter alia had their equivalent in the principles of guarantee of municipal self-administration. On the contrary, particularly Article 101 of the Treaty on responsibilities for monopoly control and Article 28 on the free movement of goods were invoked in favour of more private sector activity in waste management.

In preparation of the upcoming transposition of the Waste Framework Directive and later on when the controversy on the return obligations could not be settled, the Environment Ministry commissioned two legal opinions. The first one¹³⁸ was intended to represent an “open and unbiased” opinion (cf. Karpenstein at Deutscher Bundestag 2011e), examining the restrictions for return obligations of separately collected household wastes considering the latest EU and constitutional judicial rulings on the commercial collection of waste paper, and transferring these results to the request for “re-municipalisation” of household wastes. In the report legal alternatives were developed in order to “rationalise the discussion”. Still, the authors concluded that in order to ensure a comprehensive and continuous collection of valuable wastes, independent from market fluctuations, the allocating of the waste collection to public providers as a form of public service was justified. In the context of the 2nd Government Draft Bill¹³⁹ the Environment Ministry issued a second legal opinion assessing four regulatory options for the introduction of a recycling bin were assessed: 1) Primary responsibility of the Dual System, 2) municipal responsibility for the collection, 2 plus) municipal responsibility with a duty to tender, and 3) extending the producer responsibility. All three models were (under certain presumptions) admissible. Model one, if the Dual System would tender the collection; model 2 was not compatible with EU law, if based on exclusive return obligations; model 3 was in line with EU provisions as well as self-

¹³⁸ “Household wastes between privatisation and municipalisation” (April 2009) (Karpenstein 2009)

¹³⁹ “EU and constitutional legal framework conditions for the introduction of a uniform recycling bin” (Schink and Karpenstein 2011)

authority of the municipalities (Schink and Karpenstein 2011).

In response to the Environment Ministry's opinions a number of key actors commissioned own legal expertise: The Association of Municipal Businesses substantiated their interests with a legal opinion it commissioned together with several cities in the wake of the adoption of the Waste Framework Directive. The argument was made that private waste collectors were not sufficient to ensure stable collections for recyclable wastes. The authors¹⁴⁰ were asked to describe how the costs and the planning ability of household waste management would develop in light of the then current situation. This was done against the backdrop of private waste management businesses increasing their activities due to increasing prices for recyclables. According to the Association of Municipal Businesses they had put out more free blue paper containers to citizens in 2008, independent of the existence of municipal waste paper collections. "In the second half of 2008 the commercial collections for waste paper lost its appeal due to dropping commodity prices. In the meanwhile the collections of waste paper were stopped in some areas or citizens were asked to pay for the emptying of containers." (Siechau 2009) The Association of Municipal Businesses later issued another legal opinion¹⁴¹ to counter the BDE opinion (see below). The discretion of member states in organising and defining public services of general economic interest was emphasized.

The Association for Secondary Raw Materials and Waste Management's was also in favour of an obligation for the public waste management businesses to tender the collection and disposal of separately collected recyclables from households. They too commissioned a legal opinion "On the compatibility of public providers' duties to tender the collection of separately collected domestic wastes with the guarantee of municipal self-administration" (Beckmann and Wittmann 2010). The authors concluded that neither German nor European law would be opposed to a tendering obligation. The Liberal Party adopted this idea and insisted on writing a neutral agency into § 16 on the return obligations. This agency was to decide over the admissibility of a commercial collection, supposedly to ensure a tender and awarding free from discrimination (Deutscher Bundestag 2011f).

The legal expertise of the Federation of the German Waste, Water and Raw Materials Management Industry pointed in the same direction. As a follow-up and in opposition to the Environment Ministry's first legal expertise it commissioned another legal opinion on the elaboration of the return obligations. The expertise¹⁴² investigated the remaining leeway for member states for organising waste management under consideration of the EU treaties' provisions. The authors of this report concluded that member states were not allowed to enforce unrestricted return obligations.

The representatives of the Dual System mandated a further legal opinion on the "European-legal

¹⁴⁰ "Household waste disposal between municipal responsibility and commercial collection systems – Legal options for strengthening municipal responsibility" (Koch and Reese 2008)

¹⁴¹ „Household waste disposal as responsibility of public services" (Gaßner and Thärichen 2010)

¹⁴² "National self-sufficiency and European law. Leeways and restrictions in European legislation for Member States' return obligations for recyclable wastes from private households" (Dieckmann 2009)

admissibility of a recycling bin and a re-municipalisation of the collection and recycling of sales packaging” (Köhler & Klett Rechtsanwälte 2010). The lawyers found a recycling bin to be inadmissible, if subject to return obligations, restricting the transboundary and free movement of goods. “Reasons that to the benefit of increased environmental protection recycling of similar material non packaging wastes is only to be ensured by public providers, are not identifiable.” (ibid., 46) Regarding wastes from households the legislator would have the opportunity to revise the current legislation.

This legal battle was leveraged by the Associations of the Municipalities’ Self-Governments (BVkom) which began an almost unprecedented offensive to defend the municipal access rights to lucrative household wastes in the light of the 2011 Laender elections¹⁴³. This caused a blast across all party groups and across MPs which in the end did not only bring the FDP politicians to cast in (Interview No. 24, 2014). An atmosphere was created

“in which each person advocating for a specific formulation of the return obligations would be considered as an anti-municipalist. Distinguished politicians confessed to politically lose all favours if they would oppose the municipalities.” (Interview No. 26, 2014)

In December 2011 the Federal Association of Municipal Associations sent a resolution to the more than 800 public waste management authorities. In the resolution they called for maintaining planning security by leaving the waste streams from private households with the municipalities and with that to prevent commercial cherry picking, and to leave the decision for the admissibility of commercial collections with the municipalities and not to transfer it to a “neutral authority” (Bayerischer Landkreistag 2010). The statement was signed almost nationwide by the municipalities, and almost independent from their political colour (Deutscher Bundestag 2011f).

Environment Related Reports

Central environment-related assessment activity was the Environment Agency’s simulation game on the Further Development of the Packaging SI (March 2010 – September 2011). The game was a central reference point of the Environment Ministry and Environment Agency during the transposition of the Waste Framework Directive and was intended to reconcile the public-private divide. 21 institutions were part of the simulation game, with a strong representation of the private sector and one environmental NGO (Dehoust and Ewen 2011, 12). The simulation was carried out on initiative of a representative of the Association of German Counties to prepare the sixth amendment of the Packaging SI (Bundesregierung 2011, 87). In total three studies informed the simulation game scientifically which all compared organisational options against their ecological and economic/distributive effects:

¹⁴³ 2011 was a super election year: Citizens could vote new parliaments in almost half of the Laender.in February (Hamburg), March (Sachsen-Anhalt, Baden-Wuerttemberg, and Rhineland-Palatinate)

- The first study¹⁴⁴ considered the ideal composition of a recycling bin, and the impacts of collecting same material non-packaging wastes (metal and plastics) versus non-same material non-packaging wastes (electronics, batteries, wood, rubber, and textiles), with a clear recommendation for the first option;
- The second study¹⁴⁵ evaluated options for organisation, operation, and financing of a recycling bin between public and private providers. Option 1 suggested the extension of the producer responsibility (Dual System); option 2 examined the recycling bin in responsibility of the public businesses; option 3 focused on the extension of the producer responsibility for material non-packaging wastes; option 4 considered municipalisation. No option scored high on all indicators, with option 3 scoring best.

The third study, as the outcome of the game itself, was forwarded to the Bundestag's second and third readings of the Circular Economy Act. Accordingly, two options at heart of the simulation game were modelled and presented in the final study¹⁴⁶. In the first one the private sector had total product responsibility, extended to non-packaging but similar materials. In the second model, the responsibility of financing was shared between public waste management, producers and distributors, while waste collection was organised by public providers. Results of the simulation game showed that both models could be implemented. In the end the reservations of the "opposing teams" in the simulation game could not be resolved, however (Dehoust and Ewen 2011).

The Association of Public Businesses and the SPD parliamentary group criticised the simulation game as a placebo with which the CDU-FDP government disguised their privatisation plans of the waste management economy. The game was not representing an impartial analysis. Different than agreed with the fifth amendment of the Packaging SI, different models, including unconventional ones, were not reflected in the simulation game. From the four possible options, described at first only two were considered in the end. The model of specific interest for the municipalities – a recycling bin under responsibility of the local authorities – had been left unconsidered. Moreover, the Environment Ministry had been too unambitious regarding the environmental aspects of a recycling bin. The assumed seven kilogram extra which could be collected seemed rather small in light of 500 to 600 kg wastes per inhabitant per year (SPD 2011, VKU 2011).

Also the Ministry of Economy issued a report on the collection of valuable recyclables¹⁴⁷ in the context of the Packaging SI. Like in the second Environment Agency study (see above) different collection systems under different scenarios were assessed. The modelling was done in form of a

¹⁴⁴ "German Packaging Ordinance part 1: optimised allocation of waste items to a "dry recyclables bin"" (Bünemann et al. 2011)

¹⁴⁵ "Variants of an amendment to the German Packaging Ordinance – Part 2: Financing options for the "dry recyclables bin"" (Brenck et al. 2011)

¹⁴⁶ "Variants of an amendment to the German Packaging Ordinance - Sub-project 03: Simulation game – Part 3" (Dehoust and Ewen 2011)

¹⁴⁷ "Economic and ecological assessment of the separate collection of recyclable households form private households and comparable accumulation points" (Brenck et al. 2009)

life-cycle analysis. Based on the modelling results potential organisational systems for the management of packaging wastes were developed (e.g. division of competences between the Dual System and public disposal businesses). The study found a separate collection and subsequent recycling to be environmentally the best option (e.g. compared to substitute incineration in a cement works). In conclusion, the authors did not find evidence for fundamentally changing the organisation of the circular economy, due to existing uncertainties in the modelling and the significant implementation costs entailed in changing the organisation of the waste management fundamentally. Therefore, inter alia the municipalisation was not recommended as alternatives to the existing system (Brenck et al. 2009).

Informing the climate related implications of a recycling bin and separate collection the German Environment Agency together with the Federation of the German Waste, Water and Raw Materials Management Industry issued a report on the CO₂ reduction potential in the waste management sector¹⁴⁸. While most protection potentials in Germany were found to already be exhausted due to landfill bans, increased separate collections and recycling of valuable municipal and wood wastes had an optimisation potential to reduce GHGs of 10 million tonnes of CO₂e/year. Methodologically a comparative life-cycle analysis was used to contrast the state in 2006 and different optimisation scenarios until 2020 to find potential climate protection improvement levers. The expenditures for collection, transport, treatment, and recycling were contrasted with the provision of secondary products and energy. The authors of the study emphasized that the scenarios would not show “real” trends but rather tendencies in the development for climate optimisation in waste management (Dehoust and Schüler 2010).

6.6.3.3 IA in the Decision-Making Procedure

Impact chains in the parliamentary hearing

Next to the assessment reports, the parliamentary hearing (September 2011) by the Environment Committee¹⁴⁹ was an arena in which impact chains of the different options were expressed. The parliamentarians aimed at exploring options for a political-legal compromise (cf. Deutscher Bundestag 2011e). During the September 2011 meeting 11 experts, representing the key stakeholder groups were invited (e.g. Municipal Regional Association, bvse, Federation of the German Waste, Water and Raw Materials Management Industry).

Like the written assessments, the hearing focussed on the legal evidence for the admissibility of the return obligations, and less about the scientific evidence of the potential impacts of the proposal. Environmental issues were not represented by an environmental NGO. The Green

¹⁴⁸ “Climate protection potentials of the Waste Management Industry – Using the example of municipal wastes and wood waste” (January 2010) (Dehoust and Schüler 2010)

¹⁴⁹ Hearings of the Bundestag committees are organised for “difficult or politically contested legislative proposals. They serve to introduce scientific general knowledge and knowledge about specific problems into the deliberations. Oftentimes they serve to draw the media’s attention to the proposal. Therefore the parliamentary groups usually invite experts which will support their political position (Deutscher Bundestag n.d.). Still, another purpose is to find compromises between the contested positions.

Party as opposition invited an advocate who also focussed on regulatory issues. He however critically remarked that the regulatory debate had been at the expense of more environmental protection.

Next to the legal aspects, the main question was in how far an amendment of the return obligations would change the waste management sector, and notably in how far this would affect the level of fees. The public actors argued with rising waste fees under a more deliberated market. Exemplarily, the representative of the Municipal Regional Association brought forward the following potential situation: A municipality would, not unusually, tender waste paper collection for the next three years¹⁵⁰. Over 60% of the services had to be tendered, since no public providers existed. Potentially a competing business would start collecting waste paper at the crucial localities in parallel to the selected one, “tapping” the paper. According to the operator of a private business commissioned by a municipality the valuable wastes needed to remain at the disposal of the municipalities, since every 10th Euro for fee coverage originated from sales of recyclables (Deutscher Bundestag 2011e).

The representative of the Federation of the German Waste, Water and Raw Materials Management Industry held against that according to scientific estimates 85 to 90% of recycling structures had been created and were operated by medium sized businesses. Public businesses had not produced any innovations in this field. Moreover, development of prices in waste management had been created by the current legislation, with a surplus in municipal energy recovery plants. Collecting recyclables, processing, and recycling them would indeed be a cost factor. The macroeconomic effects of it – the supply with secondary raw materials –, would oftentimes not be included in the discussion, though. Citizens would learn they had to pay an extra of 1.50€ more per year but not about the macroeconomic successes (Deutscher Bundestag 2011e).

Adoption Procedure

The Laender elections in 2011 had changed the balances of power in the second chamber: neither of the two political camps (CDU-FPD, SPD-Greens) now had a majority. The CDU-FPD government was thus dependent on compromising with the SPD and Green Party led countries for adopting policy initiatives. The latter used their veto power to prevent a clear opening of municipal waste collections towards the private sector (cf. Bundesrat 2011). Direct environmental or climate related aspects were of lower priority.

Repeatedly CDU/FDP rejected central requests made by the second chamber (in June and again in July) (cf. Deutscher Bundestag 2011a). In the third reading of the Bundestag however, a proposal was adopted which contained strong concessions to the public waste management authorities. Fearing the proposal could fail in the second chamber, government had strengthened the role of the municipalities at the last moment. According to one interview

¹⁵⁰ In comparison to the rest EU Germans consume paper above average. About 80% of this paper disposed is collected separately with a resulting recycling quota of regularly above 80% (UBA 2013). Since 2002 the Germany paper industry (the biggest in the EU) used 71% of waste paper for paper production.

partner (Interview No. 24, 2014) a meeting of the four chief executives of the municipal associations (DLT, DSSt, DSStGB) and the Association of Public Businesses with the CDU secretary of state had led to this outcome.

Still, the Bundesrat rejected the Bundestag's proposal of the Circular Economy Act again in November 2011. The proposal was referred to a mediation committee. After two meetings a difficult compromise was found. A sentence with a number of vague terms was added to the return obligations: commercial collections would not negatively affect public interests, if the collection and recycling of the commercial service was "significantly more efficient" than the one of the public one. Criteria for the admissibility of the commercial collection were the quality, efficiency, scope and duration of the service, as well as impacts on waste fees (orientation towards public welfare) (Deutscher Bundestag 2012).

In February 2012 the Bundestag adopted an act of which none of the actors fully approved, except the local authorities. After the adoption, the major associations of private stakeholders (e.g. BDE, bvse, BDI) issued complaints to the EC against the provisions distorting competition in waste management.

6.6.3.4 Household and Demolition Waste Targets (50% and 70%)

6.6.3.4.1 The Conflict and Actor Constellation

The controversy on this environmental objective evolved around the level of the recycling targets. When the Waste Framework Directive was adopted with the two recycling quota – 50% recycling of household waste (at least for glass, paper, plastics, and metal) and 70% of CD&E Waste until 2020 – these targets were (officially) already achieved in Germany. In the ministry's draft bill (§14) higher targets than those in the final policy were suggested "due to the highly developed state of the German recycling industry" (BMU 2010c, 107): 65% for municipal wastes and 80% for CD&E waste until 2020.

The Environment Ministry stated that the recycling rate for CD&E waste had already been 88% in 2010. Because backfilling could be decreasing and the provisions for the recycling of CD&E wastes were about to be changed, they did not propose higher quota (BMU 2010c, 166). According to the Environment Ministry, the quota for municipal wastes was not set higher in order to "have consideration for the volatility of recycling markets" (Petersen et al. 2012, 529). Moreover, the ministry pointed to the fact that for municipal wastes German provisions were stricter than EU provisions: The EU definition of quota referred to those wastes whose recyclability had been sufficiently tested, while the German quota referred to all kinds of municipal wastes (not only household wastes, but household, commercial and industrial, and wastes from institutions) (ibid.).

With 80% the Environment Ministry had written clearly higher CD&E recycling targets into the Circular Economy Act than set out in the Waste Frameworks Directive. After lengthy negotiations between the Environment Ministry and the Ministry for Construction – stalling the transposition process against the upcoming deadline – these however were lowered to the directive's level of 70% a few months later. The agreement foresaw assessing in 2016 whether the quota for this waste fraction could be increased. The Environment Department argued with a certain caution due to potential restrictions for recycling of CD&E wastes due to new environmental require-

ments. Those responsible in the Environment Ministry referred to the ‘controversial discussion’ on the “Substitute Building Materials Ordinance”¹⁵¹ which at that point existed as a working draft (Petersen et al. 2012, 529). The German Demolition Association argued that the Order and the Circular Economy Act were not coherent. The ministry was setting higher recycling quota while at the same time making requirements on substitute building materials which were diminishing the already limited acceptance and the marketability even further (Deutscher Abbruchverband 2011).

Regarding the other actors, the positions on the levels of the targets were threefold: The environmental NGO German Environmental Relief demanded quota of 85% for household wastes and 95% for CD&E wastes, including fixed intermediate targets for 2014 and 2017. In their view, lower recycling targets would not induce a recycling dynamics, needed to transform Germany into a recycling society. It also asked to define on the federal level the minimum criteria which could contribute to achieving quota (e.g. type of recycling and quality) (DUH 2010). Similar to the DUH, the Nabu did not find the set recycling targets to potentially improve the status quo. Moreover, it criticised the change from a “must” to “should” achievement of the recycling targets (Nabu 2010a).

The waste management business favoured ambitious and binding recycling targets. Only binding recycling quota (e.g. for plastics) could increase recycling efforts (bvse 2011).

Waste management business associations were against higher targets with differing views on the details. Like the Ministry of the Economy (2010) the BDI preferred a voluntary arrangement over binding recycling targets, fearing additional costs, when revenues from raw materials would be lower than the processing costs. It moreover, pointed to Germany’s leading role and achievements in recycling and argued that fixed targets would increase red tape. Regarding the recycling quota for municipal wastes the BDI urged the Environment Ministry to apply the quota set out in the Framework Directive (wastes from households), and thus to calculate the quota consistent with other member states (BDI 2011). Referring to the Ministry of Economy’s study from 2009 the German Chamber of Commerce and Industry asked the Environment Ministry to hold targets in line with the Waste Framework Directive and not to go beyond. Higher quota would cause the German businesses unreasonable costs. Since the profitability of recycling was incalculable for businesses (because being dependent on the revenues from secondary raw materials) it asked for a recycling target with a risk span, as a flexible solution (DIHK 2010).

¹⁵¹ The Substitute Building Materials Ordinance is part of the Groundwater/ Substitute Construction Materials/Soil Protection SI (Mantelverordnung). It sets out the requirements for substitute building materials to be used in construction. A substitute material which is suitable for construction from an environmental viewpoint must not be the best materials from a technical perspective which was the controversy in the Circular Economy Act process.

The Federal Association of Local Authority Central Organizations¹⁵² demanded a one to one transposition of the Waste Framework Directive (BKSVD 2010). With the municipalities as operators and owners of most of the 70 incineration facilities, they opposed higher recycling targets. The facilities had an estimated capacity of 19 million tons/year. However publically available data on capacities and workload were not available. Mostly municipal wastes were used in these facilities, with an increase in incineration at most sites in recent years. About three fourths of the wastes burnt originated from Germany, with the rests consisting of imports (Richers 2010, Bataille and Steinmetz 2014).

6.6.3.4.2 IA and Wider Evidence-Base

Regarding the household/municipal and CD&E waste targets no analyses were undertaken.

6.6.3.4.3 IA in the Decision-Making Procedure

IAs in the Parliamentary Hearings

The BDI representative told that next to fixed recycling quota technical issues were “much more important” for high quality recycling: first, the preconditions for recycling activities (such as bring or collection systems, what yields more kg of recyclable material?) and oftentimes technical innovations to produce high quality recycling materials (e.g. how to extract the rare earth out of waste mobile phones?). He suggested that additional instruments could be required for secondary raw materials to achieve high(er) recycling rates (Deutscher Bundestag 2011e, 46).

A recurring issue were the actual levels of recycling, notably of plastic waste streams and the intransparency in this field. The Progonos consultant and a Green MP called for a removal of the heating value criterion from the Circular Economy Act. Instead, more monitoring on “what was actually recycled” was needed in order to improve recycling rates. Further, the input calculation would deter the picture of the recycling rates. It was unclear to which calculatory approach the recycling rates would refer to. According to the consultant the surplus in incineration facilities (20 million tonnes from the rest waste bins was burnt in the incineration plants, of which 70% of that are actually rest waste, while the other 30% are filled with sorting rests and with commercial recycling wastes). This was the actual key problem which would prevent more recycling. “For 40 to 45€ per tonne you cannot do high-scale recycling.” (BSE expert in Deutscher Bundestag 2011e, 46)

The SPD representative argued similarly, questioning, if the private providers would actually ensure the best recycling. The presented numbers were based on the input-amounts to the sorting facilities, meaning that over 50% of the material would later on be used as substitute fuel in power or concrete plants. These had even lower emission levels than the incineration plants.

Environmental NGOs and parliamentarians from the Green Party however criticised that the official numbers were probably much lower, depending on how recycling was counted.

¹⁵² Bundesvereinigung der kommunalen Spitzenverbände

Moreover, they criticised that it was difficult to receive monitoring data from the (private) waste management businesses. If these numbers would have been taken as a basis for the recycling targets, this target would have had a (re)distributive effect, requiring waste companies to increase recycling efforts.

The BUND again demanded higher recycling quota in light of the advanced status of the German waste industry. Provisions for increasing recycling quota for instance for beverage packaging or the reduction of food waste should be explicitly included in the draft. Challenges such as an exemplary recycling quota of 54% demonstrated the need for action. “The whole regulatory proposal is shaped by the old misbelief that environmental protection [...] represents only a burden for the national industry which could only be inflicted to her, if at all reasonable.” (BUND 2010)

During the adoption procedure the level of targets was of minor importance.

6.6.3.5 Waste Hierarchy and Heating Value Criterion

6.6.3.5.1 The Conflict and Actor Constellation

At EU level the first-phase CDU-SPD government had unsuccessfully tried to save the three-step version of the waste hierarchy against other member states and the European Parliament (BMU 2007). When the Directive had to be transposed into German legislation, the Environment Ministry still maintained the old version. The heating value would allow treating energy recovery as equal with recycling. The private waste management companies feared that recyclable materials would be burnt and not recycled whereas moving up the waste hierarchy (to more recycling) meant potentially less wastes for the publically owned incineration plants.

Incineration should not be put in a worse position by applying the waste hierarchy. By taking into account technical, economic, and social aspects in determining the best option, energy recovery processes were guaranteed to keep an appropriate status (BMU 2010a).

The Environment Ministry decided that incineration should not be put in a worse position by applying the waste hierarchy. By taking into account technical, economic, and social aspects in determining the best option, energy recovery processes were guaranteed to keep an appropriate status (BMU 2010a). Its further line of argumentation was that statutory instruments for the relevant waste streams could not be adopted in due time. So, the heating value criterion of 11.000 kJ/kg was used as a temporary provision (BMU 2010c, 159). An energy recovery could be realised even below the heating value (instead of recycling), if in comparison energy recovery was the best option in terms of environment and human health protection (BMU 2012). With that the Environment Ministry conceded the producers and owners of waste the right to choose between recycling and energy recovery processes (§8, 1). This meant that also wastes below the heating value criterion could be incinerated in the future.

The application of the heating value criterion could be read as a concession to the public waste businesses. Under the provision they could force upscale materials into incineration (bvse 2010). Officially the Federal Association of Local Authority Central Organizations reserved for itself to further assess the heating value criterion. Because the formulation might imply that in

the future either recycling or disposal might be allowed which could be a problem for facilities which did both energy recovery and disposal (BKS 2010).

Generally, the German Environmental Aid criticized missing binding provisions, responsibilities, and deadlines for the interpretation of the waste hierarchy. The heating value was only appropriate for determining the priority order between energy recovery and disposal but not recycling (DUH 2010). The Nabu stated that the heating value criterion was not in line with the life-cycle approach set out in the Framework Directive. Moreover, clinging to the priority order of the waste hierarchy should be a *must* and not a *should* criterion. The measure enabling the highest level of environmental protection must have priority over the other and recycling should principally be prior to energy recovery. The paragraph on the heating value criterion should be deleted (Nabu 2010a). Waste prevention and upscale recycling were moreover prevented by over-capacities in waste incineration, so that a national (not only regional) demand planning was advisable.

Since the BMU would remain with the heating value criterion, the four environment associations DNR, DUH, Nabu, and the BUND as well as the European Environment Bureau (EEB) wrote a complaint to the EC asking it to reject the legislative proposal and to demand amendments. In their view, the implementation of the waste hierarchy infringed against EU legislation. The exceptions in the heating value criterion provisions were only admissible for certain waste streams, if justified on the grounds of life-cycle considerations (DNR et al. 2011).

The European Commission was on the side of the environmental NGOs. After it initiated an infringement proceeding against the German government in 2011, it initiated a formal infringement proceeding against Germany for failing to correctly transpose the hierarchy in February 2014 (after the adoption of the Circular Economy Act). In April 2015 the German government declared to cancel the “calorific value criterion” by 2016 (Deutscher Bundestag 2016).

Largely the European Commission found that departing from the waste hierarchy should remain an exception and only address specific waste types. The heating value criterion would not reflect the provisions of the Waste Framework Directive. It further doubted that the heating value criterion could be justified by life-cycle thinking. Waste paper would regularly have a high heating value above the 11,000 kJ threshold, though being more resource efficient, if used for recycling paper production. In addition, most incineration facilities would be approved as recovery process under the R1-formula of the Framework Directive. Against this background the Commission asked Germany to revise the provisions on the waste hierarchy (Europäische Kommission 2011).

Different than the German Association for Secondary Raw Materials and Waste Management (bvse) the Federation of the German Waste, Water and Raw Materials Management Industry (BDE) opposed the equalisation of energy recovery with material recycling. The bvse supported the heating value threshold but asked that only waste should be allowed for incineration which had previously been extracted the recyclable elements (bvse 2010). Since the provisions on the waste hierarchy were not changed during the process, the bvse saw that the Environment Ministry had failed to further develop the waste hierarchy and addressed the conflict of interests with the municipalities (bvse 2010).

Also the industry and business associations defended the heating value criterion and stood against a binding waste hierarchy. The Ministry for the Economy was for a flexible implementation of the waste hierarchy, since rigid schematic provisions could not reflect economic nor ecological realities (BMW_i 2010). The CDU supported the equality of material recycling and energy recovery against the background of an existential significance for a European energy supply (CDU 2008, 14-15). The BDI welcomed the “flexible” implementation of the waste hierarchy and the usage of the heating value criterion. It would provide an appropriate level of legal security to businesses. In exceptional cases energy recovery should be allowed if this was reasonable, and recycling should be allowed even if the heating value was above 11.000 kJ/kg (BDI 2011). The German Chamber of Commerce and Industry welcomed the heating value criterion to show the equality of energy recovery and recycling. It asked the Environment Ministry to apply the waste hierarchy as a general orientation but not as a rule with a reversal of the burden of proof. Since the heating value criterion was still provisional, the DIHK asked to assess as soon as possible whether this or another value should be applied, or whether the efficiency formula suggested in the Waste Framework Directive would apply (DIHK 2010).

6.6.3.5.2 *IA and Wider Evidence-Base*

In order to inform the deliberations on the Waste Framework Directive a study¹⁵³ sponsored by a consortium from German, Dutch, and EU waste management associations (mainly recycling) identified the most suited legal framework for optimising CO₂ reductions in the waste management sector. It was completed until the first reading of the Waste Framework Directive. From the German side inter alia the BDSV, the BRB (Federal Association of Recycling Building Materials), and the bvse were among the funders. The study was an IA of four different Waste Framework Directive amendment scenarios. The authors resumed that a legal scenario with a flexible implementation of the waste hierarchy (the hierarchy as a guiding principle and not as a general rule) and “additional market influences and dynamics” was most suited to improve the GHG reduction potential of the waste management sector.

A study¹⁵⁴ by the Nabu focussed on the capacities for waste incineration in Germany and its consequences for recycling and waste imports. With the 2005 landfill ban, incineration capacities had risen. In contrast, prevention of waste and recycling had not clearly augmented. Two scenarios on future waste generation were considered: 1) a status-quo scenario assuming an only slightly changed behaviour of citizens and the state for waste management, and 2) a scenario under increased prevention and recycling of 33% in average. Further two scenarios on the capacity extension of different sorts of energy recovery and incineration plants were assessed: 1) assuming that available capacities are expanded, and 2) assuming a certain reaction of the sector

¹⁵³ “Resource savings and CO₂ reduction potential in waste management in Europe and the possible contribution to the CO₂ reduction target in 2020” (Prognos 2008)

¹⁵⁴ “The German Waste Market and Perspectives until 2020” (Prognos 2009)

on decreasing waste generation and less increasing capacities. Under improved waste prevention and recycling, though rising incineration capacities, possible developments were increased imports of waste; an enormous (rather unrealistic) increase in waste fees due to under-used plants, or wastes actually suitable for recycling would be burnt due to dumping fees in incineration facilities. Consequences would be a moratorium for all incineration and similar plants, promotion programs for more waste prevention and recycling, a recycling quota only related to material recycling and not energy recovery, a raised efficiency level in incineration plants of 75%.

6.6.3.5.3 *IA in the Decision-Making Procedure*

IAs in the Parliamentary Hearing

Citing the above NABU 2009 the consultant reminded the MPs that recycling would regularly yield better CO₂ reduction results than energy recovery. At least the heating value should have a sunset clause, in order to solve the problem with the existing incineration capacities. Similarly, the bvse representative saw that more separate collection and recycling would mean less wastes for disposal or energy recovery or mechanical-biological treatment. Higher recycling rates would bring the risk of undermining the workload of these facilities. The expert of the Public Waste Management Businesses indirectly admitted this effect. More waste prevention would result in less usage of disposal facilities, waste disposal would become more expensive (bvse expert at the Deutscher Bundestag 2011e, 46).

The environment association Nabu called for better linkages with prevention in product regulations and resource efficiency strategies. In this regard Germany needed nationwide proof of demand and plans for the managing and reducing the surplus in incineration plants which would further prevent waste prevention and high-scale recycling, since making incineration “unbeatable cheap”.

According to the expert invited by the opposition party due to the many restrictions (technical feasibility, economic reasonableness, and social impacts) the enforcement of the waste hierarchy would not unfold a steering effect. Moreover, with the heating value criterion the relevance of energy recovery would increase and should be withdrawn from the regulation. For business wastes it would almost completely depart from the waste hierarchy ranking because mixed business wastes usually would have a heating value of 13000-17000 kJ/kg.

In the context of the Environment Committee’s deliberation the Green Party tabled a change application. Its main focus was on the strengthening of prevention measures, since “prevention was to be increased from an environmental and resource efficiency viewpoint” (Deutscher Bundestag 2011b). The prevention measures annexed to the Circular Economy Act were to be a compulsory minimum content of the waste prevention program(s).

While the SPD representative questioned the level of the heating value criterion, the CDU environment minister answered that a threshold had to be “somewhere” (cf. Deutscher Bundestag 2011e, 47).

Adoption procedure

The Bundesrat demanded to specify the priority order for the most common waste types on federal level, and therefore the specifying order should not be left to the discretion of the

Federal Government alone (Bundesrat 2011). Government however kept the right for waste producers or owners to choose between measures of equal rank (recycling or energy recovery). As requested by the Bundesrat a section was added allowing the government to issue executive orders on the priority order, though (now) under the involvement of the second chamber. The heating value criterion remained.

6.6.4 Conclusion – Role of the IA Process for Environmental Policy Stringency

This case is an example of a policy process with a hardly existent formal IA component, reflecting the weakly implemented (environmental) IA requirements in Germany. Veto players had a strong role in shaping policy formulation. The level of environmental ambition in the waste policy was rather the result of the interests of the various actors in the process: for instance the 11.000 kJ/kg criterion for implementing the waste hierarchy was kept by the Environment Ministry in the interest of the municipal organisations as main operators of the incineration facilities; the initial high proposal for CD&E waste was limited to 70% on pressure of the Ministry of Construction. Only the environmental NGOs, continuously suggested measures to strengthen the environmental ambition of the Circular Economy Act. However, their overall engagement in the process and public interest in the case were rather limited. Moreover, the overall evidence and impact dimension was not central in this case because all actors could identify with the central purpose of the regulation of improving environmental performance of waste management.

In this moderately structured case, the evidence dimension was not contested, the facts were clear (e.g. it was clear to all actors that the heating value criterion would lead to a number of valuable wastes being burnt). Against this background, the question of impacts (and impact assessment) and evidence was of minor importance. Therefore the strong ideological market vs. state dispute in the collection of valuable wastes dominated the process and prevented a debate about the overall environmental implications of the policy (e.g. environmental NGOs were not invited to the hearing on the Circular Economy Act). Instead a high share of legal opinions was produced (at least eight central ones) by the two camps involved to prove the (non-)legality of the return obligations, thereby reflecting the German legalistic administrative structures. Even a well-intentioned and comprehensive simulation game on the return obligations, based on comprehensive evidence-studies and involving manifold stakeholders could not reconcile the interests of the different actors. No recommendation of one option over the other could be derived, although the game itself was positively assessed by the participants. Initiated by a representative of one of the municipal organisation, the game also showed that such wider assessments can be requested from outside the ministries and do not need to emanate from formal assessment requirements.

In the formal IA no overall picture was provided of the potential impacts of the different policy options debated. Also, the formal assessment was not more sophisticated than in the biofuels case; although guidelines were more advanced and IA practice in the federal administration had time to progress. The formal IA did not address any of the central controversies but concentrated on administrative burden. The administrative costs of the policy were monetarized. Interestingly, with the application of the standard cost model the Environment Ministry could disprove the private associations' argument of the regulation increasing red tape (in contrast to voluntary

arrangements).

Otherwise the formal IA hardly provided information on policy options or impacts. Economic and environmental impacts were discussed cursory. It did not attempt quantifying the impacts (as the UK policy officials) because of the complexity of the task. Instead the Environment Ministry argued with the overall positive effects of the instruments of the Circular Economy Act, such as “the waste hierarchy and the waste quota will help to close the resource cycle and help to reduce resource use”. The (new) GGO requirement to set out the impacts on the National SD Strategy’s objectives and indicators was satisfied by the Environment Ministry by a brief explanation that the regulation would positively affect the resource indicator. But neither were the economic impacts of the regulation’s measures comprehensively set out in the rationale part of the regulatory text.

However in its wider assessment reports and those produced by its research department (the Environment Agency) the Environment Ministry considered the environmental and economic options and ramifications of the future Circular Economy Act. Also the use of the standard cost model point in this direction. Moreover, the Ministry tried to establish an environmentally ambitious waste policy (against overall line of government), for instance by proposing waste targets higher than those suggested in the Waste Framework Directive.

With reservations, these legal opinions were a form of IA, too. For instance, the legal opinion commissioned by the municipal associations and a number of cities described how the costs and the planning ability of household waste management would develop in light of the then current situation. The other legal studies drew their conclusions on the basis of court rulings (by the European Court of Justice, the German Federal Administrative Court, and Laender courts) as a form of evidence collection.

The case showed that apart from the formal IA and the wider evidence-base reports the Bundestag hearings were central arenas for lying open assumed impact chains. Here also uncertainties in the data basis of recycling or incineration activities were addressed.

7 DISCUSSION

Following the comparative research design the question of co-variance of the institutional, non-institutional, and actor-related variables with the level of environmental consideration and finally environmental policy stringency is the central aspect for the discussion of findings. Which factors promoted or constrained environmental consideration, to what extent, and in which interplay?

7.1 Relevance of Institutions, Actors, and Non-Institutional Factors for Environmental Consideration

7.1.1 Institutional Context

7.1.1.1 Political System – Veto Players

The analysis confirmed that the political system determines the underlying function an IA fulfils within the wider policy-making system (Radaelli 2005). In systems with many veto players IA processes do not own a vital role in policy-making processes, in contrast to systems with few veto players. Therefore, other venues in which impacts are debated appear to become more important. This in turn shapes how environmental impacts are considered and represented. Inter alia, this has the effect of the IA report potentially synthesizing evidence on environmental issues, while in the German IA processes it is more likely to be scattered across the policy-making process.

In the UK/England with the majority party's control over the legislative and executive, IAs were used in a mode of legitimising and justifying government's approach to transposing the EU directives. Moreover, since British ministers must rely on civil servants more than in Germany (or any other Western country, see section 5.1.1), IA fulfilled the function of reproducing the IA and wider policy process to ministers, so they can quickly grasp "what happened". In this setting, IA reports are designed to facilitate transparency and information, also on environmental aspects. IA reports were written as to explain the regulatory context, the overall approach to and course of the directive's transposition process, the options considered and reasons why they would be recommended or discarded. For environmental consideration in the UK cases the above implied that environmental issues were particularly considered, if they were relevant to justifying government action. For instance, in the biofuels case the Labour government with Tony Blair as Prime Minister was in office. This government took up the cause of fighting climate change and took up the rhetoric of environmental protection. So, under Labour IA processes were used for delivering climate/environmental arguments for government action (see also section 7.1.3.2).

In Germany, the *formal* IA processes largely were symbolic acts. Passing the multiple veto points during the German policy process serves to "justify" a proposal, so that government has few incentives for explaining and legitimising its approach to policy transposition by means of an IA report. This coincided with the rationale part in the German legal texts to have a strong bias to-

wards legal jargon which is hard to 'digest' for externals to the process or lay persons. They contain many legal references and cross-references, i.e. relating to issues regulated in other paragraphs or even other regulations. In the UK on the contrary, the description of the transposition process was provided in a style comprehensible to externals not concerned with the issue at hand in detail. In the German cases, the *formal* IA was found to be complying to minimum standards only. For example it would only set out standard issues like impacts on the federal and Laender budgets and administrative costs, so that environmental consideration was neither pronounced (since no compulsory impact area to consider, see section 7.1.1.2). The formal IA was moreover non-transparent, e.g. government departments did not explain how they had calculated the numbers set out for the standard impact areas in contrast to their UK counterparts.

While previous studies showed that IA can take different forms (Radaelli 2009) they did not address the further existing IA venues which impact on the outcome of the policy process. While Jordan and Turnpenny (2015) argue that different IA venues exist within a political system, they do not address the different venues which exist in one and the same policy process.

In these venues, the impacts of policies are debated but are not formally labelled as 'IAs'. In Germany, as a negotiation democracy, the various 'negotiation arenas' such as the Bundestag hearings or negotiations of government with the second chamber were central for discussing implications of different policy options. In a way, the parliamentary hearings in Germany were substitute IAs. They were the only arena in which the whole policy package would be openly discussed by the involved actors. Other than the UK IA reports and in a strict sense though, these types of hearings do not represent an IA in terms of a systematic assessment with direct comparison of options and their impacts. Moreover, during the Bundestag hearings the origin of evidence and information was not always comprehensible. In the UK, the parliamentary bodies were central venues for discussing impact chains too, take the hearings of the Environment Select Committee in the UK biofuels case as an example. Here, these venues were however not as numerous and not as crucial for the overall process outcome. In these 'alternative IA venues', environmental consideration strongly depends on representatives making a case for environmental concerns.

Procedural issues – The role of statutory instruments

Certain specifics of the policy-making process, including the adoption of statutory instruments, were not part of the analytical framework (cf. section 4). At this point, statutory instruments are still addressed since the handling of the two policy objectives 'waste hierarchy' and 'sustainability reporting' were dependent on the political system and would shape IA results. In both UK case studies, guidance was already drafted during the wider policy and IA process – while in Germany these aspects would be left to government decision, subsequent to policy adoption in forms of statutory instruments. This practice was relevant for the IA results in so far, as the informational requests which would result from the carbon and sustainability (C&SD) reporting scheme for petrol majors were incorporated into the Transport Department's cost-benefit analyses (CBA) as red tape costs. On the other hand, the early drafting of a reporting system demonstrated that such a potential flanking measure was enforceable and would as such contribute to the Renewable Transport Fuel Obligation's (RTFO) environmental stringency. The UK waste case was similar. The costs for businesses for demonstrating compliance with the waste hierarchy

through a compliance statement were a central cost item within the IA CBAs. And the costs stated in the IA would even be increased during the process due to stakeholder feedback.

7.1.1.2 IA System

The analysis of the four case studies showed that environmental provisions in IA guidance facilitate environmental consideration (cf. Ecologic et al. 2007). Notably, compulsory provisions appear to provide for a more continuous baseline of environmental consideration. This pertains to the formal IA analysis, while it does not allow for reliable statements on the extent of wider environmentally relevant assessment studies commissioned and used during the process.

The IA provisions on environmental consideration moreover strongly shape the way in which environmental implications are considered and with that the message which is conveyed to decision-makers. The orientation of an IA system moreover shapes the ways knowledge is held and provided by externals. In short, not only the set-up of advisory systems depends on the institutional context (cf. Hustedt 2013), but also the evidence system itself. The UK system, where the IA mostly is a CBA, large parts of the consultancy and agency system was attuned to this cost-benefit approach. Most studies commissioned during both cases would look at the advantages and disadvantages of the policy in terms of costs and benefits. This may facilitate deadlock situations in which methodological-technical approaches which might be better suited to consider impacts (Heinzerling and Ackerman 2002), are being marginalised or have been unlearned.

With more binding environmental provisions – together with a higher level of transparency and control, the baseline of environmental consideration in the UK was found to be higher than in the German cases. Thereby however, IA processes' ambivalent purpose, primarily as instruments for the consideration of bureaucracy and compliance costs (Hertin et al. 2007), and for environmental consideration on the other hand was crucial with its focus on the implications for businesses and on CBA. CBAs led to inferiority and to a distorted picture of environmental benefits opposite to business and other administrative burden costs. This is a situation which has already been apprehended by the UK Environmental Audit Committee (EAC 2007, 4f). Environmental impacts were monetised exclusively for GHG/CO₂ savings – except for the waste case in which also disamenity effects were additionally monetised by policy officers. Other impacts were, if at all, discussed qualitatively and would or could not be incorporated into the cost-benefit calculations. In terms of environmental stringency this led to a disadvantage of overall socio-environmental benefits since according to CBA logic a policy would be deemed acceptable if its benefits outweigh the costs. For example, in case of the England Waste Regulations benefits from collecting all types of plastics (not just plastic bottles) were not monetised and instead it was argued that the benefits were not likely to outweigh the costs. As Budge (Budge et al. 1998, 573) points out, actors do not argue openly against environmental policy stringency but will use the cost argument of environmental protection to avoid stricter environmental policy objectives. In case of the RTFO a full consideration of the environmental impacts had most likely changed the outcome of the analyses: for instance, the potential impacts of biofuels could have been compared to the environmental costs of fossil fuels; if the international dimension of biofuels' environmental impacts could have been incorporated into the CBA, it would have made the policy even more costly

and had delivered weighty arguments for a turn down of the policy. There were however strong methodological drawbacks. First, the international impacts of biofuels demand were not well understood. In the early 2000s, when the Biofuels Directive was adopted, life-cycle analysis-approaches, particularly well-suited to assess the implications of a worldwide material streams and to ‘trace environmental impacts’, only regained recognition (UNEP and Initiative 2005, Ferretti et al. 2012, 100); and second, when they were understood, a method for taking them into account had to be developed.

In the German cases, the non-compulsory consideration of environmental aspects (before 2009) first led to a non-consideration in the formal IA. For the waste case, the requirement to consider impacts on a sustainable development as operationalised in the National Sustainability Strategy (after 2009) was satisfied by the responsible Environment Ministry by a brief explanation that the regulation would positively affect the strategy’s resource indicator. But this statement was neither further explained nor supported by quantification, and it was not set out in introductory explanation but ‘only’ in the rationale part of the regulatory text. So, on the one hand, the finding of a recent OCED publication (OECD 2010b) that the official German IA system has not significantly developed during the last years can be confirmed.

Formal IA practice in Germany has not improved; at least, if IA is understood in a narrow sense, meaning only what is formally labelled as IA counts as IA. German administrations do evidence-based policy development. A striking result of the German cases was that the administrations extensively commissioned and drew on wider evidence. In contrast to findings of Veit (2008) policy officers have – under certain preconditions (cf. section 7.1.2.1) – incentives to assess the negative and non-intended impacts of their policies. Contrary to its UK equivalent, the formal IAs did not reflect these assessment exercises. The findings of the extensive assessment reports, including the environmental ones such as the material flow analysis in the biofuels case or the simulation game in the waste case, were neither set out nor was evidence produced referenced by the departments in the rationale part of the legal texts.

The influence of the IA systems’ overall orientation towards a better regulation agenda, could be found in the German cases too, although this aspect would not prevail as strong as in the UK/England. The “administrative burden” and the costs to the overall economy as business focussed types of costs were considered in both formal IAs. And, as in the UK biofuels case the Finance Ministry calculated the revenue forgone from continuing (increasing) the duty incentives. These were set out in the policy rationale which would be forwarded to decision-makers in the so-called Biofuels Report (one of the central formal assessments during the process). In either document the environmental or climate related implications were only briefly and qualitatively addressed but not at a prominent place of the assessment/ legal documents.

The role of provisions on a specific impact area vs. broad assessment benchmarks

Focussed and standardized assessments can facilitate environmental consideration by providing a pre-agreed and pre-formulated approaches for IA practice (Jacob et al. 2010). And they can help to ensure that a certain baseline is kept across departments and policy problems. On the other hand and unintendedly, assessments systems with a focus on a certain impact area or cer-

tain methods can create a 'blind eye' for other significant impacts (e.g. biodiversity) or other relevant methods (cf. EAC 2007).

Changes in GHG emissions was the predominant impact area considered in the UK assessments, pushed by the standardized carbon appraisal approach. In the UK cases, they were assessed in-depth and they were monetised. In the UK biofuels case, air quality effects from increasing biofuels share in road transport were additionally monetised – since they were a part of the assessment tool – as were the disamenity benefits in the England waste case. Other environmental benefits were considered too in the IA reports or wider assessment studies, though mainly qualitatively. Unintended environmental impacts were primarily discussed in the two biofuels cases, e.g. biodiversity impacts, impacts on soils, resource savings, impacts on the landscape/scenery, and socio-environmental impacts in third countries. This however rather seemed attributable to the maturity and unstructuredness of the policy and to some extent to the normative orientation of responsible policy officers (cf. section 7.1.2 and section 7.1.3.3).

So, although GHG impacts may be a practical “indicator” of environmental impacts, the analysis of the case studies has indicated that because GHG emissions are so highly aggregated, there is a tendency to “forget” or underestimate what is behind the carbon emissions; notably for laypersons or those not directly involved in the processes this may be a challenge (cf. McCool and Stankey 2004). In the English biofuels case, mainly the WWF report described the environmental impacts occurring on the ground in Indonesia (increasing worldwide demand of palm oil → deforestation for palm oil plantations → deforestation leads to biodiversity losses → further details unknown), underpinning NGOs' role as intermediary organisations in policy development (cf. Carroll 1992).

With the reference to the National Sustainability Strategy and its indicators, the German IA system pursues a broader approach which potentially leaves more discretion to policy officers. They decide which impact area to consider and which impacts are more relevant in each assessment situation. Although practically in the waste case study, policy officers of the Environment Ministry complied with this provision in a cursory manner by explaining that the Circular Economy Act would contribute to the resource efficiency indicator of the National Strategy. But since this was not assessed against a specific benchmark, e.g. a specific target level, the level of ambition behind this policy would not be clarified for externals to the process, such as policy-makers or the public.

Factor institutionalisation of IA processes – the role of time for IA practice

The levels of environmental consideration and the quality of IAs were not found to be higher in the more recent IA processes, i.e. waste cases. Although, responsible departments had time to further develop an IA routine and get acquainted with the use of methods and tools, the formal assessments in the waste case did not appear more sophisticated than the one in the biofuels case, with six years of difference between the two cases. The introduction of a sustainability assessment was reflected in the cases in so far as responsible policy officers added a sentence about the positive effects of waste policy on sustainability indicators to the rationale. This is in line with Hahn and Dudley (2005) who did not find improvement of US CBA practice over a time

span of 17 years but variation between individual IA analyses. This speaks in favour of institutions as remote cause (Mayntz and Scharpf 1995, 43-47). The requirement to assess impacts causes policy officers first to do some kind of assessment, while second they decide how they do it (e.g. scope and depth of the assessment). IA practice and environmental consideration is thereby facilitated by bindingness of provisions and mechanisms which in turn strengthen institutionalisation, e.g. creating a 'true' demand for sophisticated assessment as well as elements of control. Moreover, policy officers decide on their respective IA effort, dependent on further factors, such as the maturity of the problem.

7.1.2 Non-Institutional Factors

7.1.2.1 Problem structure

The underlying policy problem structure as non-institutional factor was found to be more relevant than suggested by Actor-Centred Institutionalism and by previous IA research. While by in't Veld (2009) it was found to determine the role of science and knowledge in policy preparation, such as clarifying the policy problem, the analysis of the case studies found the problem structure to moreover remarkably shape the level of and approach to environmental consideration.

While with the waste cases a moderately structured policy was analysed, with the EU Biofuels Directive an unstructured and new policy field was incepted. This influenced how policy options were considered, impacts assessed, and actors' positions fixed. The problem structure plays a crucial role for the extent of expertise produced during the processes and for the choice of methods and environmental representation. This however does not apply to the use of CBA in the UK/England cases which has been ascribed to the institutional setting (cf. section 7.1.1.2).

The maturity of the policy (does it concern an existing or new policy initiative) has been described as a factor impacting on the level of detail of the IA analysis (Zanoni et al. 2007). From the observations of the case studies, it is first rather the maturity of the policy *field* which is decisive. Maturity of the policy is not sufficiently specific because a new policy can be adapted into an existing policy field. Second, a new policy can be relatively uncontested and its implications are relatively certain to oversee. Here, Hisschemöller's (1995) problem types are useful in 'predicting' the course of wider policy and IA processes' outcomes going beyond the notion of 'maturity of policy'. The norms and the evidence and knowledge surrounding the new policy and policy field further have to be uncertain (unstructured) in order to trigger comprehensive analysis and strong representation of environmental concerns.

The waste cases were set in a moderately structured (normative and rather low evidence-related uncertainty) and mature policy field. Here the amount of reports commissioned to externals and general the use of scientific literature was lower than in the biofuels cases (and the function of the IAs differed). The German waste case featured the lowest level of environmental consideration of the four cases for the following three reasons: the ideological (normative) controversy about the competences in valuable wastes collection (more private activity vs. public primacy) prevented a stronger focus on environmental aspects of the policy. While to a great extent having turned into an industry policy, waste policy is still very much framed as an environmental policy. So, during the process, the need to explore its environmental implications was considered as

“superfluous”. With the exception of environmental NGOs, all actors involved felt that they were contributing to environmental objectives – from the incineration plants owning municipal businesses to the private sector recycling businesses. And last and contributing to the previous aspect was Germany’s reputation and self-conception as ‘waste management frontrunner’ in Europe, reducing the pressure on actors to advance waste management.

Conversely, the biofuels cases indicate that a policy for a new and a normatively contested policy field lead to comprehensive impact analyses, including relatively extensive consideration of environmental aspects (cf. Hisschemöller and Hoppe 1995, Ecologic et al. 2007). Since a new policy field had to be organised, the German and the UK government commissioned numerous comprehensive studies to shed light on uncertainties, short, medium to long-term options and notably to assess the feasibility of their policy projects. This meant not only that modelling was extensively used but also that these types of reports would often come in the form of coherence studies, setting biofuels in the broader context of future energy policy. Moreover, the biofuels cases showcased assessments (e.g. literature reviews) with a strong outward focus. For instance in both cases, policy officers would refer to the well-to-wheel studies produced at EU level; or reviews were commissioned comparing practice in other countries with view to the UK carbon and sustainability reporting. Conversely the analyses in the waste case studies rather featured inward foci. The UK LAWRRD model was a model previously used by Defra; or the simulation game organised in the German waste case.

The use of methods

Nilsson et al. (2008) found tool selection in sustainability assessments to mainly be explicable with organisational routines and standard practices. This was evident in the four case studies as well. Examples are the carbon appraisals in both UK/England case studies, the use of the LAWRRD model in the England waste case, or the calculation of the lost revenues from biofuels promotion in the German biofuels case studies. The latter is in line with Howlett et al. (2014) who note that finance ministries have always employed forms of highly technical analysis because they handle supposedly accurate and easily quantifiable data. Adding to Nilsson and Howlett et al. the four case studies demonstrate that the underlying problem structure is a further factor in the choice of methods. The case studies showed that the various methods as listed in Table 19 were to some extent applied across the four IA processes. For instance, case studies were used in the biofuels and waste cases alike. This seems to indicate that the problem structure also shapes *how* a method is applied (e.g. with which scope and to what extent; which variance of a method is used).

In both biofuels case studies methods which were widely employed in both biofuels cases were LCA, material-flow analyses, and well-to-wheel studies as an LCA-variation. Policy officers had to demonstrate how much CO₂ savings could be made with biofuels which could only be done by looking at their whole production process. Since the impacts in general, including environmental ones, were not yet well understood the tendency to consider unintended consequences of the policies and trade-offs (e.g. biodiversity impacts, impacts on soils, resource savings, impacts on the landscape/scenery, socio-environmental impacts in third countries) was higher than in the waste cases. The first assessments focussed on domestic impacts, towards later stages of the IA

processes they focussed on the international dimension of socio-environmental impacts. In this context LCA studies would first be targeted at the supply chains within the UK or Germany respectively; in the UK they would later be extended to include international supply chains via the C&SD reporting. Due to the limited experiences the countries had with biofuels and biomass feedstock worldwide, international literature comparisons and peer reviews were a second common approach. In the German waste case, legal opinions dominated the process, assessing compliance of the provisions in the Circular Economy Act with corresponding German national law. They did not include any considerations of (non-)intended environmental impacts, though. At least eight legal opinions plus commentaries in technical journals were issued during the process. In the UK waste case, CBA studies assessing the performance of different collection systems played the key role in the separate collection conflict.

The moderate problem structure of the waste policy case studies moreover influenced the choice of methods and the scope of the assessment report. In the UK and in Germany the reports would consider certain aspects of the policy projects, such as regulating the return obligations or costs of separate versus co-mingled waste collection. Biofuels studies on the other hand would for instance range from long-term energy scenarios to coherence studies of the overall biomass policy. While for the biofuels issue methods were developed, such as the first comprehensive LCA developed by the Germany Environment Agency, the carbon and sustainability reporting mechanism or the excel-based model in the scenario study; in the English waste case the LAWRRD model was reused which was built earlier in the context of governments' waste review.

In 2008, Nilsson et al. (2008) uncovered a very limited use of methods or tools respectively across 37 cases of EU member state and EC IAs. Seven years on, Jordan and Turnpenny (2015) note that demand and use of methods has increased. This corresponds to the overall broad spectrum of methods which was used in the four case studies in the formal and wider IAs and during the various stages of the IA/wider policy process. While Howlett et al. (2014) showed that in Canadian policy appraisal practice process-related tools prevail over 'substantive' tools, this was not found to apply to the practice in the four case studies. In contrast to Hirschi et al. 2013 (Hirschi et al. 2013, cit. Nilsson et al. 2008 and Hertin et al. 2009) the analysis of the case studies moreover demonstrated the use of a wide spectrum of methods and tools, ranging from non-formalised to highly sophisticated ones.

Table 19: Overview of methods and sources for data and information used in the IA/wider policy processes

Methods used throughout the processes	Sources for data and information
LCAs in combination with modelling; Material Flow Analyses; Well-to-Wheel studies (at least five LCA-related key reports in the German biofuels case)	Literature reviews
Quantitative modelling: ministry/consultancy owned excel-based models; simulations; other types of models	Statistical data from the ministries
Case studies	Using exemplary cases to collect input data (e.g. biofuels chain)
Scenario studies, including scenarios (not intended for predicting impacts but point to uncertainties)	Costs calculations of industry
Peer review	Round tables
Valuation methods	Hedonic pricing method
Cost-benefit analysis, cost-effectiveness analyses	On the ground observations
Multi-criteria analysis	Surveys
Legal opinions and commentaries in the technical journals (only German waste case)	References to other legal cases
Comprehensive simulation game under massive engagement of stakeholders	Modelling, scenario building, stakeholder workshops
Feasibility studies (only biofuels cases)	Experience from similar approaches in other fields
Financial analysis (revenues forgone) (only biofuels cases)	Government monitoring/statistical data
Ready-to-use tools (e.g. standard-cost model in the German waste case)	pre-fed with numbers and causal assumptions

7.1.2.2 Origin of the Policy

The expectation for IAs to play a greater role when the policy originates and is controlled by the administration and not from an external source (Zanoni et al. 2007, Turnpenny et al. 2008) was not confirmed by the analyses of the four case studies. Other factors such as the problem structure appear to have stronger explanatory power. Although this statement is limited in its robustness, since the four IA processes considered were all transposition processes of EU legislation, so a comparison with cases other than the EU was not performed.

Support for biofuels from the German side at EU and national level was strong; this situation was the opposite in the UK. The IA was comprehensive on both sides though. In the UK, government strongly opposed biofuels, still the Department for Transport carried out a 'best practice' assessment. The formal and wider IA analyses clearly went beyond formalistic considerations. Waste policy generally was a neglected area of UK government, the impact analyses (e.g. on the 50% recycling target) still were important in the process. Germany again has significantly shaped EU waste law and supposedly is a front runner in waste policy (cf. section 6.6.1). Still key actors opposed the measures foreseen in the Waste Framework Directive (e.g. 5-step waste hierarchy) and the Environment Ministry did not push an assessment process and neither environmental consideration. However, the four cases have shown that despite EU provisions which must be transposed, the administrations still had considerable leeway in transposing EU to national law (cf. Milio 2010).

Interestingly, in both biofuel cases, the major well-to-wheel study by Conca et al. which was designed to produce a "consensual" analysis was a central reference point for assumptions about potential GHG savings of biofuels. The EU IA on the other hand did not play any role in the national IA processes – with the limitation that in 2003, when the Biofuels Directive was adopted, the European Commission IA procedure was still in its very early stages. This also raises the question of tiering of assessments (cf. Therivel 2004, 15, on tiering in Strategic Environmental Assessments). To what extent could assessments at EU level also support national transposition processes, e.g. by looking at regional distribution of different impacts? Could they reduce conflicts of IA actors during the national processes by facilitating evidence-based consideration notably of controversial issues already at EU level? For key aspects the European Commission and other players could provide such consensual reference studies, informing national transposition and IA processes (in the sense of a multi-level evidence flow).

7.1.3 Actors

7.1.3.1 Resources and Assertiveness of the Actors

Available resources (time, staff, budget) for doing comprehensive IA analyses in the departments were not decisive for the overall level of environmental consideration. At least it did not play a prominent role in the jurisdictions considered which have similar administrative capacities. As Howlett notes for the Canadian case: "some departments and agencies enjoy favourable circumstances which allow them to practice sophisticated analytical techniques while others may only meet these criteria from time to time [...] 'lumpiness' may well be a condition which is here to stay" (Howlett et al. 2014, 26). For carrying out comprehensive analyses, the overall level of IA institutionalisation ('seriousness of IA demand') appears to be more important. Lower assertiveness and fewer available resources of environmental stakeholders however play a role for representation of environmental concerns in the IA analyses. This speaks in favour of IAs as power structures shifted to procedural mechanisms (Radaelli and De Francesco 2010) as environmental groups are frequently less well-resourced and powerful than their private counterparts (cf. Bår 1996, Hallstrom 2004). Knowledge struggle remains a power struggle (cf. in't Veld and de Wit 2009). Resources for doing IAs are not allocated to German departments. Still, in the

biofuels and waste case comprehensive assessments were commissioned by involved ministries. The German Environment Ministry stated to not assess impacts of the waste measures due to complexity and uncertainties involved but not because of lacking resources. On the contrary, in the England waste case, the general lack of economists in Defra prevented a more extensive analysis of environmental aspects.

The imbalance in the availability of resources was however an issue with respect to IA environmental stakeholders, their capabilities of representation and to provide assessment evidence and data. With respect to different assessment venues within one IA/policy process (e.g. IA events or parliament committees' hearings) they represented a disadvantage to environmental associations and other less resourced actors. The limited participation of the environmental associations in the German waste process however cannot only be attributed to the limited resources but also to the agenda of environmental NGOs which at that time focussed on other issues with more public attention.

The imbalance of assertiveness and resources was notably evident in the assessment of business costs, which were for instance increased in the UK waste case due to input from the industry and business associations. This again would turn the scales against representation of environmental benefits. Also, the capability for producing evidence was a question of resources. In the German biofuels case, evidence on biofuels promotion was largely provided by the representatives and experts of the major biofuels associations. Organisations like UFOP (association of the German Farmers Union) made the calculations and delivered numbers and evidence, sometimes in combination with external consultancies.

7.1.3.2 Organisational Background

The expectation of environmental consideration to be more distinct in the waste policy processes with environmental lead departments (cf. in't Veld and de Wit 2009) was not confirmed by the analysis of the cases studies. In fact, the biofuels cases with non-environmental responsible departments featured a higher level of environmental consideration than its counterparts with environmental departments. The more specific work-profile of the responsible IA unit appeared to be a stronger explanatory factor (cf. section 7.1.3.3).

However, the presence of other assertive, environmental(ly) inclined actor seems to trigger a high level of environmental consideration. In the German biofuels case, the Red-Green government of the first phase as well as the Environment Agency with a purely environmental mission were key (see Döhler 2007); in the German waste case the SPD-Green dominated second chamber partially took this role. Compared to the German case studies, the lack of powerful environmental advocates is possibly offset by stricter provisions for environmental consideration (cf. 7.1.1.2). However, the role of the Environmental Audit Committee for strengthening environmental consideration in the biofuels IA can be highlighted (see also next section). Similar to the German Environment Agency the Low Carbon Vehicle Partnership (and notably its head heavily involved in the IA and wider policy process) played a relevant role in 'greening' the process. Due to its industry-NGOs-composition could not take such a strict role as the German Environment Agency.

The case studies, especially those in which a change of government occurred during the IA process, further highlight how governments shape the overall orientation of specific IA processes. In the German biofuels case, the Red-Green government wanted to sound the bell for an energy transition marked by an internalisation of external environmental costs. It had a pronounced environmental orientation and wider (not formal) assessment reports were commissioned, with a clear environmental component to explore implications of an energy transition. The second phase CDU-SPD government put an abrupt end to the 'generous' promotion of biofuels. Formal and informal impact analyses were reduced to the minimum under this coalition. For the UK cases, the Blair government's pro-environmental position and its declared leadership in tackling climate change was central for the IA processes. First, under Blair the IA procedure was extended to consider environmental aspects and later a provision to assess climate change effects was introduced. GHG effects of the RTFO and the England Waste Regulations were extensively considered in the IA analyses and set out in the IA reports – though were outweighed by regulatory costs.

In the England waste case the Tory-Liberal Democrats government coalition did not want goldplating of EU Directives or red tape and it favoured localism. Towards the later stages government would ensure that goldplating was not occurring in the transposition of the Waste Framework Directive. And the IA reports were designed to demonstrate this, limiting the leeway English departments have in assessing options and in scoping the assessment in general.

In all four cases the parliament committees were central in asking for assessment, evidence and for "balanced" considerations (cf. OECD 2013); independent of the different role of parliaments in both jurisdictions considered (cf. Radaelli and de Francesco 2007). So, parliament members and committees have shown to create a demand for structured and transparent analyses and would refer to them during debate; at the same time their role is to improve the quality of IA analyses when it comes to environmental and sustainability considerations. For the members of the Bundestag, the Bundesrat, and for instance the Defra Select Committee of the HoC the evidence dimension was important during the policy processes. In the biofuels case the Bundestag committees asked the government to quickly issue a second biofuels report to make comprehensible the implications from tax rates and quota; in the UK biofuels case the Environmental Audit Committee asked government to assess biofuels policy with view to their environmental and socio-economic consequences. In the German waste case the Bundesrat had (proposed by a representative of the Municipal Organisations) asked for the comprehensive simulation game which was organised by the Environment Agency and which was a central reference point for the responsible Environment Department during the process (although in the end the simulation game did not emerge with a recommended option).

In summary, the analysis of the case studies the relevance of governments in specific policy cases for shaping overall IA processes could be substantiated. Previous studies rather looked into the role of governments for the overall IA orientation, see for instance Hahn and Dudley (2007). As noted by Mayntz and Scharpf (1995), the preferences of governments (roughly distinguished as pro-environment or other preferences) indirectly but strongly shape the relevance which responsible works units in departments assign to considering environmental aspects in IA. A work

unit whose profile entails an environmental component will then be encouraged to examine environmental aspects by binding environmental provisions.

7.1.3.3 Departments' Work-Profile

The analyses of the case studies showed that the work-profile of the responsible departmental unit substantially influences the focus of the impact analyses (e.g. which and how impact areas considered and how they are assessed). It seemed to shape environmental (non-)consideration more than the overall mission of the responsible department (cf. section 7.1.3.2). This illustrates the challenges of cross-cutting assessments within compartmentalised and specialised work units (Turnpenny et al. 2008). It moreover highlights the relevance of problem framing which determines which unit is assigned the responsibility for the wider policy and IA process (Weiss 1979, Brewer and deLeon 1983, Rein and Schön 1991).

The responsible unit 'Legal Aspects of Waste Management' in the German waste case invested most resources in legal expertise on the return obligations. The responsible 'Energy Tax Unit' of the German Finance Department again concentrated on the revenues forgone, although environmental consideration in the official 'Biofuels Report' was compulsory. In the UK biofuels case, the 'Cleaner Fuels and Vehicles' unit in the Transport Department concentrated on carbon aspects of biofuels, in contrast to Defra's involved agricultural unit which was clearly in favour of biofuels. The responsible Waste Framework Directive Unit of Defra does not entirely 'fit into the picture'. Here maybe the non-existence of a unit with responsibility for overall waste regulation reflects the neglecting of waste policy within Defra and overall UK policy (cf. section 6.5.1).

The personal or professional preferences of responsible policy officers were not made strong in the analytical framework and have not been investigated in-depth in the case studies. These aspects have been relevant too, though. The comprehensive English biofuels IA process with a high level of environmental consideration and ambition (e.g. carbon and sustainability reporting) can seemingly be owed to the two key administrative actors (responsible policy officer at the Transport Department and the responsible LowCVP manager), adding a micro-level explanation to overall environmental consideration (cf. Turnpenny et al. 2008). The cooperative, communicative, and open arrangement of the IA and wider policy process could also be attributed to the two officers. Also, the consequent development of a carbon and sustainability reporting can also be seen in this context and were also the result of policy officers and agency staff environmental orientation.

7.1.3.4 Interaction Orientation

The interaction orientation is linked to how the IA is used in the process (cf. Hertin et al. 2009b, Dunlop et al. 2012). The overall interaction orientation of actors can change within IA and wider policy processes. IA and environmental evidence can thereby play a key role (cf. Mazur 1981). With that also the role and use of IA is dynamic. It can change during the process and fulfil several functions at once. The analysis of the case studies moreover showed that all IAs have some strategic dimension to it (cf. in't Veld and de Wit 2009).

In the UK biofuels case, the dynamic character of interaction orientation of actors in IA processes was most evident. In detail, the relationship among all actors was outstandingly cooperative. One interviewed person used the word 'friends' for describing the interaction orientation for example. With increasing evidence about the potential indirect land use change impacts, this relationship changed into an antagonistic one. Environment and development NGOs and the public turned against biofuels. Together with the findings of the Gallagher Review (RFA 2008b), the opposition lead into a slowdown of biofuel targets (Berti and Levidow 2014). The IA and wider policy process were used for communication, e.g. an online stakeholder information platform was set up. And evidence and the IA was used for learning, e.g. concerning the question how much CO₂ would be saved from biofuels. Moreover, the IA provided a means to structure Department for Transport work. The IA in this case can be considered as an integrative assessment, as it considered economic, environmental, and social aspects of policy options. The GHG and CBA analyses showed on the hand that the policy was not cost-effective but on the other hand that carbon would be saved and that the transport sector could contribute to CO₂ targets. The possibility of non-intended environmental impacts was mentioned in the IA reports and partially pointed to more extensive studies on the issue, e.g. deforestation as impact of European biofuels demand. So, the IA also had a symbolic-strategic momentum to it.

To a lesser degree, the first phase of the German biofuels process featured elements of a cooperative process. There was wide-spread enthusiasm for renewables and in this context for biofuels and they were promoted by a cross-party coalition of MPs and the Agricultural Department. Assessments were comprehensive and used by departments and government to learn about challenges and limits of their policy to renewables. They represented coherence analyses on the whole-of-government approach. The first stakeholder involving material flow analysis was commissioned. In the second phase, also this relationship turned competitive between the biofuels industry, the Finance Department and petrol companies. The IA process was mainly symbolic-strategic. The formulation of the Energy Tax Act and the Biofuels Quota Act was based on little evidence and was criticized for being non-transparent. The Biofuels Report – showing overcompensation of biofuels and providing the central argument for government to revoke subsidies – was then used in a strategic way to underpin the argument of a change towards large-scale suppliers of biofuels.

The interaction in the waste cases was mostly shaped by competitive-antagonistic orientation among actors. In England, it was a case of a strategic assessment. Environmental impacts were considered but for each target the analysis found that no further measures were needed to achieve it. The wider assessments commissioned by WRAP or stakeholder groups would either provide evidence in support for one or the other argument. The formal IA in the German waste case was mostly a symbolic act. The simulation game on the return obligations was highly participative, but could not help to a compromise among public and private stakeholders in the formulation of measures.

7.1.3.5 *Involvement of Environmental Actors in IA*

Independent from the level of involvement of stakeholders, IA processes mostly seem to be an internal administrative though not discursive exercise. This compromises IAs' chances to contribute to environmental policy stringency, since environmental NGOs and the wider public are key for pushing environmental concerns (cf. Dryzek 2002, Hertin et al. 2009a, and section 9.1.3.1).

In all four cases consultees did not see IA as a key instrument of the regulatory process. They were aware of it but mostly it was not important or legitimate to them. As the examination of the four case studies demonstrated, IA in its current form was not suited to involve external actors. Findings of even comprehensive analyses were contested or become irrelevant to stakeholders, if they contradicted with their framing or knowledge. The use of the LAWRRD model in the UK waste case is an illustrative example for this. 'Pro environmental' stakeholders found environmental benefits of separate collections (in its original meaning) and more ambitious waste regulation not to be reflected in the model, so findings of the modelling exercise were meaningless to them as the overall IA practice (Cash et al. 2002). With regards to public involvement, the UK IA system with CBA as underlying approach represents a barrier. If the costs and benefits in the IA have been appropriately established is a standard question in consultation documents. For externals or lay-persons to the process estimating whether this has been done appropriately by the responsible department is almost impossible; as it is almost impossible for externals to understand implications of different policy options in many instances. This speaks in favour of more systematic qualitative analysis and methods for active stakeholder participation, not only to broaden the assessment (cf. Hertin et al. 2009a) but also as a further step towards transparency and facilitation of a discursive process.

Generally, involvement of stakeholders in the IA exercise was stronger developed in the UK than in Germany, since IAs were part of the stakeholder consultation documents. Moreover, the two English cases were clearly more transparent in terms of who was consulted, for they provided a summary of consultation responses and lists of who had received the consultation documents. For the German cases this to some extent remained a black box and in particular it was unclear how opinions were further processed. For instance, in the German waste case the Environment Ministry organised a stakeholder meeting in which each stakeholder could in five minutes explain their views on the issues at stake, so it was a one-way participation but without response from the responsible ministry.

7.1.4 Actor Constellation

7.1.4.1 *Provisions for Coordination and Departments' Decision-Making Autonomy*

The effects of negative coordination in German political decision-making (Scharpf 1994) showcased mainly in the biofuels case. In the second phase of the wider policy process the Finance Department, responsible for tax policy and the Environment Department, responsible for the Biofuels Quota Act, did not coordinate their actions. This resulted in a 'chaotic' and disintegrated policy process, policy measures, as well as non-coordination of the little evidence which was used. Moreover, German administrations' strong turf mentality would facilitate non-

consideration of evidence in assessments from other ministries, in contrast to UK units which would refer to other reports in their impact analyses. Hence, coordination mechanisms do not only feature in the wider policy-making processes (cf. Hustedt 2014) but also pertain to the nested IA processes. On the other hand, the first-phase government organised some central assessments as to assess coherence of its renewables energy agenda. This however, is being attributed to the Socialist-Democratic-Green Party coalition's project of an ecological modernisation. For the German waste case, the multitude of legal opinions produced during the process, inter alia by the responsible Environment Department, appear to be linkable to the legalistic administrative culture in Germany (cf. Piesker 2014) (in parts also to the problem structure).

In both UK/England cases, the transposition and IA process were each coordinated with a policy board, for coordination of affected departments; and second, a stakeholder board for exchange of the lead department with affected stakeholders. In the biofuels case, which is an example of a co-development policy and IA process involvement of stakeholders was intensive as they co-oversaw preparation of relevant carbon and sustainability reporting reports and guidance. In the waste case, notably the policy board was established as to oversee transposition of the Waste Framework Directive with view to better enforcement.

Generally, and in contrast to the German case studies, in the England/UK cases the ministries' willingness to cite evidence and use methods from other departments (e.g. DfT would quote studies from the agricultural ministry) tended to be higher which can mostly likely be assigned to "joint-up" government, less compartmentalisation, centralisation towards the Prime Minister and the supposedly more flexible negotiation culture (cf. section 5.1).

The effects on environmental consideration of these different types of process organisation are difficult to evaluate. Generally, it is safe to say that in the German cases, in which the legalistic culture and coordination mechanisms prevailed, they draw the attention and resources away from the non-intended and negative effects of policies and policy options.

7.2 How do Factors and their Interaction Shape the Level of Environmental Consideration and Environmental Policy Stringency?

Drawing on the previous section, this section addresses the question to what extent the independent variables impacted on the level of environmental consideration, and finally environmental policy stringency.

Non-institutional factors – the problem structure and maturity of the policy field

The contribution of IA processes to environmental policy stringency is to a considerable extent a question of demand which again is largely created by the underlying problem structure. The problem structure and maturity of the policy field strongly determine to what extent evidence and knowledge shape and impact on environmental policy stringency. A high level of uncertainty regarding impact chains of policy measures and strong normative disagreements (unstructured problem) are likely to create a need for impact evidence among actors. IA usage then tends to be in a learning mode. In IA processes with a moderate underlying problem structure and a more mature policy, IA processes' contribution to environmental policy stringency appears to be lim-

ited to strategic contributions (political use), or under moderate problem structures with strong normative dissent (means) is reduced to hardly any contribution (symbolic use).

The problem structure together with the maturity level of a policy field is moreover key for the *extent* of expertise generated and used in an IA process. An unstructured problem and immature (or new) policy field appears to facilitate comprehensive assessments, in terms of consideration of intended and non-intended, positive as well as negative impacts.

Actor-related factors – the preferences of IA actors

Nothing gets passed the actors' preferences: The underlying problem structure is linked to types of *use of IA* by responsible policy officers and governments. Still, the level of environmental policy stringency continues to be determined by the preferences of actors and notably governments. This means that even if IA processes are used in a learning mode, actors may override the environmental evidence and knowledge provided because other target dimensions are prioritised.

IA used in learning mode

Set in a learning mode, actors (especially governments and departments) use IA processes to develop a better understanding of the problem and policy measures. This is when the assessments are likely to take the form of coherence or feasibility studies. Assessing coherence of (whole-of-)government's policy packages (cf. OECD 2009) implies that IA analyses are not used to assess the impacts of the individual policy but the ramifications, interaction and trade-offs with other policies in the field. Assessments can further take the form of assessing the overall instrumental rationality of a policy (objective), as particularly indicated by the UK biofuels IA process. Here, the Gallagher Review reviewed the scientific evidence on the indirect effects of biofuels production, which again led to a slowdown of biofuels policy in the UK, against the background that the UK government was not in favour of biofuels promotion anyway. IA processes can moreover be used to assess and make statements on the feasibility of measures or (environmental) flanking measures (cf. George and Kirkpatrick 2004). These help mitigating negative environmental impacts from other policy measures and as such contribute to environmental stringency.

IA used in instrumental mode

Under a moderate problem structure with dissent about the facts (scientific uncertainty, ends), evidence is likely to be used in a strategic mode, i.e. it is used to justify policy measures envisaged by governments. This means the (environmental) implications of various target levels are assessed. In such situations, policy targets oftentimes are already settled – e.g. government coalitions have already agreed on a certain course of action or targets are set at higher governance levels such as the EU; administrations are then likely to assess the implications of various target levels (e.g. carbon savings of different biofuel shares/targets) without questioning the policy itself or looking for broader policy options. So, IAs and environmental consideration therein can but must not be used to assess overall policy options in terms of regulatory, voluntary, or market approaches (see steps in an IA processes, in section 1.1).

IA used in symbolic mode

Under a moderate problem structure (means) actors are more likely to use IAs in a symbolic

mode and the IA process is not very likely to contribute to stringency. This type of problem structure creates only a minor demand for evidence and knowledge with IA actors. In this situation evidence is aligned to other types of questions (depending on the administrative and policy-making culture) than impact chains. In the German waste case, evidence studies were focussed on questions of legal compliance of future policy objectives with EU and German law and legal principles for instance.

Institutional factors – the IA system

Dependent on the problem structure and the actors, the IA system influences *how* evidence and knowledge are incorporated in the policy-making process, how impacts are assessed and how environmental aspects are considered. The IA system does not feature a strong influence on environmental policy stringency, though.

Binding provisions for environmental consideration will ‘encourage’ non-inclined administrative units to take into account environmental aspects. This however to a more limited degree than the units for which environmental aspects are part of the work profile. So, binding provisions seem to lead to an overall ‘good’ baseline of environmental consideration across departments. Under non-binding IA provisions, the motivation of work units to assess environmental impacts will be more dependent on the profile of the unit and on governments’ preferences.

The methodological provisions of the IA system (CBA-dominated versus no strict methodological provisions) appeared as further factors shaping the *quality* of environmental consideration in the IA processes. CBA as underlying IA approach seemed notably unsuited to the ‘biofuels problem’ with its complex implications for various impact areas and actor groups and the basic questions it was raising (e.g. is biomass not better used for other types of energy?). This implies that methods should follow the problem at hand and not vice versa. And again, it makes the case for the generation and use of qualitative and distributional analyses (cf. Hertin et al. 2009a).

Institutional factors – Political system

The political system shapes the way evidence and knowledge are handled during the wider policy-making process. In this sense, the IA system and processes (formal and wider evidence venues) are shaped by the political system. It influences how evidence and knowledge is

- distributed (in systems with many veto-players across decision-making levels from the federal, regional, and local level; in unitary systems, it rather remains for the central actors; the EU level adds a further level for any political system within the EU);
- where it is used (in decentralised systems it is rather spread across venues, while in unitary systems it is more likely to be synthesized);
- how and by whom it is used and represented (is it used to justify decisions; is it used across departments or rather used in an isolated way).

In this context, the political system determines the role the *formal* IA (as set out in section 1.1) occupies within the wider policy process. In the German political system the formal IA processes are largely symbolic actions, since the context does not appear to match well the rationalities of an IA process (e.g. Veit 2008). This does not mean that policy-making is not evidence-based, however. Rather, IA processes seem to appear in different guises, complementing or even replac-

ing the formal procedure. Following Radaelli (2009) who suggests IAs to have different species, IAs may match the ideal type of an IA process, notably found in the UK cases; or they may be manifest as wider assessments where policy officials serve as mobilisers of expertise (Page 2010); or as diverse arenas for impact debate (e.g. parliamentary hearings in Germany). A counterargument indeed being that these wider assessments or parliamentary debates do not represent systematic and transparent assessment practice, reflecting again the 'black box' of policy formulation in Germany (cf. Veit 2008). For environmental consideration this implies that even if environmental consideration might appear to be weak in the formal IA, it may be extensive or at least existing in the further IA forms in place.

Actor-related factors – the actor constellation

Linked to the types of IA uses and to the problem structure is how the actors interact and how the overall IA (and wider policy-making) process is coordinated. The case studies have not provided a clear picture for the effects of the actor constellations. Under unstructured problems, a cooperative interaction orientation among IA actors together with inter-departmental decision-making mechanisms were found for a learning IA use and appeared to contribute to comprehensive assessments.

Competitive-antagonistic constellations with departments proceeding in an isolated decision-making mode (e.g. German waste case and the second-phase of the German biofuels case) were linked to wider policy-making and IA processes with a low importance of the evidence and knowledge dimension. Cases with a competitive-antagonistic interaction-orientation though at the same time well-coordinated processes (e.g. through inter-departmental and inter-stakeholder boards) seemed to be linked to strategic or political uses of IAs.

In summary, IAs do influence the quality of policy processes' outcomes and not only the quality of the process (cf. Tiessen et al. 2013, 77). This influence on the outcome is strongly determined by the underlying problem structure and by the preferences of IA actors. Complementing the four forms of IA uses (cf. Hertin et al. 2009b, Dunlop et al. 2012), the analysis has shown that environmental consideration in IA processes take various shapes (e.g. coherence studies) in informing decision-making and thus shaping environmental policy stringency (cf. Table 20). These varying forms improve the understanding of IA processes' effectiveness (Chanchitpricha and Bond 2013) by explicating the various ways with which IA processes may contribute to environmental policy stringency. It could moreover be illustrated that IA processes' contribution to environmental policy stringency may differ across the objectives within one policy. There are certainly more forms and combination of forms how IA processes and environmental consideration may shape environmental policy stringency. These have to be identified from further analyses of IA processes.

Table 20: Overview on IA processes contribution to environmental policy stringency**1A – The UK Biofuels Case**

The process can be considered as best practice example of an IA process. It featured the highest level of environmental consideration (even elements of a sustainability assessment) in terms of the formal assessment and the wider assessment studies. In this case, the IA contributed to environmental stringency by strategically demonstrating that GHG would be saved and that the transport sector could contribute to CO₂ targets. The wider carbon and sustainability studies further contributed to stringency by demonstrating that a reporting system would be feasible (with the limitation that no carbon linkage was decided so that the system would not automatically deliver an incentive so deliver biofuels with high carbon savings). Next to these two uses, the wider policy and IA process were used in a communicative mode.

2A – The German Biofuels Case

This was a case of a formal assessment, performed by policy officers to fulfil minimum requirements; most notably in the first half of the process numerous wider (environmental) assessment studies were commissioned by the involved ministries and agencies. Wider assessments served government-departmental learning and contributed to stringency by helping government to understand the potential scope, limits, and challenges of renewables (for different uses). The short second phase (lasting about eight months) in which the Energy Tax Act and the Biofuels Quota Act were formulated was based on little evidence. The ‘simple’ calculation of state revenue forgone because of biofuels subsidies served as formal IA and as justification for withdrawing subsidies. The effects of changing to a biofuels quota system were not assessed.

1B – The England Waste Case

Environmental impacts were considered in the formal IA reports and in externally commissioned studies as well. The Waste Framework Directive was to be transposed by a ‘no further measures’ approach and the assessment was strategic in this regard. Still the UK Environment Department aimed to demonstrate that waste measures would not be that costly. This case can be considered as a strategic assessment and an assessment of different target levels. Environmental impacts were considered (e.g. increased recycling) but for each environmental target the analysis found that no further measures were needed to achieve it. For the waste hierarchy measure (standard vs. 200 words declaration in the waste transfer note), Defra calculated that admin costs would be undue for businesses. It also calculated how much paper for instance needed to be recycled to make the implementation of the hierarchy cost natural, but this had no effect on the actual stringency of the measure.

2B – The German Waste Case

In this case the general IA and the environmental assessment component were hardly existent. The formal IA was a symbolic action of the Environment Ministry and environmental impacts were not assessed in terms of policy options. Ideological questions of more or less private sector activity in waste management dominated the process and pushed environmental aspects to the background. The ideological and distributive question of the design of the return obligations could neither be solved by a comprehensive simulation game. Assessments of legal compliance of measures were at the centre of this process. The stringency of objectives was further a power issue: The initially higher suggested recycling targets were lowered on behalf of the Construction Ministry and waste management associations. The maintenance of the heating value criterion in the context of the waste hierarchy was kept against better evidence. Subsequently, Germany had to replace the criterion due to non-compliance with the waste hierarchy.

8 CONCLUSION

This analysis aimed at exploring IA processes' contribution to environmentally stringent policies. Therefore, four IA processes and wider policy processes on the transposition of two EU directives (2008 Waste Framework Directive and 2003 Biofuels Directive) were compared in the UK/ in England and Germany each. The comparative case study analysis was based on Actor-Centred Institutionalism and on a process-tracing approach. In the following sections the conclusions from the analysis are presented.

Key findings

(1) The problem structure is key for IA processes' contribution to environmental policy stringency

The problem structure and maturity of the policy field strongly determine to what extent evidence and knowledge shape and impact on environmental policy stringency. Unstructured policy problems are likely to create a demand for impact evidence among actors. IA usage then tends to be in a learning mode. In IA processes with a moderate underlying problem structure and a more mature policy, IA processes' contribution to environmental policy stringency appears to be limited to strategic use. Under moderate problem structures with strong normative dissent IA processes' seem to have hardly any contribution to stringency. This implies that the level of environmental consideration and its influence on stringency is a question of proportionality which is again shaped by the underlying problem structure and maturity of the policy field. The problem structure strongly determines to what extent actors and processes are open and allow for evidence and knowledge to inform decision-making. The aspect of proportionality is moreover a reminder of the fact that the IA represents 'just' one out of many tasks policy officials have to deal with within a policy-making process. Policy-making processes and thus IAs, are embedded in wider flows of events and progress which assign more or less relevance to the evidence and knowledge dimensions of decision-making.

(2) The problem structure shapes the mode in which actors use the IA and the form of the IA analyses

IA used in learning mode

Set in a learning mode, actors (especially governments and departments) use IA processes to develop a better understanding of the problem and potential policy measures. This is when the assessments are likely to take the form of *coherence or feasibility studies*. Assessing coherence of (whole-of-)government's policy packages implies that IA analyses are not used to assess the impacts of the individual policy but the ramifications, interaction and trade-offs with other policies. IA processes can moreover be used to assess and make statements on the feasibility of measures or (environmental) flanking measures. These help mitigating negative environmental impacts from other policy measures and as such contribute to environmental stringency.

IA used in instrumental mode

Under a moderate problem structure with dissent about the facts (scientific uncertainty, ends), evidence is likely to be used in a strategic mode, i.e. it is used to justify policy measures envisaged by governments. This means the (environmental) implications of various *target levels* are assessed. In such situations, policy targets oftentimes are already settled. Administrations are then likely to assess the implications of various target levels (e.g. carbon savings of different bio-fuel targets) without questioning the policy itself.

IA used in symbolic mode

Under a moderate problem structure (means) actors are more likely to use IAs in a symbolic mode and the IA process is not very likely to contribute to stringency. In this situation evidence is aligned to *other types of questions* than impact chains. In the German waste case, evidence studies were focussed on questions of legal compliance of future policy objectives with EU and German law and legal principles for instance.

Depending on aspects in the wider policy process, such as a change of government or further policy development, IA usage and thus contribution to stringency can change within one policy process. Or combinations of usages may emerge. The contribution of IA processes to environmental policy stringency can moreover vary for individual targets within one policy. For instance in the waste cases studies, the contribution to the environmental objective '50% household waste recycling target' was different than for the 'implementation of the 5-step waste hierarchy.

(3) A high level of environmental consideration does not necessarily lead to more stringent policies - the level of environmental policy stringency continues to be determined by the preferences of actors

The problem structure shapes the openness of actors towards learning from evidence and knowledge (see conclusion number 1). The level of environmental policy stringency continues to be determined by the preferences of actors and notably governments though. This means that even if IA processes are used in a learning mode, actors may override the environmental evidence and knowledge provided because other target dimensions are prioritised. If IA processes are merely symbolic acts, stringency of environmental policies can still arise from different factors in the wider policy processes which are independent from the IA. Examples for such factors are a high initial environmental target level or the preferences of governments. However, a 'good' or high level of environmental consideration remains a key foundation for designing high quality policies. Assessments may for instance help to recognize the boundaries of policy measures. In the biofuels cases the limits to biomass production vis-à-vis areas for nature conservation were explored.

(4) Environmental impact analyses can appear in different guises – several 'IA venues' may exist within one policy process

Environmental consideration in IA processes is not generally weak but instead can vary considerably, depending on what is considered an IA. If just the formal IA formats (such as IA reports or IA sections in cover sheets) are examined the impression may arise that environmental analysis

is marginal relative to economic analyses. Many assessment venues within one policy process can be identified which may not be labelled 'formal IA analysis' but still represent arenas for the debate and assessment of policy options and measures. IA can appear in various guises and while in the formal IA environmental consideration is weak, it may be comprehensive or just 'appropriate' in one of the other venues. Such assessment venues may be parliamentary hearings or the wider assessments commissioned by administrations. These venues may not represent IAs in a strict sense – they lack the systematisation of steps and analysis inherent in IA processes. Still, they may complement or even replace 'formal IA' in contexts in which IA processes in their formal conceptualisation may not institutionalise well due to a mismatch of institutions with IA requirements. So, if a broad understanding of IA processes is taken as a basis, environmental consideration is not generally subordinate to economic consideration. However, in most situations and cases there is room for improving the level of environmental consideration relative to the economic one.

(5) Many factors shape environmental consideration and finally stringency in IA processes

From the ten variables and their operationalisation which were considered all shape to some extent the level of environmental consideration. They pertain to all three types of independent variables (institutional, non-institutional, and actor-related). Some are more important than others though and these are set out in the following.

Institutional factors

- Political system (number of veto players): shapes the overall role a formal IA plays within the wider policy process (justification or mostly symbolic use) and hence environmental consideration
- IA system (bindingness of provisions for environmental consideration and provisions on methods): the first provides for a certain baseline of environmental consideration while the former crucially determines how the environment largely is incorporated into the impact analyses (dependent on policy problem at hand vs. in monetised form)

Non-institutional factors

- Problem structure (moderately structured vs. unstructured) and maturity of the policy field (mature vs. immature): the problem structure and maturity level of the policy field shapes proportionality of analysis or in other words the extent of the impact analyses (e.g. limited vs. extensive) and the mode in which environmental consideration may contribute to environmental stringency (see conclusion number 1)

Actor-related factors

- Preferences (preferences of government and the work profile of the responsible departmental unit): since IAs always have a strategic momentum, governments' preferences with respect to environmental issues considerably shape the extent of environmental incorporation and may reinforce the preferences of the responsible departmental unit. Dependent on whether the work profile of these units contain some environmental element, these will be inclined to go beyond what is required in terms of environmental consideration or, on the other side of the spectrum carry out a symbolic analysis and allow for varying levels of involvement of environmental actors.

- Number and assertiveness of environmental actors: actors with a ‘purely’ environmental mission such as governmental environment agencies or environmental NGOs are key in pushing environmental consideration in IA (and wider policy) processes. But also other actors such as parliamentary committees are relevant for demanding a ‘balanced’ consideration of impacts.

If the level of environmental consideration is to be ‘predicted’ or changed in every day IA practice, these factors have to be given special attention.

(6) IA processes in their current set up are not suited to bring the ‘big options’ on the table

IA processes may contribute to environmental policy stringency. They always entail a strategic momentum too though. In policy contexts in which the primacy of free markets and pro-business trade policies prevail, IAs’ potential to promote the consideration of ‘out of the box’ policy options and approaches is limited in its current set up. "Power favours incumbent sustainability paths." Science and politics mostly follow a linear logic of progress where alternatives are becoming side-lined¹⁵⁵. While in public debates the notion of ‘there is no alternative’ may be found all too often and is sold to the public by governments and stakeholders, IAs could play a vital part in demonstrating that (environmentally stringent) alternatives indeed exist.

(7) IA processes are largely internal administrative processes

IAs largely appear to be internal exercises of administrations – the evidence dimension is rather a variable which runs in the background while in the public debate actors’ beliefs and values largely prevail. For environmental consideration and stringency this may be an impediment since important actors advocating for environmental concerns are oftentimes externals (e.g. NGOs, public, government agencies). The input of actors is needed who have a say and a clear environmental focus (such as the German Environment Agency). Meaning, their expertise and their input to the IA process is not watered down by multiple requests they need to respond to. Seen from this side, IAs need to be extended from science-policy interfaces to science-stakeholders-policy interfaces to better facilitate environmental consideration and stringency.

(8) Parliamentary bodies demonstrate demand for impact analyses

Although the IA analyses and the overall IA process were of low relevance to IA actors (particularly external stakeholders), notably parliamentary bodies in both jurisdictions revealed a demand for impact analyses. They were notably relevant for demanding a comprehensive or balanced approach to the assessment analyses. Consequently their role in IA processes could be strengthened through according formalised mechanisms to promote environmental consideration and stringency in IAs and policies. IAs could be organised and established as instruments informing institutions and actors within the formal policy-making bodies and less as an instru-

¹⁵⁵ Andrew Stirling at the Volkswagen Stiftung Symposium “Sustainable Development Goals and the Role of Research: A Focus on Coastal Regions”, see

www.volkswagenstiftung.de/veranstaltungen/veranstaltungsberichte/berichte/documentation-herrenhausen-symposium-sustainable-development-goals-and-the-role-of-research-a-focus-on-coastal-regions.html

ment to involve external stakeholders.

(9) Binding provisions are key in ensuring a minimum baseline of environmental consideration in IA processes

Basic and binding environmental provisions are important to ensure a certain baseline of environmental consideration across policies and departments. At the same time policy officers need to have a certain leeway and flexibility to adjust their IA process and methodological approach to the problem and questions at hand. An IA system which prescribes a certain method – notably cost-benefit-analysis – seems to risk applying a method which is not suited to the problem at hand. The method should follow the problem and not vice versa. A good middle-ground is needed. Valuation, although considered as the supreme discipline should not to be considered as the silver bullet but rather the use of a mix of qualitative and quantitative approaches, and valuation, where valuation is used as a proxy but not as ‘the’ costs or benefits of a policy. The focus on one methodological approach may also run risk of establishing an evidence and advisory system, e.g. a field of consultancies, which largely gathers expertise on this one method, at the expense of considering alternative approaches.

(10) Conceptual and methodological approaches should be developed to support diverse types of environmental consideration and aspects of proportionality C

As set out in conclusion (2), IA analyses and processes can feature different types of environmental consideration and thus contribute differently to environmental policy stringency. Conceptual and methodological approaches should be developed and elaborated, better meeting these diverse requirements and notably requirements of proportionality. For example approaches for assessing environmental target levels vs. approaches for assessing coherence of policies. Moreover, guidelines could better specify the requirements for the various types of environmental consideration in IA processes – when is a comprehensive and when a more targeted approach appropriate. For processes addressing changes in target levels (e.g. 70 or 80% recycling target) more standardized tools in analogy to regulatory costs considerations, such as the UK carbon appraisal tool, seem appropriate. These could be transferred to overarching environmental problems such as biodiversity loss.

(11) Development of methods and guidance for environmental consideration should enable policy officers to incorporate a wide range of environmental impacts

Methods are widely applied throughout the various stages of the IA process, including those which enable environmental consideration. Critical however is that these oftentimes only consider partial aspects of the relevant environmental positive and negative impacts. The scope of the analysis usually is not sufficiently wide to represent the relevant environmental positive and negative impacts in a quantified or monetarized approach. Moreover critical for the quality of environmental consideration is a strong focus on climate change questions in assessments. While these are important, IA guidelines and practice should enable policy officers to sufficiently

pay attention to other relevant environmental impact areas which may be relevant, such as biodiversity or soil aspects. As indicated above, this should be facilitated by provision of according scientific evidence, methods, and tools which policy officers can use.

(12) Environmental consideration in IAs could be made subject to legal consequences and increased tiering should be considered

Low quality (formal) IAs and weak environmental consideration are frequent because they are not sanctioned. In order to lend substance to especially German IAs and the level of environmental consideration therein is to sanction low quality and weak environmental consideration and to make the findings of the analyses more formalized and binding. One far-reaching approach would be to make the findings of the IA and the weighing between the different interests subject to legal consequences. This would be in analogy to German plan approval procedures. Of course this would have to involve allocation of sufficient resources (time, staff, financial support) for policy officers to meet these enhanced requirements.

(13) Consider tiering in IA processes to promote environmental consideration

Further referring to approaches from planning practice, research could examine the potentials of a more systematized approach to tiering of IAs and the evidence and knowledge used in these. This could make assessment processes more effective, for instance by producing environmental evidence which is usable across states or by addressing conflicts which would occur at national levels already at EU level. Moreover this could support a more common approach to assessments. This again could make assessment findings more comparable across EU member states. Particularly when looking at the transposition of EU directives, assessment processes and notably the environmental evidence used for them could be sourced to a greater extent from EU level. This could provide for a more comparable assessment and monitoring results which again could strengthen the validity of assessments. The consensual biofuels life-cycle analysis provided by a consortium of JRC and the refining industry (CONCAWE) and used by several actors in the IA processes in Germany and the UK is a first example here. In this context benchmarks (e.g. emission reduction targets) are a further approach which could support cross-departmental and cross-country analyses, since providing a consensual tool.

Remarks on the perspective of analysis and open questions

Actor-centred institutionalism and the analytical framework employed allowed taking a comprehensive view on IA processes. With that IA processes could be considered in their contexts, as an approach often neglected when studying policy processes and the use of evidence (Kropp and Kuhlmann 2013).

The non-institutional factor “problem structure” was relevant for the course and explanation for the outcomes of the IA processes. Since ACI does not emphasize non-institutional factors as independent variables it was not incorporated into the analytical framework from the beginning but had to be added at a later stage when the relevance of this variable became obvious.

Looking at institutional, non-institutional, and actor-related factors together with process tracing allowed to analyse IA processes in detail and to evaluate IA processes contribution to the

level of environmental policy stringency to single policy objectives (the impact of impact assessments). The rather large number of factors and variance of the case studies considered enabled me to control for alternative explanatory factors within the cases. The variance of the case studies (more recent – waste – versus earlier – biofuels – IA processes; mature vs. immature policy field; IA vanguard vs. IA laggard country, best practice case vs. ‘hardly no IA-case’, etc.) have moreover made the analysis more robust, still generalisation from the cases remains limited.

This combination of approaches was rather resource intensive however, i.e. the number of variables, and the detailed analyses of the policy processes’ chronology (cf. Checkel 2005). For further analyses in this direction it should be considered to employ a theoretical/heuristic framework with fewer variables for instance.

Next to IA processes the analysis has shed light on the current practice of policy formulation as the most under researched part of the policy cycle (cf. Howlett et al. 2015, 293, Jordan and Turnpenny 2015, 289). Although separating IAs from the wider policy processes is difficult (Hertin et al. 2009a), this analysis of IAs in their contexts could focus on IA processes, though at the same take into account the wider policy processes and their interactions.

With identifying different types of ‘contribution to environmental policy stringency’ and the overall research design with its focus on stringency in policy development, the analysis has moreover provided a different perspective on evaluating environmental regulatory stringency than previous, mostly quantifying research (cf. Brunel and Levinson 2013). Few studies have looked into the development of stringent or lax environmental policies (see Brunel and Levinson 2016, for an overview).

Further research could examine evidence and knowledge as an independent variable. This could comprise the question what kind of evidence and knowledge is used in policy-making processes (e.g. "systems knowledge", "target knowledge" and "transformation knowledge"). How are evidence and knowledge in IA and wider policy processes or cycles held, processed, and presented? How does this shape the functions of IA processes in wider policy-making processes and the level of environmental consideration and stringency? This could further address the question of the availability and robustness of evidence and knowledge influences the course of IA processes by affecting for instance the interaction of actors and the opportunities for incorporating environmental analysis in policy IAs. This would include examining the extent and quality of evidence provided by private actors, i.e. businesses and industry, to IA analyses. This could help to better understand the nature of evidence which is, notably in the UK and other cost-benefit analysis oriented IA systems, used to calculate business costs which again are oftentimes contrasted with environmental costs and benefits. Moreover, research should focus on evaluation and ex-post analysis and for instance compare the findings of ex-ante assessments and ex-post analyses to examine how assessments facilitate agenda setting. This could provide for a more holistic picture of the IA processes role in the overall policy cycle.

9 ANNEX

9.1 Interview Partner

9.1.1 UK

Name of person interviewed and date of the interview	Position of the interviewed person
Lucas Porsch, Ecologic (interview pre-test)	Former analyst at the UK Health Department, responsible for IAs

RTFO process

	Name of person interviewed and date of the interview	Position of the interviewed person during the RTFO formulation
1	Dr Greg Archer (Transport & Environment), (14 January 2014)	former Director of the LowCVP; worked as a non-executive director for the UK government's Renewable Fuels Agency)
2	Dr Andrew Boswell (05 December 2013)	UK Green Party councillor on Norfolk County Council; worked with the Biofuelwatch
3	Dr Claire Dunlop (11 December 2013)	Associate Professor at the University of Exeter, Politics Department; field of expertise: politics of expertise and knowledge utilization; epistemic communities and advisory politics; risk governance; policy learning and analysis; impact assessment; and policy narratives
4	Rupert Furness, Aron Berry, Michael Humphries (not present during the whole interview) (13 January 2014)	Now head of Environment Strategy in DfT (formerly head of the RTFO unit in DfT); head of the RTFO unit in DfT (formerly staff of the RTFO unit); DfT economist
5	Nina Holland (27 January 2014)	Representative of the EU based Corporate Europe Observatory (NGO)
6	Michelle Morton (15 January 2014)	Biofuels Sustainability Manager, Shell International (commented on the German biofuels case too)
7	Dr Rupert Read (10 February 2014)	National transport spokesman of the Green Party
8	Dr Paul Upham (20 January 2014)	Senior Research Fellow at the Centre for Integrated Energy Research and Sustainability Research Institute, University of Leeds; fields of expertise: Public and civil society engagement in - and perceptions of - energy technology and policy; applied domains include: carbon capture and storage, bioenergy & biofuels, aviation, carbon labeling, energy and emission scenarios for regions and cities; publications on governance aspects /participation in the 2007 RTFO development

		process
9	Dr Robert Watson (10 January 2014)	Chief Scientific Advisor for the UK Department of Environment, Food and Rural Affairs (Defra) (September 2007)
10	Tina Wegg (27 November 2013)	PhD student at Tyndall Climate Centre; PhD on “The Social Acceptability of Biofuels: Equity Matters”
11	Dr Claire Wenner (10 January, 2014)	Head of Renewable Transport and Energy, Renewable Energy Association

Waste Regulations process

	Name of person interviewed and date of the interview	Position of the interviewed person during the Waste Regulations formulation
12	Roy Hathaway (08 January 2014)	Former Head of Waste Regulation Division in Defra from 2006 – until the completion of the transposition of the 2011 Waste Regulations into national regulations, at the time of the interview consultant with the environmental services association)
13	Alan Holmes (18 December 2013), questionnaire answered in writing	Senior Advisor, Environment Agency for England for the transposition of the rWFD and project manager for implementation
14	Patrick Mahon (20 January 2014)	Government Affairs Analyst, Waste & Resources Action Programme/WRAP
15	Andy Moore & Mal Williams (16 January 2014)	Directors of UK Recyclate and leading members of the Campaign for Real Recycling
16	Chris Murphy (21 January 2014)	Deputy Chief Executive (CIWM)
17	Tim Peppin (07 January 2014), questionnaire answered in writing	Director of Regeneration and Sustainable Development at the Welsh Local Government Association
18	Matt Thomson (24 January 2014)	Representative of the Royal Town Planning Institute, Head of Policy and Practice

9.1.2 Germany

Biofuels Quota Act & Energy Tax Act process

	Name of person interviewed and date of the interview	Position of the interviewed person during the BQA and EAT formulation
19	Andreas Beneking (10 October 2014)	Former staff of Institute for Ecological Economy Research (IÖW); field of expertise: State-business relationship in the energy sector
20	Dr Axel Friedrich (11 December 2014)	Former head of division Transport at the German Environment Protection Agency; from 1991-1994 head of sub-division petrol industry and organic materials
21	Joseph Fell (29 December 2014)	Spokesman for Energy Policy of the Green Party (2005-2013); spokesman for Research Policy (1998-2005)
22	Rainer Hinrichs-Rahlwes (04 December 2014)	Member of board of the German Renewable Energies Association, from 1998-2005 head of division "Climate Protection, Renewable Energies" at the German Environment Ministry; currently: vice president of the European Renewable Energy Federation (EREF) and board member of the BEE (spokesperson for Europe and International Affairs)
23	Dr Uwe Lahl (08 August 2014)	Former head of department (Ministerialdirektor) at the German Environment Ministry, division Environment, Health, Immission control, facilities' safety, transport, and chemicals safety (2001-2009)

Circular Economy Act process

	Name of person interviewed and date of the interview	Position of the interviewed person during the CEA formulation
24	Dr Ralf Bleicher (22 July 2015)	Alderman of the German County Association (Deutscher Landkreistag), Department for Environment, transport and planning
25	Dr Benjamin Bongardt (21 July 2015)	Head of Resource Policy German Society for Nature Conservation (NABU)
26	Dr Andreas Bruckschen (02 August 2015)	CEO of the Federation of the German Waste, Water and Raw Materials Management Industry (Bundesverband der Deutschen Entsorgungs-, Wasser- und Rohstoffwirtschaft, BDE)

9.2 Interview Guide

1. Personal and organisational details

- How would you like to be attributed?
- What is your qualification or training background? How did you come to work for the organisation you represent(ed) during the 2007 Renewable Transport Fuel Obligation (RTFO) development process?
- Which position did you hold during the IA/ policy development process of the 2007 RTFO?

2. The IA/ policy development process of the RTFO

- Which role did you see for biofuels in the transport sector at the time when the RTFO was developed (e.g. for the reduction of GHG emissions, for the development of rural areas, for the security of fuel supply)?
- What do you understand by IA/ are you familiar with IA?
- How would you describe the IA/ RTFO development process? When did the process start and how did you first learn about it?
- How would you describe the role your organisation played in the IA/ policy development process of the RTFO?
- Which role did the IA document itself and the evidence presented in it play in the RTFO policy development process? Which role did the IA play for your organisation (e.g. did you contribute evidence for it, did you use it as a basis for decision-making)?

Actors in the IA/ RTFO policy development process

- Which other actors were involved in the IA/ policy development process of the RTFO and what role did they play (Department for Transport [DfT] as lead ministry, other ministries, government, interministerial committees, other stakeholders)? Who was not involved?
- Which actor had the most influence on the IA and the final orientation of the RTFO?
- What and between whom were the lines of conflict? How did the DfT and other actors deal with those conflicts?
- What other factors (events, policies, data/ information) had influence on the IA/ policy development process of the RTFO?

3. Exchange among actors during RTFO implementation

- How would you describe your organisation's exchange with the DfT and other ministries during the IA/ RTFO policy development process?
- Can you describe your organisation's exchange with other actors involved in the IA/ RTFO development process?
- Were there any other venues for dialogue or exchange between actors during the IA/ RTFO development process (stakeholder meetings, workshops, conferences)?

4. Evidence provided in the IA/ RTFO development process

- What was your organisation's position on the RTFO? How did your organisation develop its position on how to implement the RTFO?
- What evidence was produced by your organisation in the IA/ development process? Where did the information or data come from? Did you commission any work to externals (e.g. consultants)?
- Did you use particular methods to assess how the RTFO was being implemented (e.g. cost-benefit analysis, statistics, surveys among members, computer modelling)?
- How many persons were working on the IA/ RTFO development process in your organisation/ institution/ unit? Which other resources did you dedicate?

5. Evidence-based policy making

- How would you assess the influence the IA had on the 2007 RTFO Order in general and for the incorporation of environmental issues in particular?
- How would you assess the influence of other evidence produced in the RTFO development process (e.g. scientific analyses, information gained from consultation) on the final outcome of the RTFO in general and for the incorporation of environmental issues in particular?
- What should be done to improve IA/ policy development processes? How could trade-offs between economic and environmental issues be reduced and synergies created in policy development processes?

6. Concluding

- Would you like to raise other aspects which were not discussed during the interview?
- Do you have any suggestions for further persons to be interviewed?

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