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Advancing A Circular Economy

A Future without Waste?

Stephen M Jones

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For my mother
Hilda Jones (1933–2019)
Amor gignit amorem

PREFACE

An appreciation of the potential value of waste was perhaps sparked in my childhood. As a young boy I would take a monthly drive with my father, after working in the garden and cleaning out the garage, to the local tip (landfill). I could not help but notice that the man who operated the tip drove a new shiny red Porsche sports car, which he proudly parked at the entry. As a ten-year-old I thought it incongruous that the man at the tip could afford to buy one of the most expensive cars in the world. ‘There must be money in all that rubbish we are throwing away’, my father would often muse as we drove in. In 2020, things have changed, now my waste is collected each week by a very large truck that belongs to a multinational firm under contract to the local municipal government. The local tip is like a fortress with high fences, restricted access, ‘no go’ areas and staff in high-visibility clothing. The man at the tip has been replaced by investors on the share market. The new mantra for waste is that it is a resource that needs to be maximised rather than dumped. Waste is something we all generate; modern life seems to be impossible without it. What happens to our waste is increasingly integral to the future of life on the planet.

The idea for this book comes from time spent in the Belgian city of Leuven. In 2017 and 2018, I spent time at the KU Leuven as a research fellow. It was the lived experience of the city and its waste management system that was life changing in many respects. My partner and I were fortunate to stay at university accommodation, the Groot Begijnhof, in the historic quarter. Leuven is part of the Flanders region, and the household sorting of waste is a legislated requirement—there are financial penalties for non-compliance. Part of our daily routine was to sort our waste

into different coloured bags—one for food, one for plastics, one for general waste, and separate paper and cardboard. At first this separation routine was a shock as we were accustomed to kerbside mixed waste collection and centralised sorting facilities in our hometown of Brisbane in Australia. After a short period, we came to prefer the Flanders model; we believed we were taking responsibility and even began determining our purchases that would fit into the separation scheme easily, and we even began reducing our consumption. Each week someone wheeling a handcart would walk the cobbled streets of the Begijnhof—no vehicles allowed—and remove our waste if it was separated correctly; if not, it was left behind with a note requesting we correct the problem. The fact that this lived experience forced us to think about our waste habits and to change our behaviour sparked my research interest. The experience also reinforced the view that government policy has a role to play in bringing about the change needed to establish sustainable approaches that reduce our impact on the planet.

My sincere thanks go to Professor Brian Head for his encouragement to write this book. His valuable feedback on my development of the theoretical framework gave the project added importance. His recognition of the significance of waste as a policy problem also buoyed me when I began questioning the value of my contribution. Thanks also to Professor Geert Bouckaert, who has always supported my research ideas and helped me understand the essence of politics in Belgium. In this case he also introduced me to senior managers in the Belgian recycling industry. I also owe gratitude to Associate Professor Jon Hovland Honerud for providing me with important insights into the unique aspects of the Norwegian political system. My greatest gratitude and dedication goes to my partner Anna, who inspires and supports my ambitions and keeps me focused when doubts seem overwhelming.

I am always grateful for the support I receive from the Business School at the University of Queensland. It is hard to imagine a more supportive environment for intellectual endeavours, particularly over the challenges we all faced in 2020.

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Stephen Jones

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CHAPTER 1

Introduction

Abstract This chapter provides context for the arguments of the book. It outlines the current situation contributing to an international crisis in waste management. It provides some insights into contemporary approaches to waste management policy by governments. The interest in advancing a circular economy to provide the possible solutions to waste management practices that contribute the current crisis is also raised. The conclusion outlines the basic structure of the book and justifications for the analysis and the approach taken.

Keywords Waste management crisis • Circular economy • Sustainability • Public policy

1.1 A WASTE CRISIS

This book is about an escalating modern-day crisis: our inability to manage our waste in a sustainable way. In 2015, the UN Environment Programme made the stirring declaration in the language of social justice that waste management underpins society in the twenty-first century. Appropriate sanitation and solid waste management aligns with potable water, shelter, food, energy, transport and communications as essential to society and to the economy as a whole (UNEP 2015). World Bank data shows 2.01 billion tonnes of municipal solid waste (MSW) was generated

worldwide in 2016 and at least 33% was not managed in an environmentally safe manner (Ricci-Jurgensen et al. 2020). By 2050, the world is expected to increase waste generation by 70%, to 3.40 billion tonnes of waste annually (World Bank 2018). One impact of this scenario is the proliferation of plastic in the waste stream. Current predictions show that, even with ‘immediate concerted action’, plastic waste alone will be entering global marine ecosystems at triple current volumes in the next 20 years (Lau et al. 2020). Evidence shows the detrimental effects of plastic pollution including ingestion by sea creatures leading to economic costs on fishing, tourism and shipping industries. Micro plastic waste is now moving through the human food system and has become discoverable in human organs (Carrington 2020). Equally significant is the environmental pressure arising from household consumption now recognised as contributing to more than 60% of global greenhouse gas emissions and between 50% and 80% of total land, material, and water use (Ivanova et al. 2016). Methods of dealing with our waste are failing to prevent significant environmental damage and we need to give priority to identifying sustainable practices that will help to reduce our impact on ecological systems critical to our long-term survival.

One of the most significant events to raise attention to the current malaise occurred in the early months of 2018 when the Chinese government, as part of its National Sword Policy, imposed a ban on the importation of various forms of waste from Europe, North America and Asia. In 2017, European countries alone had exported over two billion metric tonnes of plastic waste to China (d’Ambrières 2019). Most of the waste material shipped was sold in a system of international markets trading in recyclable materials. The Chinese government argued that much of the waste they received was contaminated and not suitable for recycling—exporting countries had failed to sort the waste appropriately (Smyth 2018; Freytas-Tamura 2018). As a result of the Chinese ban, many governments and citizens in developed countries suddenly discovered the results of their efforts to recycle had actually been shipped to developing countries, and often dumped in rivers and oceans as a result of poor waste management practices (Sparrow 2018).

Contributing to the Chinese ban was the revelation that waste was being processed in many developed countries, such as Canada and the UK, by private contractors and they were sending waste offshore without government monitoring or approval (Ross 2018; Rabson 2019). Primarily however, waste was exported because it had a higher market value than

any other method of processing it. The ban created a domino effect with other developing countries following China's lead by refusing to take waste from developed countries. Some, like Malaysia, shipped the waste back to the source countries, for example Spain (Reuters 2019). These bans exposed many developed countries' failure to establish their own recycling capabilities, as they preferred to maintain traditional waste management methods of landfill and incineration. The US and Australia are typical examples where recycling remains underdeveloped and marginal in the absence of specific regulations. Because of the preference for exporting waste from these countries, less than 10% of plastic waste is recycled locally (d'Ambrières 2019). Challenges for governments are set to continue as the Chinese government will ban all imports of solid waste from 2021 and will no longer accept or approve import applications for solid waste.

On a global scale, 193 countries, both developed and developing, have committed to achieving the UNDP's 17 Sustainable Development Goals (SDGs) (UNDP 2015). The UN SDG 12 is 'to promote responsible consumption and production'. It is the idea that production and consumption have created volumes of waste that threaten the existence of humanity that is forcing an examination of alternatives to dump and run approaches. Vidal (2020) argues that there is no way to make current levels of consumption sustainable. Arrangements between government and industry to reduce volumes of waste and to establish materials that can be reused and recycled more easily have failed to achieve the necessary improvements and to achieve the progress required by the SDGs. The most recent progress report on the SDGs makes this clear:

Globally, the generation of waste is mounting. About one third of the food produced for human consumption each year is lost or wasted, most of it in developed countries. Urgent action is needed to ensure that current material needs do not lead to over-extraction of resources and further degradation of the environment. Policies must be embraced to improve resource efficiency, reduce waste and mainstream sustainability practices across all sectors of the economy. (UNDESA 2019, 46)

The current situation works in favour of vested interests as one observer claims; 'Far from saving the planet, waste management is now a \$200 billion industry that's become an environmental disaster' (Financial Times 2020). A recent survey of consumers in South-East Asia found that 91%

were concerned about plastic waste but were not changing their purchasing habits. Up to 80% of businesses have set voluntary targets to address plastic waste but less than one-third actually communicate that target. Less than half are part of industry-wide voluntary collaborations to tackle plastic waste. There is an expectation by both business and consumers that governments should take stronger action including mandating waste segregation, enhancing collection systems and imposing fines on littering ((UNEP 2020).

The waste crisis has created a sense of urgency towards identifying actions that governments can take to establish more sustainable approaches to manage waste (EMAF 2015; Muranko et al. 2018). One solution promoted by many governments is a paradigm shift from the established linear economy, based on take, make and dispose principles, towards sustainable approaches developed in a circular economy. The idea of circular economy is of great interest to both researchers and practitioners as it is seen to reinvigorate interest in the concept of sustainability. Proposals for circular approaches require a distinct shift away from long-term linear practices that include one of capitalisms driving principles—planned obsolescence. A circular approach is promoted as one where products can be designed better to last longer; food chains and toymakers don't have to make poor-quality goods; producers can use fewer virgin raw materials; waste can be made a resource. With such changes it is argued a circular economy can begin to be developed. To achieve these outcomes, government policies can help make corporations more responsible in terms of their impact on natural resources and the environment generally.

1.2 ADVANCING A CIRCULAR ECONOMY

Governments tend to promote the circular economy as a blueprint for reform of waste management that encourages the 3Rs approach of reduce, reuse and recycle in the waste hierarchy, thus complying with public interest in sustainability: this is where significant challenges exist. Corporations and governments that are in the business of growth do not necessarily want to address sustainability issues created by consumption. But they do want to focus on aspects of waste that may create economic opportunities. In this paradigm, waste is increasingly framed by governments as a resource to be exploited. With a growing business interest in the resource argument, government waste policy can focus on

a number of contemporary problems simultaneously: the increasing scarcity and prices of raw materials (particularly precious metals), and a consequential decrease in industrial productivity, along with an ever-growing volume of waste (ibid., 679). The valorisation of waste as a resource has, for many scholars, become an integral element of the interest of business in waste management and the promotion of circularity (Savini 2019).

In 2015, the UN advocated taking a holistic approach towards waste management and recognising waste and resource management as a significant contributor to sustainable development and climate change mitigation. The UN recognised a need for addressing governance issues which help to establish sustainable solutions—including the regulatory and other policy instruments, the partnerships and the financing models (UNEP 2015). Existing voluntary approaches suffer in many instances from poorly specified objectives and inadequate performance data. In the absence of explicitly articulated regulatory or market-based measures, voluntary initiatives have been less ambitious and less economically efficient than the more conventional policy alternatives. European experience indicates that voluntary policies can work quite effectively if complemented by public policy instruments like regulations, taxes or tradable permits (Paton 2017, 47). The Organisation for Economic Co-operation and Development (OECD) and the European Union (EU) have been advocates of the transition to circular approaches to establish sustainable economic development. In considering the opportunities and challenges of a circular economy from a policy perspective the OECD observes ‘Circular business models use already existing materials and products as inputs and therefore their environmental footprint tends to be considerably smaller than that for traditional business models’ (OECD 2019). EU surveys of circular strategies at each level of government claims that ‘waste processing is an almost essential element in any circular economy strategy’ (EESC 2019, 19). Further to this, the EU suggests that waste processing and particularly municipal waste management are common issues affecting whole national territories’ ‘opportunities to improve it largely depend on legislative issues at national or European level’ (ibid.).

A move to a more sustainable society requires greater sophistication to manage waste (Seadon 2010). A lot of time and money needs to be spent by government and industry educating residents on the value of sorting waste in the household (R4R 2014; OVAM 2017). Of course, residents

need to be on side and be willing to participate. Challenges need to be faced by individual consumers as the generators of waste. They must assume a high degree of responsibility for placing contaminants into the recycling system that the waste management system must deal with (Thornton 2019). If residents have been accustomed to the ease of centralised sorting, a move to more complexity and effort becomes challenging. Petts (2000) argues that the most effective management of waste has to relate to the local environmental, economic and social priorities. Surveys suggest that there is a willingness within communities to take more responsibility for waste; in Europe this is particularly strong. Surveys by the European Commission show that waste is of concern to Europeans, with 80% of those surveyed wanting their country to waste less (EU Reporter 2014). When the survey research was released, the EU Environment Commissioner Janez Potočnik claimed:

Waste clearly touches a nerve: Europeans want to waste less, and they are making efforts to practise what they preach. This makes moving to a more circular economy a logical step forward. The appetite for more recycling is there: now we need to deliver the mechanisms to help it happen. (ibid.)

The crisis in the recycling industry has created a degree of disquiet in many countries where citizens had a level of trust in governments and their waste management systems. When asked about ways to encourage more recycling, 71% of respondents to a European Commission survey on the issue say reassurance that their waste is effectively recycled would persuade them to separate more of their waste. A majority favours more and better waste recycling and composting facilities in their area (59%) (EC 2014, 5). Research evidence by Nilsson and Harring (2017, 16) supports this information. They found that ‘institutional trust levels of individuals and trustworthiness of the third-party enforcer in the dilemma context should be considered important factors for recycling behaviour’. The threat to this trust in institutions created by the current crisis could be an opportunity to promote change. The policy change literature maintains that a crisis can become the catalyst for governments to focus on alternative approaches to policy problems (Kingdon and Stano 1984; Birkland 2006; Boin et al. 2009; Cairney and Jones 2016). The literature also makes it clear that policy change requires political priority (Arts et al. 2006; Shiffman and Smith 2007; Baker et al. 2017; Jones 2020). Governments need to commit resources and implement regulatory

measures. The examination of policy change in waste management, particularly in multilevel systems, involves understanding the political and institutional context, the role of key actors in the policy process, the role of ideas in shaping public acceptance for change and influence of the characteristics of waste as a policy issue.

Recent academic assessments of circular economy initiatives suggest the vast majority focus on recycling activities without major commitments to the other Rs in the waste hierarchy—reduce and reuse (Van den Berghe et al. 2020). Such observations raise questions about genuine commitments to a circular economy beyond business opportunity and politically charged debates that focus on economic prosperity. Analysis that takes a sociological and philosophical perspective argues that the circular economy provides a powerful narrative that supports a transition to more sustainable production and consumption systems (De Angelis and Ianulardo 2020). Kirchherr et al. (2017) argue that despite its attractiveness the circular economy has largely remained elusive in terms of precise meaning. This lack of precision means the idea is contested and can be captured by policy and business advocacy groups (Korhonen et al. 2018). There have been some attempts by researchers to provide directions for policymakers to understand the consequences as well as the support needed to promote circular approaches (Bauwens et al. 2020). Survey research of firms reveals a delicate balance where government regulations, standards and procedure can be either a significant barrier or a facilitator in implementing circular activities (Garcés-Ayerbe et al. 2019).

Well-designed and -implemented public policy can potentially change both business practice and citizen behaviour towards environmental outcomes (Santor et al. 2020; Ding et al. 2018). Current approaches need to be reconsidered if governments are to support establishing more sustainable development. Policies and legislative instruments across the EU established to promote sustainability focus primarily on potential economic benefits; social benefits tend to be overlooked. Of the 262 policies examined in 2019, 63% discuss the impact on air, soil and water pollution, 45% on waste reduction and 43% on greenhouse gas emissions (UNDESA 2019). A possible reason for these inconsistencies is that both governments and business tend to favour voluntary measures above those that are regulated and compulsory (Anton et al. 2004). A common view is that business is willing to support environmental outcomes if they do not impact on profit (Banerjee 2001). Evidence suggests that voluntary approaches have so far proven to be largely ineffective, and regulatory action will be

required in resolving environmental challenges posed by current waste management practices (Borck and Coglianesse 2009). This is particularly true for non-binding voluntary agreements that are common in dealing with greenhouse gas emissions and waste management (Glachant 2007). Transition to a circular economy will require a regulatory contribution by governments. It seems clear that business as usual for managing waste is no longer possible. A shift to circular approaches will require policy priority that is reflected in regulatory measures that help support business transition away from the linear model of production, consumption and disposal.

1.3 BOOK STRUCTURE

The objective of this book is to outline a multi-theoretical framework designed to help understand the complexities and challenges associated with establishing priority for policy change towards waste management and advancing a circular economy. The approach taken in each chapter is as follows. Chapter 1 will outline a more in-depth analysis of the nature of waste management and the prevailing crisis. In Chap. 2, the circular economy is discussed in terms of its requirements and the challenges of implementation. Chapter 3 deals with the nature of political priority as one of the important contributions of this research. If we are to move towards a circular economy, then we need to understand the challenges in bringing about policy change. If we accept the central role of governments to bring about policy change, then we need to understand opportunities and limitations to reform the current waste management processes to those of a circular economy. Another key consideration of this research is the challenges present in multilevel systems where responsibility for waste management policy and implementation can be shared between different levels of government and their impact on prioritising policy change. Chapters 4 and 5 will present case study evidence to highlight the importance of political priority in the context of multilevel systems. First is the approach taken in Belgium, and particularly in Flanders, the largest and most populous region. Belgium adopted a national circular strategy in June 2014, earlier than many of the other EU countries, followed by the Belgian regions of Brussels and Flanders in 2017 (EESC 2019). This will show the extent of the political commitment and actions taken by Belgium in achieving some of the highest rates of recycling of municipal waste in the world. The Belgian example is not perfect, but it is illustrative of the extent to which governments in multilevel systems need to

maintain policy priority in order to improve waste processing to more sustainable levels. The next chapter focuses on Norway as a widely viewed leader in waste management. The Norwegian approach to recycling plastic is heralded as a model for other countries (Taylor 2018). This case highlights the importance of institutional context and the role of policy actors in shaping government responses in a multilevel system. Norway is not a member of the EU but the national government continues to make statements about achieving the standards of waste management agreed to by the European Parliament, including adopting circular approaches to waste management. Yet despite national political statements supporting the benefits of the circular economy, the enthusiasm has not transferred to a policy priority for establishing a national circular strategy. The reality reveals Norway as one of the top five generators of hazardous waste in Europe at over 300 kg/year/capita (NCM 2018, 22). Norwegian households also have one of the highest levels of per capita municipal waste generation in Europe (ibid., 24). Norwegian municipal governments also contract out much of their waste management to the private sector and export much of this waste for incineration. It is an important case in this respect as it helps to reveal the challenge of political priority in the context of intergovernmental relations. In the final chapter, the political priority framework is applied to bring together the issues revealed in the case studies and draws insights for governments advocating circular approaches.

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Waste Management: A Policy Paradox

Abstract This chapter provides a more in-depth analysis of waste management policy. The prime focus is on countries in the European Union with some consideration of OECD countries. Of particular interest are approaches towards recycling waste, with special consideration of plastic waste. Plastic is particularly toxic in the environment and has become a ubiquitous problem across the globe. The relevance of the challenges of governance and leadership in multilevel systems in policy change are also outlined. The need to shift from voluntary to mandatory approaches is also outlined as necessary for policy action to establish more sustainable approaches to waste management.

Keywords Waste management policy • European Union • OECD • Governance • Leadership • Voluntary approaches • Mandatory regulations

2.1 INTRODUCTION

What happens to our waste? In most developed countries, the answer to this question is largely hidden from view. Citizens place a degree of trust in organisations, public or private, that collect their household waste each week to deal with it in an environmentally responsible manner (Jones et al. 2011; OECD 2019b; Nilsson and Harring 2017). The idea that waste

could end up floating in an ocean to be eaten by an Albatross seems surreal. Worse still, the idea of waste contributing to the eventual extinction of sea life would give most of us heartbreak (Eriksen et al. 2014). Yet, the evidence seems to be that something is terribly wrong with the waste management systems in developed countries (Giusti 2009). By contributing to significant environmental damage waste management policies in developed countries exhibit the classic conditions of a policy paradox (Stone 2012). Since the early 2000s, as a consequence of environment management policies large volumes of waste from developed countries have been sent to developing countries that end up contributing to extreme forms of environmental damage (Howard 2019). There have been reports of tyres exported from the UK being burned in Indian waste dumps, electronic waste from Australia being burned at the Agbogboshie dump in Africa, and traces of plastic waste being dumped in the Mariana Trench, 11,000 metres below sea level (Monbiot 2019; Le Tourneau 2017; Cookson and Hook 2019). Evidence like this has strengthened arguments that waste management in developed countries has been a long-term campaign of toxic colonialism at the expense of developing countries and the environment (Clapp 2001).

In May 2019, Malaysia's minister for energy, technology, science, environment and climate change, Ms Yeo Bee Yin, appeared before a gathering of international media at Port Klang. With 60 shipping containers loaded with waste as her backdrop, she claimed: 'These containers were illegally brought into the country under false declaration and other offences which clearly violates our environmental law' (SMH 2019). Malaysian officials identified at least 14 origin countries, including the Organisation for Economic Co-operation and Development (OECD) members like the US, Japan, France, Canada, Australia and Britain. The minister stated: 'I am calling out to these countries and other countries too, we have a problem. We have to solve our own waste problems in our own backyard. It's a message we wish to convey internationally' (ibid.). Countries such as Thailand, Indonesia, Vietnam and India were making similar discoveries and passing restrictions prohibiting the importation of waste being shipped to their countries from developed countries. For example, Vietnam announced that it would ban the import of scrap material in early 2019, in response to concerns by residents about worsening environmental conditions and the health of locals (Nguyen and Roth 2019). Most significant of all was the restrictions and stringent bans placed by China in March 2018. As the world's largest importer of low-quality kerbside recycling materials, China's National Sword policy of import restrictions on contaminated waste had repercussions across Europe,

North America and Asia. In echoing the sentiments of these countries, Yeo Bee Yin stated: “we will do our very best to ensure that Malaysia not be the plastic rubbish bin of developed countries” (SMH 2019).

The export of waste from developed to developing countries has been controversial for more than 30 years. The United Nations Development Programme (UNDP) argued in 1989 that it perpetuates inequality and supports the movement of waste across borders. According to Beylot et al. (2019), the consumption and production of products (goods and services) are responsible for adverse effects to the environment, encompassing effects on human health and natural resources. Ensuring ‘sustainable consumption and production’ patterns is goal 12 of the UN Sustainable Development Goals (SDGs) (UNDP 2015), and it has been considered an overarching objective and an essential requirement for sustainable development (UN 2012). In the European Union (EU), Sustainable Consumption and Production (SCP) is targeted through a number of policy instruments, as adopted under the Sustainable Consumption and Production Action Plan (European Commission 2008) and the Circular Economy Action Plan (European Commission 2015). These are intended to ‘improve the overall environmental performance of products throughout their life cycle, stimulate demand for better products and production technologies, and help consumers make informed choices’ (European Parliament 2020). Moreover, in the Seventh Environmental Action Program (EAP) (EU 2013), the EU has a long-term objective of living well within the planet’s ecological limits, implying a significant decoupling of environmental impact from economic growth and welfare. As a result of the current action by developing countries to reject waste, circumstances have taken on added urgency and the UNDP proposed revising the Basel Convention, giving the receiving country the right to refuse polluted or mixed plastic waste that it could not manage safely. In a partial response, in July 2019, 180 countries agreed to amend the Basel Convention to make global trade in plastic waste more transparent and better regulated.

The actions of governments in China, Malaysia, Vietnam, Thailand, India and Indonesia to stop the importation and processing of contaminated waste have caused many OECD countries to reconsider their approaches to waste management. These developments are part of a trend of questioning the volumes of waste being produced, the nature of the waste, for example plastics and e-waste, and the volumes of waste being recycled and/or placed in landfill (Hoornweg et al. 2015). Contemporary methods have relied on exporting waste as a means of managing

expanding volumes of municipal waste and meeting international obligations to recycle waste. The countries having waste returned from Malaysia have been forced to deal with the need to establish new approaches to waste management that could have long-term economic and environmental consequences.

2.2 WASTE AS POLICY ISSUE

The OECD defines municipal waste as the waste collected by, or on behalf of, municipalities and includes ‘household waste originating from households (i.e. waste generated by domestic activity of households) and similar waste from small commercial activities, office buildings, institutions such as schools and government buildings, and small businesses that treat or dispose of waste at the same facilities used for municipally collected waste’ (OECD 2018). According to OECD data, during the 1990s municipal waste increased (+19%) mostly in line with private consumption expenditure (+33%) and GDP (+31%). Currently, the quantity of municipal waste generated exceeds an estimated 650 million tonnes. A person living in an OECD country generates on average 520 kg of waste per year; see Fig. 2.1. Countries such as Denmark (751 kg), the US (725 kg) and Australia (647 kg) are at the high end of the scale. Others, such as Japan (354 kg) and South Korea (358 kg), represent lower levels of consumption. The amount and composition of municipal waste vary widely, being related to levels and patterns of consumption, the rate of urbanisation, lifestyles, and national and local waste management practices. On average, Europeans

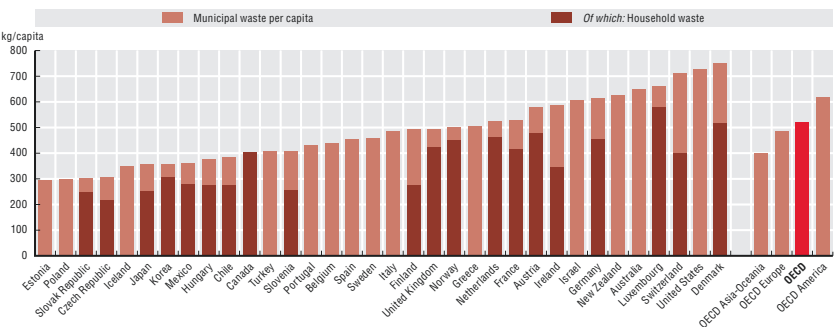


Fig. 2.1 Municipal waste generation intensities per capita (2013)

generate around 130 kg less than people living in North America but 80 kg more than people living in the OECD Asia-Oceania region.

According to OECD, research business as usual will increase the environmental impacts that are associated with harvesting resources, processing and using them, and disposing of the resulting waste (OECD 2017, 7). Areas of particular concern from this linear approach include the local environmental damages and greenhouse gas (GHG) emissions associated with material extraction and processing (Nuss and Eckelman 2014). IPCC reports show that emissions from the waste sector are among the largest sources of non-CO₂ GHG emissions ((IPCC 2013). Current methods of waste management, primarily landfill, produce climate-related CH₄ emissions. The mitigation of these emissions would make an important contribution to reduce global warming (Zickfeld et al. 2017). Developed countries play an important role in this scenario, but significant changes to current waste management policies in many countries will be required.

Municipal waste has traditionally been viewed as a management issue dealt with by technical experts using different models that apply methods and tools such a risk assessment, cost benefit analysis and life cycle analysis as part of the decision-making process. The goals of these models have varied from the simple, optimising the routes of vehicles transporting waste, to complex objectives such as life cycle analysis of products (Morrissey and Browne 2004). In the 1970s, models focused on examination of a specific problem of waste disposal such as transfer station siting. Landfill was the dominant processing option and recycling was rarely taken into account. Landfill strategy undertaken by engineers and planners was given precedence over the ‘political and social concerns of elected representatives and community organisations’, often resulting in friction between experts, the local community and the local politicians (Morrissey and Brown 2004, 304). Such approaches were unsuitable for long-term planning. Approaches taken in the 1980s extended the focus to examine the relationships between each factor in a waste management system. Cost minimisation was a key objective and recycling and behaviour change also entered the approaches encouraged by some researchers (Englehardt 1990). The minimisation of the waste generated was yet to be seen as a worthy concern in the debates concerned with the waste generated by households. This was to change soon as green groups and anti-consumerist activists began raising the negative environmental consequences of the accumulation of waste (Savini 2019).

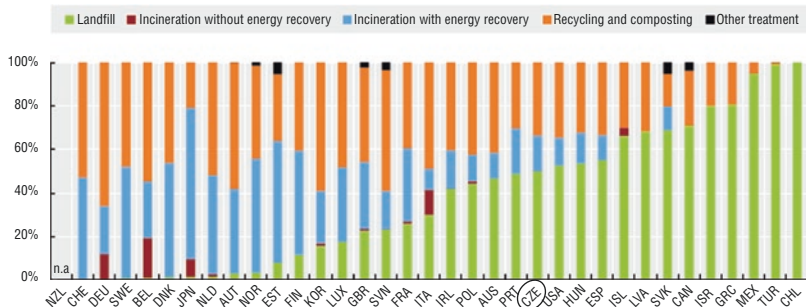
During the 1990s, waste policy shifted from a reliance on landfill to a more integrated approach that considered a broad range of waste streams and preferred management practices based on site-specific environmental and economic considerations. Whole of life cycle of products was promoted as part of a full assessment of the systems of environmental impact (Morrissey and Browne 2004). Facing increasing public demand for more sustainable practices, many European countries banned landfill and focused on identifying alternative forms of waste disposal and to modernise waste management. The following three reasons were most often cited for waste being a policy problem: waste disposal can harm the environment and human health; space for landfills was becoming scarce as community opinion moved against them; and waste is the end product of a life cycle process that can have upstream environmental and resource depletion implications. There was also the underlying moral view of waste generation, arguing that it is symptomatic of wasteful and undesirable overconsumption (PC 2006, xxvii).

By the early 2000s, researchers argued the focus on economic and environmental aspects of previous decades needed to change if sustainable management practices were to be implemented. For a waste management system to be sustainable, it should be seen as integral component of social and ecological systems. In this regard, it needed to be environmentally effective, economically affordable and socially acceptable. Evidence was emerging that waste management programmes that ignored the social aspects was 'doomed to failure' (Joos et al. 1999). Petts (2000) argued that 'the most effective management of waste needed to relate to local environmental, economic and social priorities' (824). Waste management programmes and policies began taking social aspects into account, and indicators for sustainable waste management were developed. Social aspects included the problems of communication, public acceptance, (NIMBY/social compatibility), public participation in planning and implementation, consumer behaviour, intergenerational factors and changing value systems (Morrissey and Browne 2004).

Largely as a result of these developments, contemporary waste management is typically based around the notion of sustainability through the concept of a waste hierarchy. This approach sees waste avoidance as preferable to reuse, reuse to recycling. Disposal, particularly to landfill, and incineration are seen to be the least desirable options given the space required, pollution generated and the missed opportunities of reusing valuable resources. In compliance with this approach, many jurisdictions

have set targets for diverting waste, some going so far as to aim for zero waste to landfill (Zaman 2014). Different OECD countries adopt their preferred methods of waste management, with varying degrees of landfill and recycling rates; see Fig. 2.2. Waste policy is now likely to support managerial strategies and waste treatment technologies that seek to maintain environmental quality and to meet sustainability goals. Policies allow both waste management industries and government agencies to meet common needs of waste management with the greatest environmental potential, to recycle materials out of waste streams, to enlarge the renewable energy supply, to seek for more socially acceptable options and to preserve biodiversity and natural ecosystems simultaneously. According to the UN Environment Programme (2005), achieving these goals requires all technical and non-technical aspects of a waste management system to be analyzed as a whole, since they are ‘inter-related with one another and developments in one area frequently affect practices or activities in another area’ (Pires et al. 2011, 1034).

The crisis in waste management has raised attention to some of the pitfalls of current approaches to waste management. Cities in OECD countries are among the largest waste generators, producing around 1.75 million tonnes per day. According to the ‘peak waste’ argument, the volume of waste is expected to increase in OECD countries until 2050, owing to urban population growth (Hoornweg et al. 2013). The magnitude of



a) Municipal waste: household and similar waste collected by or for municipalities, originating mainly from households and small businesses. Includes bulky waste and separate collection. CZE: 2016 data.

Source: OECD (2017), ‘Municipal waste generation and treatment’, *OECD Environment Statistics* (database).

Fig. 2.2 Municipal waste management, by type of treatment, 2015

waste production rates in cities varies depending on the level of infrastructure development and individual consumption, waste production rates in cities are often far higher than per-capita global averages (Kennedy et al. 2015). Increasing population in many countries and accelerated urbanisation, particularly in lower- and lower-middle income nations, are expected to increase global waste production for several decades (Hoornweg et al. 2015). ‘Business-as-usual’ projections show that, by 2100, solid-waste generation rates will exceed 11 million tonnes per day—more than three times current rates (ibid.). In 2016, the total waste generated in the EU-28 by all economic activities and households amounted to 2.538 million tonnes; this was the highest amount recorded for the EU-28 during the period 2004–2016 (EU 2020). Research suggests that in multilevel systems effective management of waste will require cooperative and coordinated governance arrangements between governments. This is particularly the case in the EU where municipal waste is no longer the province of relatively autonomous municipalities concerned with collection and disposal of waste, and is now ‘a complex process in which a range of international institutions, national, regional and local government agencies and non-state actors have a degree of influence and responsibility’ (Bulkeley et al. 2005).

The management of waste has been at the centre of objectives including protecting human health and the environment, economic development and the fulfilment of social and regulatory stipulations (Soltani et al. 2015, 319). The complexity of decision-making in this policy area is highlighted by the need to consider multiple, and often contradictory, criteria (e.g. environmental impacts like global warming, human health risks, resource depletion and damage to ecosystems), economic costs and benefits, contextual issues (such as waste type and rate of generation, political and social factors), and international obligations that establish government commitments to change (Giusti 2009; Pires et al. 2011; Soltani et al. 2015; de Souza Melare et al. 2017). Other issues include failure to effectively deal with the challenges of data collection and facilitate experimentation, learning and change (Morrissey and Brown 2004, 305). The current crisis has focused the attention of governments on developing an effective policy response. One particular area of concern is the proliferation of plastic in the waste stream. The next section highlights the challenges for policymakers in implementing policies that consider the complexities of both consumption and disposal of material that continues to be the source of a serious environmental problem.

2.3 PLASTIC WASTE: A SYMBOLIC CASE

Some of the most evocative symbols of the current state of waste management are the floating platforms, or ‘plastic gyres’ in the Indian and Pacific oceans. The case of plastic waste encapsulates many of the arguments around policy issues of the current waste management crisis and the possible solutions to the associated problems. Estimates show that the global production of plastic has increased from 2 million metric tons (Mt) in 1950 to 400 million Mt. in 2015; see Fig. 2.3 (Geyer et al. 2017). By the end of 2015, 8300 million Mt of virgin plastic had been produced, roughly two-thirds of which has been released into the environment and remains there in some form—as debris in the oceans, as micro- or nanoparticles in the air and agricultural soils, as microfibers in water supplies, or as microparticles in the human body. Figure 2.3 shows that by 2015, of the approximately 6300 Mt of plastic waste generated, around 9% had been recycled, 12% incinerated and 79% accumulated in landfills or the natural environment (Geyer et al. 2017).

A report released by the Centre for Environmental Law (CIEL) in 2019 raised attention to the ongoing hidden environmental costs of plastic and the failure of current waste management practices to deal with

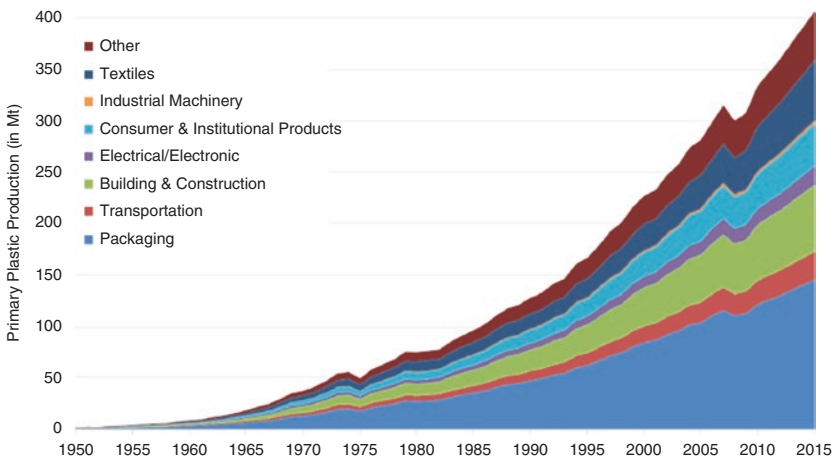


Fig. 2.3 Global Plastic Production 1950–2015 (Source: Geyer, R., 2020)

these costs (CIEL 2019). Key points from the report focus on the production of waste, the disposal of waste and the potential solutions to the problems caused by the waste management process. OECD (2018) reports highlight two key environmental impacts from plastic. First, traditional plastics production is highly energy-intensive, and was estimated to account for 400 million tonnes of greenhouse gas emissions (around 1% of the global total) in 2012. The fossil fuel feedstock used in plastics production also accounts for 4–8% of global oil and gas production. Further, carbon dioxide as well as other greenhouse gases are emitted when plastic is incinerated. Second, the proliferation of plastics use, in combination with poor end-of-life waste management, has resulted in widespread, persistent plastics pollution. Modelling suggests that around 10% of global plastics waste generation (or 30 Mt) was mismanaged in 2010. Plastic pollution is present in all the world's major ocean basins, including remote islands, the poles and the deep seas, and an additional 5 to 13 million tonnes are introduced every year (OECD 2018, 3–4). Developed countries, faced with the problem of too much plastic waste, too little capacity to recycle and a lack of demand for recycled plastic, have exported the problem to poorer countries as a key strategy to deal with domestic post-consumer waste (Tearfund 2019). There is no mechanism for source countries to be held accountable for the impacts of plastic waste exported for recycling to other countries, particularly to countries less able to manage waste.

Searching for possible solutions to the problems created by plastic waste has focused on recycling and disposal elements of waste management processes. Recycling has proven to be disappointing as evidenced by the failure in many OECD countries to develop substantial recycling industries. In countries such as the UK there have been incentives to export plastic waste rather than develop domestic recycling industries. The Australian prime minister described the situation his country: 'We are not recycling plastics in this country, it's going into landfill or it's going into boats and being sent up to Asia and ends up washing out of rivers and creating islands of plastic off the coast of the United States, where it drifts to, which is three times the size of France' (Martin 2019). Recent reports from the UK National Audit Office highlight the key issues:

The system provides a financial incentive for reproprocessors and exporters to increase packaging recycling rates to meet EU targets, and makes obligated companies responsible for contributing to the costs of recycling the packag-

ing they put on the market. The regulations do not place a direct requirement on obligated companies to collect and recycle their own packaging. Instead, they allow for packaging to be collected as part of the normal management of waste in the UK, both by local authorities and commercial collectors, before being sorted and sold for recycling or disposed of through landfill or incineration. The regulations then allow accredited reproprocessors and exporters to issue recovery notes for the amount of packaging they have recycled and to sell these notes to obligated companies. (NAO 2018, 5)

Some European countries are leading the way in many respects with some having developed a model that attempts to manage plastic waste and reduce marine pollution. There is increasing recognition that recycling alone will not solve the plastic waste problem. Arguments for greater stewardship stress that companies need to take responsibility for the plastics they produce by making them recyclable and by reducing the volumes of production. Programmes are based on the principle of extended producer responsibility (EPR), first outlined in Sweden in 1990 (Lindhqvist 2000). The central idea is that EPR strengthens stewardship by shifting financial responsibility for end-of-life disposal to product manufacturers, providing an incentive for improved product design, reuse and recycling (Tibbetts 2015). In these schemes, producers pay the costs of tracking, managing and recycling or disposing of packaging after their products have been used. Examples such as the UK case suggest that waste management policy must also support a stronger stimulation of public responsibility towards plastic consumption (McNicholas and Cotton 2019). Legislation requires manufacturers to recover their packaging after product consumption. Scholars liken the situation to addressing air pollution, where people have long realised that filtering the air is not a long-term solution. Filtering the oceans seems similarly implausible (Cressey 2016). Eriksen et al. (2014) argue for comprehensive approaches that involves going to the source by reducing the use of plastic, improving waste management and recycling the materials to stop them from reaching the environment.

In 2019, G20 governments met in Tokyo and agreed to a set of voluntary actions to promote a comprehensive life cycle approach to urgently and effectively prevent and reduce plastic litter discharge to the oceans. Using measures, ‘including environmentally sound waste management, environmentally sound clean-up of marine plastic litter, deployment of innovative solutions, and international cooperation to enhance national capacities, as well as prevention and reduction of plastic waste generation

and littering, promotion of sustainable consumption and production, including but not limited to promoting resource efficiency, circular economy, sustainable materials management, waste to value approach, and measures to address sea-based sources' (G20 2019). The world is yet to see whether international voluntary agreements such as this by the G20 can be effective in making a serious impact on the volumes of plastic waste currently impacting on the environment.

2.4 GOVERNANCE AND LEADERSHIP

Within the multilevel context, municipal governments are playing an increasingly important role in policy innovation towards improving sustainability. Satterthwaite (2008) argues that many of the processes implicit in urbanisation can have a positive overall effect as urban residents can generate a substantially smaller volume of GHG emissions than residents elsewhere in the same country. Well-planned and governed cities provide the potential for 'de-linking high quality of life from high levels of consumption', which is the critical factor leading to reducing the environmental impact of waste (Satterthwaite 2008). The argument includes the potential of city governments to establish sustainable waste management processes that apply the principles of the waste management hierarchy (reduce, reuse, recycle) through education programmes to reduce waste, establishing recycling industries and avoiding landfill. Addressing urban waste involves complex arrangements involving citizens and industry participation and consists of technologies, regulations, public services and user practices. Bugge et al. argue that the 'process represents dealing with "path-dependent", interwoven and institutionalised sociotechnical regimes that can be hard to change. A transition to more sustainable waste management practices will require a fundamental shift of social and institutional components and the re-design of the physical infrastructure system' (2019, 1077).

Consideration must be given to urban governance arrangements as they impact on the capacity for policy change and innovation. Hartley (2005, 28) argues that we should consider innovations, particularly radical or complex ones, to be multidimensional. She described three competing paradigms of governance and public management, 'traditional' public administration and 'New Public Management' (NPM), and 'networked governance', which may be conducive to particular ways in which innovation is both generated and adopted. Bugge et al. (2019) argue that

different governance regimes affect innovation dynamics in urban waste systems in different and challenging ways. For them the ‘traditional’ model constitutes an organisation where the municipality controls and carries out most of the waste-related activities inhouse. NPM implies a system of governance where the municipality outsources several waste-related activities to private companies by issuing highly specified public tenders. A networked model of governance implies an organisation where the municipality facilitates and orchestrates interaction and synergies across the actors involved in the collection and processing of organic waste from both the public and the private sector. Each of these models has strengths and weaknesses and may co-exist in bringing about change. In terms of waste management, however, the limitation of governance is that its focus tends to be on system optimisation rather than system change (Bugge et al. 2019). There is not one best governance regime, but a need to acknowledge their co-existence and carefully consider the characteristics implications of the different regimes in order to arrange for long-term dynamic and sustainable cities and regions.

Like other wicked policy problems in multilevel systems, waste requires joint action between governments and relevant stakeholders, including civil society, epistemic communities and business groups (Head 2014). Improvements to waste management cannot rely on local governments alone. Clearly local authorities are principal players, but their limited resources, flexibility and authority undermine their capacity to enable sustainable waste management (Entwistle 1999, 376). Approaches that require stewardship responsibilities by producers will need policy support from other levels of government that hold the appropriate policy levers. The development of consistent approaches across jurisdictions will also require national policies to establish minimum standards, indicating that multilevel government is a key mode in the governing of municipal waste (Bulkeley et al. 2005). Business also has a role to play in terms of participation and commitment to sustainable approaches that reflect government policy commitments.

Waste policy action towards sustainability requires political leaders mobilising official institutions and wider political systems into providing resources and enacting regulatory interventions commensurate with social, economic and environmental challenges. Borraz and John (2004, 112) argue that ‘leadership is crucial to the functioning and success of local governance’. The politics of decentralisation, networks, participation, partnerships, bureaucratic reform, rapid policy change and central

Multilevel Complexity for Improving Recycling in Australia: Working with Stakeholders in Victoria in 2020

Infrastructure Victoria's (IV) Elissa McNamara explains how Victoria could recover up to 90 per cent of its waste if \$1 billion is spent on recycling infrastructure in the next two decades.

National Goals for consistency

National packaging targets can be met if Victoria can transform its resource and recycling sector. It is very important to be consistent and focus on both state and national approaches. Investment in improved data will also be needed. Every Australian state and territory will have its own challenges across the next decade, but McNamara says interstate colleagues are willing to share learnings and contribute to the national waste action policy. She notes that there is national focus on boosting landfill levy consistency and examining how consistent approaches could be economically viable for infrastructure investments. McNamara says collaboration is essential to providing a consistent service across Victoria

Stakeholder interest

In May 2020 IV released its report, which recommended upgrading or building 87 new processing facilities for six priority materials: plastics, paper and cardboard, glass, organics, tyres and e-waste, to achieve a 90 per cent recovery target over the next two decades. "We've certainly had no shortage of interest from local governments, industry stakeholders and the private sector, who are responsible for building a stronger and more sustainable recycling and resource recovery industry for Victoria," McNamara says. More than 1500 stakeholders have attended various briefings and webinars held by IV in the past three months to discuss its infrastructure advice. Importantly, McNamara says there has also been strong interest from investment funds and market analysts looking to identify development opportunities in the sector.

Industry Collaboration (with concerns)

According to Rose Read, National Waste and Recycling Industry Council (NWRIC) CEO, IV's report and advice is comprehensive, but it comes very much from an infrastructure lens. "Simply building better collection systems to clean up inputs and more processing infrastructure will not increase recovery rates. You also need to build markets at the same time to match demand with supply," she says. While NWRIC supports all of IV's recommendations, Read says focus must be placed on strengthening markets for priority materials, cleaner inputs, greater recovery of energy from non-recyclable waste and better planning by strengthening the status of, and processes around, Victoria's Recycling Infrastructure Plan. "This will fix many of the major systemic problems Victoria currently has, but to really drive and create a circular economy, it must look at waste as more than an essential service but also as an important resource industry," Read says. McNamara stresses the opportunity for the private and public sector to collaborate in ways they haven't before, to develop cost-effective infrastructure and facilitate a stronger waste and recovery market in Victoria. "Our work shows there is not one single approach to achieve these outcomes, all levels of government, business and households will need to work together if we are to realise the huge opportunity before us," IV stated in the report.

(Adapted from Coles 2020)

intervention need powerful but creative leadership figures to give a direction to local policymaking. A political priority for change needs to be established to move away from current approaches and to help ensure more sustainable approaches. Examining how governments place political priority on establishing sustainable waste management systems will be important for this transition. Effective, equitable and sustainable responses will require a strong role for government (Keskitalo et al. 2016). Recognising the complex multidimensional nature of waste as a policy issue that an empowered coordinating policy approaches in multilevel systems is more likely to ensure stronger direction and reflexivity towards system change.

2.5 SHIFTING FROM VOLUNTARY TO MANDATORY APPROACHES

Since the 1990s, voluntary initiatives have been an important element in the mix of public policies and corporate strategies for managing industrial impacts on the environment (Paton 2017). Since Keohler (2007) revealed that voluntary environmental programmes did not generate significant pollution abatement, there has been further research supporting the deficiencies of voluntary approaches to environment-related policies. Borck and Coglianese (2009) argued that if environmental problems are truly externalities, it is not obvious that the average environmental benefits per participant from a voluntary programme will be as high as the average environmental benefits per regulated entity from mandatory regulations. Nevertheless, the risk of significant civil and criminal penalties probably can motivate action in a way that a certificate of recognition from a voluntary arrangement cannot. Morgenstern and Pizer (2007) found it hard to argue for voluntary programmes where there is a clear desire for major changes in behaviour. The OECD argues that ‘the performance of many voluntary approaches would be improved if there were a real threat of other instruments being used if (appropriately set) targets are not met’ (OECD 1999, 2). For policymakers there is an ongoing question of a balance between voluntary and regulatory requirements to produce environmental outcomes (Gunningham and Holley 2016). Recent evidence is more conclusive as Coglianese and Nash (2016) argued that although governments and policy advocates sometimes urge voluntary programmes as a substitute for conventional government regulation, it appears that the

most effective voluntary programmes depend on a robust backdrop of community pressure and regulatory threats.

In attempts to promote change, many governments in OECD countries have chosen voluntary approaches that focus on providing information, subsidies and incentives to respond to complex environmental issues, including waste policy (Segerson 2013). This may be a contributing factor to the considerable differences in performance between countries in the effectiveness of their policies to promote recycling, the volumes of waste going to landfill and the use of incinerators (OECD 2017). This has particularly been the case in many countries in the European Union where waste prevention plans have been the preferred method of complying with the EU 2008 waste directive. Countries adopting strong regulations as their approach to improve the effectiveness of waste management, including prevention, perform better than countries that choose largely voluntary campaigns (Castillo-Gimenez et al. 2019; Johansson and Corvellec 2018). Governments that have the highest rates of effective recycling tend to take stronger action through the application of institutional and regulatory measures such as the application of taxes and levies to waste disposal, the banning of landfill and the introduction of legislated stewardship obligations for packaging manufacturers (OECD 2019a).

Research highlights the ineffectiveness of many voluntary measures in environment policy due to ‘weak program design and poor fit with the institutional context’ (Prakash and Potoski 2012, 124). Similarly, a reliance on market-based approaches has contributed to a crisis of recycling in many OECD countries following introduction in 2018 of the China Sword Policy. For countries such as the UK, the US, Australia and Canada, the failure of their recycling programmes required a ‘nationwide reckoning’ of current approaches (Corkey 2019; Jarvis and Robinson 2019). Evidence suggests that jurisdictions with ineffective voluntary measures that recognise the need to take stronger policy action shift to law and regulation to reinforce measures such as product life cycle stewardship, processing charges and fines, as well as other complementary measures (Global PSC 2018, 10). Voluntary measures tend to work more effectively when backed by strong regulatory and enforcement infrastructure, consisting of legal requirements such as authorisations/licenses/permits or standards (OECD 2019a). Deciding to undertake stronger measures requires policymakers to establish political priority for policy change away from incremental proposals to more radical measures that help to

transform current unsustainable practices. For this to occur, however, there needs to be a commitment to change, as regulation is regarded as a challenging undertaking most governments prefer to avoid (Riding et al. 2015).

Weak legislative threats primarily result from the political difficulty of establishing stringent mandatory regulations. Governments implement voluntary measures due to the fear of weak mandatory regulations even though participation rates were low. In addition to political difficulty, it is possible that governments prefer a voluntary approach with a high abatement rate and low participation rate to one with a low abatement rate and high participation rate because the former generates greater social welfare than the latter (Miyamoto 2016). In other words, getting voluntary agreement from a small number of large manufacturers may be more manageable than to attempt to promote comprehensive change. Because participation is not mandatory, there is a trade-off between the participation rate and the abatement rates of individual participating firms. The weak legislative threat particularly results from a legislative mandatory standard in which powerful self-interest groups use political pressure to maintain their positions.

In addition to the introduction of stronger regulations, the OECD (2018) argues that whole of government approaches should also be regulated if effectiveness is to be achieved. In recent decades, policy coordination to support greater policy coherence in multilevel systems has become particularly relevant in many OECD and non-OECD countries, mainly due to the emergence of cross-cutting, multidimensional policy challenges and the subsequent atomisation of administrative structures. It is critical for policy effectiveness to regulate for coherence and improve policy coordination in the way governments work across ministries, agencies and other administrative units. Governments need to strengthen the institutional and financial capacities of their centres of government. For the coordination of waste policy, both vertical and horizontal, within and between jurisdictions in multilevel systems, needs to be a political priority. The policy change literature on environmental policy shows how governments have been reluctant to act, particularly in the integration of new policy initiatives across jurisdictions (Ross and Dovers 2008). In many jurisdictions, environment policy resides primarily with the subnational and municipal governments. According to Dovers (2013), environmental issues are often handled as a matter of convenience and tractability. Some OECD member countries such as Sweden and the UK have strong

traditions and structures of integrated environment policymaking (Jordan and Lenschow 2010). The UK's coordination system (see Russel and Jordan 2009) commits all the constituent parts of the national government to meet commonly agreed objectives. In Sweden, sector responsibility has been the central policy principle that, coupled with a public management style that prefers clearly specified objectives (at the national and, partly, the sectoral level), facilitates integration (Jordan and Lenschow 2010).

Neoliberal approaches that stress strong linkages between government and industry have helped to ensure that powerful industry representatives are placed in positions that directly and indirectly influence the policy decisions that will impact on environmental requirements. New governance arrangements have attempted to establish greater flexibility towards regulation with more innovative forms of control on the principles of responsive regulation that assume that most enterprises respond to 'light touch' directives. Methods include self-regulation and coregulation that may involve commercial interests participating directly with government agencies in designing mechanisms promoting environmental improvements and sanctioning failures. Arrangements can establish non-government agencies that act as controlling and monitoring authorities that operate in the 'shadow' of government. For example, the Australian Packaging Corporation administers the *Australian Packaging Covenant* as a voluntary agreement between some of the larger packaging manufacturers and government since 1999 to improve rates of recycling for plastic packaging (APC 2021). A fundamental challenge of such governance arrangements is how to orchestrate the many possible approaches and relationships available on the legal, regulatory and governance spectrums (Gunningham and Holley 2016).

Research on good policy practice outlines the fundamentals that need to be observed in the policy process: these include clarity of goals, consideration of evidence, rigorous policy design, stakeholder engagement, comprehensive appraisal of options, clarity of the role for government including accountabilities, and the establishment of review and evaluation mechanisms (European Commission 2017). The achievement of the UN 2030 Sustainable Development Goals (SDGs) will require whole-of-government approaches and strengthened institutional coordination and coherence at all levels of policymaking. This will contribute to ensuring more integrated policy frameworks for sustainable development; promote synergies between economic, social and environmental policies; identify

trade-offs; and consider transboundary and intergenerational impacts. For Nilsson and Haring (2017), the identification of synergy and conflict is at three levels: policy objectives, policy instruments and implementation practices, also considering as far as possible outcome and impacts. Without these critical elements, developing and implementing circular economy objectives on waste will be challenging. In order to ensure that these aspects are incorporated into circular economy policies, political priority will be critical.

2.6 CONCLUSION

Waste is increasingly seen as a resource that needs to be reused, a business opportunity rather than an unsustainable environmental cost. How developed countries transition from the current paradoxical approaches to less wasteful, less environmentally damaging and more sustainable practices has become a new challenge that requires urgent attention by governments. Popular solutions focus on moving from the linear economy (take, make and throw away) to circular approaches that promote the reduction of consumption and the recycling and reuse of products, reducing waste and maximising the use of resources. How developed countries transition to sustainable approaches has become a key question of governments in terms of waste policy. In its purest form sustainability progressively eliminates waste by keeping resources in continual use. Such an approach is a dramatic shift and requires the complete transition from well-entrenched linear approaches that have been the foundations for market-based economies.

If stronger regulatory approaches are required in conjunction with traditional voluntary measures, then an important first step requires governments to make policy change a political priority. The policy change literature provides some insights on what is required for a policy issue to take priority on a government's agenda. For complex and challenging issues political attention alone will be insufficient to ensure political action (Baker et al. 2017). Issues need to have political priority before governments commit institutional resources to enacting regulatory interventions (Shiffman and Smith 2007). A framework influenced by multiple policy change theories will help reveal a range of dimensions and their determinants that potentially influence and shape political priority. The framework proposed in this book consists of four interrelated dimensions: political context, power of actors, the influence of ideas and issue characteristics. Kay and Baker (2015) argue that the theoretical pluralism of a such a

framework allows researchers to consider multiple variables and to elaborate on relationships. The book does not intend to establish direct causation for policy change but it will outline useful and plausible results without causal inferences.

As we approach the target date for the UN Sustainable Development Goals in 2030, what happens to our waste over the next decade is a critical question for government policymakers. Current evidence suggests that we need to prioritise more sustainable approaches over business as usual practices. Governments signing on to the Paris Climate Agreement are required to develop their own contributions to mitigate against increasing GHG emissions. These Nationally Determined Contributions (NDCs) can include specifics of waste sector mitigation actions that show how individual countries will manage waste in the future (Powell et al. 2018). Examinations of these commitments reveal that of the 174 signatories to the Paris agreement only 67 cite at least one specific waste sector mitigation commitment (*ibid.*, 139). The focus of these actions is largely directed towards improving landfilling and waste processing through incineration (*ibid.*). This information is somewhat troubling as it shows that less than 50% of signatories intend to take any action to change waste management policy. Also troubling is the assumption inherent in any actions or inactions that governments signing the Paris Agreement seem to have little to no intention of attempting to reduce volumes of waste or shifting from business as usual linear approaches in their economies.

Recommendations for a shift away from linear to circular approaches to waste management are increasingly popular with government and business throughout OECD countries. OECD reports support the transition to circular approaches as a means of putting ‘resources back into environmental and economic systems and reducing material losses through reusing and preventing waste’ (OECD 2019a, 3). As such, the core idea behind the circular economy is not new. There is significant overlap with concepts such as industrial ecology, the waste hierarchy, zero waste and cradle-to-cradle design, which have been debated for decades (Benn and Giurco 2014). Establishing a circular economy will require strong political commitment as it requires significant transitions away from existing business models that rely on the linear approach including the production of waste. Such transitions will seem counterintuitive to business that rely on these approaches for their profitability. Hood (2016, 440) argues that conspicuous consumerism was encouraged at the turn of the twentieth century to redress the imbalance between overproduction and demand,

and that circular policies must now encourage conspicuous non-consumption and reuse as the new signifiers of self-worth. The next chapter will outline the essential elements of the circular approach and its relevance to establishing sustainable waste management.

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The Promise of the Circular

Abstract This chapter focuses on the circular economy. Of particular interest is the theoretical background to the concept. Contemporary government responses are also outlined with particular attention to the drivers and barriers governments face in implementing policies to promote a circular economy. The conclusion suggests that governments need to establish a political priority for policy change to help ensure that; circular approaches can be taken in implementing waste management policies.

Keywords Circular economy • Drivers and barriers • Policy change • Political priority

3.1 INTRODUCTION

The promise of the circular economy is future prosperity based on a closed-loop system that will benefit business, citizens and the environment. Milios (2018, 862) argues the concept is ‘combining old and well established notions of resource efficiency while making explicit the economic aspect of saving resources and the potential gains it accrues’. The concept of a circular economy has its roots in industrial ecology, which envisions a form of material symbiosis between otherwise very different companies and production processes (Andersen 2007). Industrial ecology emphasises the benefits of recycling residual waste materials and

by-products through, for example, the development of complex interlinkages, such as those in industrial symbiosis projects. Transition to the circular economy requires cooperation across government, industry and society towards key objectives. Through the concept of stewardship, manufacturers will be required to rethink how they design products and use resources in more sustainable ways by focusing on binding arrangements that are determined by the entire life cycle of their products. Designers and engineers will be encouraged to focus on innovative, resource efficient design that allows products to be easily disassembled and repaired. Businesses will be encouraged to look at new business models that prioritise circular activities, like the prevention of consumption and moving from product sales to the leasing and servicing of products. Retailers, distributors and manufacturers will all be encouraged to take greater responsibility for reducing waste by supporting the return, refurbishment and recycling of end-of-life products. Consumers will be encouraged to make informed purchasing decisions that create demand for circular and sustainable products and commodities, including reusable and durable products and products made from recycled content. Increased use of sharing platforms and repair hubs that extend the use and life of a product are also important. The reduction of waste and the promotion of recycling industries are critical to circular approaches in collecting waste materials and end-of-life products and processing them for use in new products, ensuring they remain in the economic loop and their value retained. Government policy plays an important role in supporting the transition by industry and society and promoting widespread penetration of circular objectives. This chapter outlines current policy focus and discusses the drivers and barriers governments face when choosing to pursue a transition from a linear to a circular economy.

3.2 A CIRCULAR ECONOMY

Researchers and policymakers advocating the circular economy regard it as an alternative to the prevailing model of economic development. The conventional open-ended system, generally known as the ‘linear economy’, based on the ‘take, make and dispose’ model is unsustainable, which Andersen (2007) describes in this simple diagram (Fig. 3.1).

In the model, natural resources (R) are used in production (P), to develop (C) consumer goods and capital goods (K), with the aim of creating (U) utility or welfare. This model is seen as problematic and faces considerable challenges in terms of economic, social and environmental

Fig. 3.1 The conventional open-ended economy (Andersen 2007)

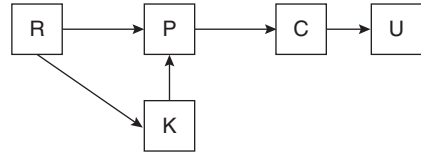
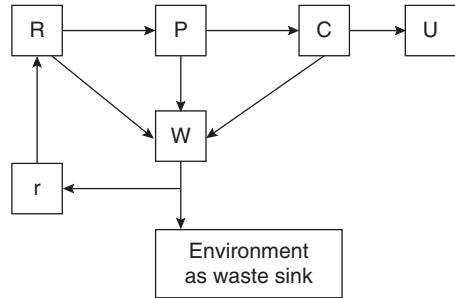


Fig. 3.2 The simplified closed-loop circular economy (Andersen 2007)



sustainability, and, as a result, so does the modern economic system (Korhonen et al. 2018). The twin issues of reliance on finite resources and the environmental damage caused by waste mean that discussions on the future of the model have been given potency in contemporary debates on climate change mitigation and sustainable development. The circular model is discussed as a more sustainable cyclical flow model which reduces negative environmental impact by reducing reliance on virgin resources and recycling existing resources from waste. Academically, the concept emerges from industrial ecology, industrial symbiosis, product-service systems, remanufacturing, corporate responsibility, sharing economy and zero waste (Ranta et al. 2018). The circular approach places emphasis on product, component and material reuse, remanufacturing, refurbishment, repair, renewable energy utilisation throughout the product value chain, and cradle-to-cradle life cycle. Andersen (2007) also presents a simple model of a circular model (Fig. 3.2).

In this model, the components of (r) for recycling and (W) for waste are added to close the loop so the economy becomes circular. Andersen (2007, 134) points out that not all waste can be recycled, ‘partly due to missed opportunities and partly due to some basic physical laws’. How such waste can be managed remains a challenging issue involving the potentially environmentally harmful options of landfill and incineration.

The application and focus towards a circular economy in different countries tends to be based on institutional and political factors. Studies of the approach in China, for example, have revealed a top-down focus with a national political strategy, with implementation structured following both a horizontal and a vertical approach (Zhijun and Nailing 2007). Circular policies in China target the different levels of industrial/societal systems and seem to draw directly from theories of Industrial Symbiosis and Industrial Ecology systems (Milios 2018). China has been one of the early adopters of the circular approach and there has been an emphasis on eco-industry, eco-farming, green services, and the reuse and recycling industry. In contrast the focus in the European Union (EU), according to Ghisellini et al. (2016), has been primarily directed to developing efficient and effective waste management. The discourse of zero-waste and the circular economy has been championed by key players, such as the European Commission (EC), management consultancies, NGOs and multinational companies, in recent years (Valenzuela and Böhm 2017). In this regard a circular economy is primarily discussed through the 3R principles of the waste hierarchy of reducing, reusing and recycling (Ranta et al. 2018; Milios 2018). The Organisation for Economic Co-operation and Development (OECD) also takes a waste management-based approach and emphasises resource efficiency and effectiveness as key values. In its detailing of circular business models, the OECD focus in on the following:

closing resource loops (the diversion of waste from disposal and subsequent transformation into secondary raw materials), slowing resource loops or flows (the retention of products, and their constituent materials, in the economy for longer periods), and narrowing resource flows (generating additional economic value from a fixed amount of natural resources). (OECD 2019a, 20)

The OECD recognises that the ideas emphasising sustainability are not new. What is new however is the changing circumstances that are driving the need for change as a result of the unsustainable practices established in the linear economy, including urbanisation, heightened supply risks and evolving consumer preferences. The circular model is seen as an effective way to improve efficiency through replacing traditional material inputs with bio-based and renewable source materials. Ideally, however, recycled materials should form the bulk of materials used in production processes (OECD 2019a).

The promotion of the circular economy by the EU takes a similar focus to that of the OECD. Unlike the voluntary guidelines taken by the OECD, the EU approach has been to promote the introduction of mandatory legislation with regulations and directives that are binding for member countries. In 2014, the European Commission released *Towards a circular economy: A zero waste programme for Europe*, emphasising the link between the circular economy and waste management. The EU claimed the economic benefits of a circular economy would be numerous, including enhancing the security of supply for raw materials, stimulating GDP growth, strengthening the competitiveness of businesses in the EU, and helping to protect the environment (European Parliament 2014). The EU Directive 2018/851 on waste updates a 2008 Directive and establishes targets for waste prevention, reuse and recycling that reflect the EU ambition to move to a circular economy. There has been mixed response by member states to the 2008 Directive so in 2018. The EU argued that it needed to set clear targets to improve performance:

Many Member States have not yet completely developed the necessary waste management infrastructure. It is therefore essential to set clear long-term policy objectives in order to guide measures and investments, notably by preventing the creation of structural overcapacities for the treatment of residual waste and lock-ins of recyclable materials at the lower levels of the waste hierarchy. (EU 2018, 2)

The EU Parliament argues that since its original Directive not enough has been done to shift the economy towards more circular practices. For this to occur, it had become necessary to take additional measures on sustainable production and consumption. The 2018 Directive emphasises the important role of municipalities, as the countries that perform well in terms of waste management do so because they have developed efficient municipal waste systems. The central argument for reform stresses that the more ‘efficient use of resources would also bring substantial net savings for Union businesses, public authorities and consumers, while reducing total annual greenhouse gas emissions’ (EU 2018, 2). Critique of the 2008 Directive was directed at what was seen as an overemphasis on recycling over the other pillars of the circular economy, particularly the prevention of waste in the first place by changing attitudes to consumption. Other issues included promoting the reuse of materials and delinking process with the introduction of policies at all stages of waste production and

disposal (Mazzanti and Zoboli 2008). By focusing on the municipal level, the EU again demonstrates that its version of the circular economy is focused on the ‘end of the life cycle’ with the aim to limit resource loss and increase the circulation of materials mainly through recycling (Milios 2018, 867).

Many member states of the EU adopt their individual policy approach to achieve the targets set in the 2018 Directive. The EU regulations are taken as a minimum standard and some countries have set higher targets. Data collected to measure progress reveals inconsistent levels of recycling, landfill and incineration across the EU, as illustrated in Fig. 3.3.

Research by the European Environment Agency shows that 19 out of 35 EU countries increased their recycling rates by 10% over the period of the 2008 Directive. In some countries, such as Estonia, Malta and Serbia, the very low proportion of recycled municipal waste barely changed (EEA 2019). Results suggest that there are inconsistencies in the approaches taken and factors unique to each jurisdiction that impact on the actions taken and the results achieved. One clear indicator from the results is the correlation between recycling and landfilling. The EEA argues that there is a link between increasing recycling rates and declining rates of landfilling. In countries with high municipal waste recycling rates, landfilling is declining much faster than recycling is growing, as waste management strategies usually move from landfilling towards a combination of

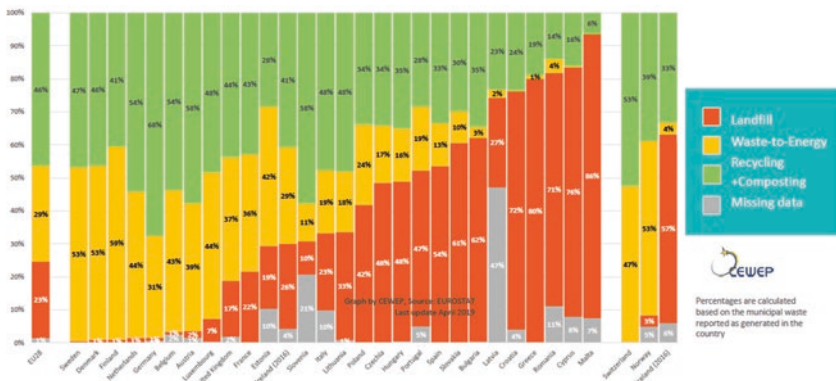


Fig. 3.3 Municipal waste treatment, EU + Switzerland, Norway and Iceland (Source: CEWEP [2017], Graph on European Waste Management 2015. In www.cewep.eu/information/data/graphs/index.html)

recycling and incineration (EEA 2019). The EU Directive of 2018 reinforces the commitment to waste management as the focus of policy action to move from the EU from a linear to a circular economy. New targets reinforce the importance of recycling over landfill, the mandatory separation of bio-waste and the application of the ‘polluter pays’ principle through extended producer responsibility (see Table 3.1).

The EEA figures show widespread support for establishing some form of a circular economy by the majority of EU countries. While mandatory measures established by the EU have produced mixed results, there has been a shift towards a focus on sustainability. Much of the enthusiasm for the circular economy seems to be fuelled by its alleged benefits for sustainable development (Kirchherr et al. 2018). In 2013, Stahel argued that the concept had not reached any wide implementation stage, because policymakers and economic actors know neither the basic principles of a circular approach, nor their impact on the economy. There has been considerable debate on a clear definition of a circular economy (CE) (Kirchherr et al. 2017). There is agreement that it is a contested concept (Korhonen et al. 2018). Scholars seem to have reached a common understanding on a ‘meta-definition’ based on analysis of the circular economy literature. Accordingly, in the literature there seems to be some agreement that a circular economy:

Table 3.1 EU waste management targets 2020–2035 (EEA 2019)

<i>Waste management</i>	<i>Targets and dates</i>
Increase rates of reuse and recycling of municipal waste	55% by 2025 60% by 2030 65% by 2035
Increase recycling of packaging waste	65% by 2025 70% by 2030
Reduce landfill to a maximum % of generated municipal waste	10% by 2035
Ban on landfilling of waste suitable for recycling	By 2030
Mandatory separate collection of bio-waste	By December 2023
Mandatory separation of textiles and hazardous waste from households	By January 2025
Minimum requirements for all extended producer responsibility	
Simplified and improved definitions and harmonised calculation methods for recycling rates throughout the EU	

Source: Author derived from (EEA 2019)

describes an economic system that is based on business models which replace the ‘end-of-life’ concept with reducing, alternatively reusing, [and] recycling [...] materials in production/distribution and consumption processes, [...], with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations. (Kirchherr et al. 2017, 224–225)

Both the EU and OECD argue that there is no official definition of the concept of a circular economy (EC 2015; OECD 2019c). The application of the concept becomes problematic when it comes to informing policy processes, as it includes specialised terms that are challenging to conceptualise and operationalise at a policy level. Common terms used in relation to a circular economy such as ‘restorative’ and ‘regenerative’ are not clear enough in a policy context, while ‘superior design’ is rather an arbitrary term not related to any criteria or assessment (Milios 2018, 863). Despite the lack of clarity, the enthusiasm for a circular economy continues and various policy initiatives have been adopted and implemented by governments claiming to be promoting circular over linear approaches.

3.3 POLICY FOCUS

Which aspect of the circular model a government chooses as its policy focus will be influenced by multiple factors. As McConnell (2010) argues, we need to recognise that governments do ‘policy’ as well as ‘politics’. It would be ‘naïve to suggest that the processes of policy making, or the types of policies chosen are devoid of the political interests of parties or government’ (ibid; 25). Policy options are assessed in terms of their potential political costs and benefits to government. What determines the choice has been the subject of inquiry by policy scientists. Policy choice can be influenced by evidence, intuition, ideology, conventional wisdom or, at best, theory alone (Banks 2009). Typical circular responses tend to promote recycling, and support for incineration, labelled as ‘waste to energy’ (WtE) initiatives. Incineration is regarded as another form of disposal because of the pollution generated and the missed opportunities of reusing valuable resources. Governments also make statements about looking for ways to reduce waste through stewardship requirements, or ‘zero-waste’ initiatives that are typically based around voluntary arrangements with industry. Waste management is seen as critical component of a

circular economy as it concerns the end point of the manufacturing process where opportunities for economic benefit have been otherwise lost in linear arrangements.

For the OECD, the circular economy is transformative, systemic and functional and involves three key aspects:

1. It implies behavioural and cultural change towards different production and consumption pathways, new business and governance models in a shared responsibility across levels of government and stakeholders.
2. It provides an opportunity for complementarities across water, waste, energy, transport, housing and land use.
3. Inflows and outflows of materials, resources and products require a reaction on the appropriate scale at which the circular economy is applied and on functional linkages across urban and rural areas (OECD 2019c, 7).

OECD member countries have been developing circular policies to promote what they see as a necessary transition to more sustainable approaches. Based on the 3R principles of reduce, reuse, and recycle, these countries have placed emphasis on waste management as the key CE policy action. The example of Denmark typifies the approaches taken by national governments in the OECD:

It is the goal that by 2050 Denmark will be a society that recirculates materials and products to the extent that waste no longer exists. A society that solely uses the resources that our one and only planet can replace. Every country in the world will be forced to go through this transformation, which will generate growing global demand for circular technologies and solutions. (Denmark 2018, 8)

City governments also commit to establishing a circular economy primarily through the adoption to waste management approaches. The Canadian city of Vancouver follows the typical pattern of city governments attempting to use the circular economy as a means of marketing their ‘green’ credentials.

A graphic illustration of the role waste plays in the OECD’s ideas about promoting reduced demand on finite resources can be seen in the impact of circular business model on the linear economy as shown in Fig. 3.4.

Vancouver Zero Waste Strategy

With Council’s direction and input from residents and stakeholders, staff have developed Zero Waste 2040, a plan for moving the city towards becoming a zero-waste community. Moving in this direction increases Vancouver’s resiliency to growing demands on limited available waste disposal facilities, including the Vancouver Landfill, mitigates future risk to Vancouver taxpayers, and supports the management of waste materials as resources. The Plan recognizes the need for, and supports a transition to, a more circular economy; shifting away from a traditional ‘extract-produce-consume-dispose’ economy to one in which materials remain in circulation. By de-coupling economic prosperity with the generation of waste, this plan provides an opportunity for innovation and attracting new businesses creating more ‘green’ and inclusive jobs. In the long term, the implementation of this plan will support the City’s vision of becoming the greenest city in the world and make Vancouver a more resilient city in the face of climate change and increasingly scarce and costly resources (VEC 2020).

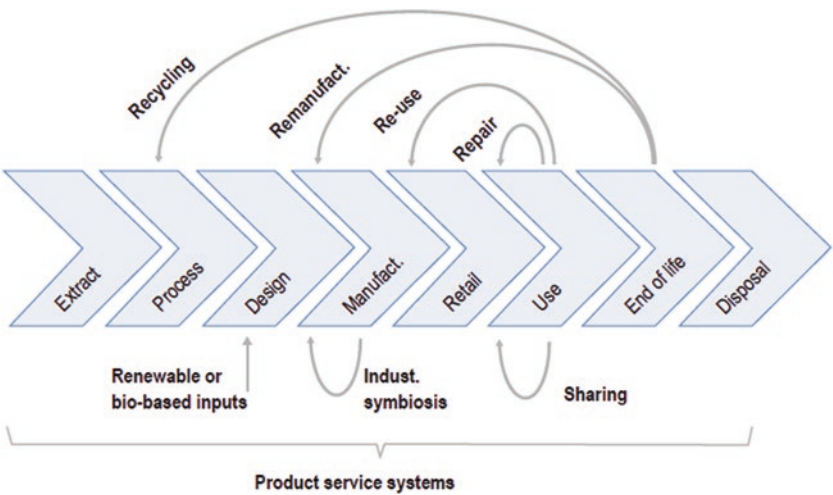


Fig. 3.4 The impact of circular business models on the linear economy (OECD 2019a, 26)

Countries have adopted a range of policy instruments designed to promote a shift towards more circular practices. Table 3.2 provides examples from select OECD countries designed with the aim of reforming waste management practices. While there are some commonalities, there are also

Table 3.2 Select policy instruments

<i>OECD member country</i>	<i>Select CE policy instruments</i>
Netherlands	Landfill ban Pay as you throw pricing Full cost recovery of waste management costs Procurement used as a tool for promoting CE—support for recycled goods
Korea	Pay as you throw pricing, volume-based waste fee Extended producer responsibility Use of eco-labels for public procurement Target areas where high risk of non-compliance
France	Legislation on consumption and prevention of planned product obsolescence Product durability legislation Legislated product guarantee

Source: Author (derived from OECD 2019b)

differences, suggesting there needs to be consideration of contextual issues when examining this area of policy.

Governments examining options for effective policies recognise that individual policies can induce particular desired outcomes. In terms of waste management effective circular policies can increase the potential of resource circulation across the different stages of a product's life cycle, depending on the focus of each policy. Research suggests an emphasis on one aspect of circularity such as recycling can act as a barrier to other important elements, such as reuse. Legislative support for recycling and waste-to-energy measures actually do little to help reduce consumption. Research shows that recycling only closes the loop between post-use and production and does not influence the speed of the flow of materials or goods through the economy (Stahel 1981). To help support policy consistency and prevent contradictory policy implementation the EU (2015) Action Plan for establishing a circular economy recommends the implementation of policy measures covering the full life cycle of products from production to consumption, to waste management and the market for secondary raw materials (EC 2015, 2).

How countries progress to a circular economy is subject to considerable debate. There is a growing literature attempting to identify the main challenges and barriers to the implementation of circular initiatives. Galvão et al. (2018) reveal a range of barriers that fall into categories including

technical, policy and regulatory, financial, managerial, customer and social. De Jesus and Mendonça (2018) examine social, regulatory and institutional barriers, and argue that more work needs to be done on identifying the limitations of technical innovation. Ranta et al. (2018) suggest an institutional approach to identify regulative, normative, and cultural-cognitive pillars that serve as critical barriers. Common to these assessments is the view that government policy and regulations are fundamental to whether advances can be made or whether progress remains limited.

The patchy record of past EU circular policy initiatives in achieving non-linear sustainable resource use and waste management outcomes supports the view that the current package is unlikely to generate the degrees of social, economic and technological change required by the circular economy (Fitch-Roy et al. 2019). Ranta et al. (2018) examine barriers in China, the US and Europe and conclude that the narrow policy and regulatory focus on recycling as one of the pillars of a circular economy stands as a critical barrier to the other pillars of reduce and reuse. Given the array of barriers that implementation faces (Kirchherr et al. 2018), successfully disrupting the deeply entrenched, unsustainable patterns of production and consumption requires, more radical approaches to policy design than circular economy proponents currently acknowledge (Fitch-Roy et al. 2019, 14). There appears to be a need to shift from current incremental approaches of the past to more radical policy approaches if system-wide change is to occur. The material covered so far in this chapter reveals that there are mixed results between countries, in achieving even the fundamentals of a circular economy. According to the assessments of drivers and barriers to achieving a circular economy, government policy plays a critical role. The next section examines both the drivers and the barriers to the implementation of a circular economy so we can have a clearer understanding of the current situation, particularly as we examine attempts to promote higher levels of sustainable development through applying circular principles to waste management.

3.4 DRIVERS AND BARRIERS

Research by the OECD reveals that the ‘market penetration of circular business models remains limited’ (2019a, 98). Countries such as China and the Netherlands are seen to be leading examples. Van Buren et al. (2016, 7–8) highlight the contribution of government policy to the effectiveness of circular initiatives for local business. They argue that the Dutch

national government has been actively supporting bio-based economy, and, subsequently, circular economy. It has become an important programme within the Environmental directory, named ‘from waste to resources’, and in the economic ‘green growth’ policy. A governmental programme has been developed in collaboration with sustainable business associations, to explain and promote circular economy to SMEs across the country, to provide training and start-up support, and to communicate best practices. Budget has been allocated to scientific research into circular business models. Geissdoerfer et al. (2017) show that a few countries have taken the lead in the conceptual development of a circular economy, with China as the top-ranking country, which, they argue, is not surprising given its legislative approach through the *Circular Economy Promotion Law*. If governments are to move beyond proclamations of their support for a circular economy, more radical approaches to policy design are required. The OECD (2019a) recognises that government policy plays an important role in promoting more widespread penetration of circular approaches. If systems of governance are to deliver the radical public policy needed, then political priority is a critical requirement to facilitate change.

In 2019, the OECD conducted a survey on the status of the circular economy in 34 cities and regions (31 cities and 3 regions), and the main tools, obstacles and good practices available to date. The survey targeted cities and regions at any level of implementation of circular economy initiatives, from pioneers to newcomers (Fig. 3.5).

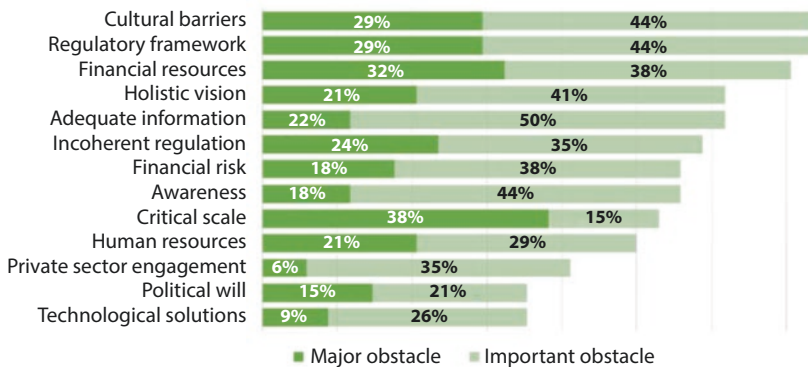


Fig. 3.5 OECD Survey on circular economy in cities and regions (2019c)

The survey results highlight the importance of cultural barriers which include public attitudes to consumption, waste disposal and recycling as critical to transitioning to a circular economy. Similarly, financial resources are needed to overcome market failures and facilitate the development of new recycling facilities that may not have established markets. The support of government policy that establishes regulatory frameworks that support the transition to a circular economy and promote vertical and horizontal cooperation and coordination of policy initiatives. Further research by the OECD reviewed the waste management practices of member countries and the linkage of circular principles to waste. The findings support the need for proactive government policy in establishing a regulatory framework and to reduce barriers to the implementation of circular approaches throughout the waste management process.

A key barrier to the implementation of a comprehensive and coherent circular economy policy mix can be the absence of an effective institutional framework. In order to develop and implement policies that support the move to a circular economy, OECD countries should seek to build broad government support and inter-ministerial co-ordination for effective policies that address all stages of the materials life-cycle. (OECD 2019b, 27)

The OECD elaborates further on these obstacles and recognises seven common barriers and limitations to the adoption of circular models and provides suggested policy responses for governments, as outlined in Table 3.3.

3.5 CONCLUSION

Identifying the drivers and barriers to implement circular policies is an important first step to help focus policy priority to areas of relevance and impact. There is an emerging literature highlighting implementation issues, and this will help identify the areas requiring political priority for the development of relevant waste management policy. Ranta et al. (2018) have undertaken a comprehensive analysis, based on an institutional approach, and reveal a cross-section of policy-related issues that can help guide policymakers. The attraction of an institutional approach is that it provides a lens that reveals social, political and cultural aspects that form a complex asymmetry of factors that help guide political attention and policy action. Critical to our understanding of political priority, an

Table 3.3 Common barriers to circular business model adoption and potential policy response (OECD 2019b, 99–100)

<i>Barrier</i>	<i>Policy response</i>
Traditional business models use virgin resources that are cheaper than recycled material	Policy can help to ensure that the full environmental costs of production and consumption activities are reflected in market prices.
Design decisions in traditional manufacturing models do not adopt material recovery and product life extension. Built in obsolescence reduces useful life of raw and manufactured materials.	Policy can help to improve collaboration within and across sectoral value chains. Fostering industrial symbiosis clusters, promoting online material marketplaces, establishing secondary raw material certification schemes and, more generally, facilitation of cooperation within and across value chains may be worthwhile initial steps.
Subsidies and taxes can favour use of natural resources and favour traditional modes of economic production.	Policymakers could consider what objectives existing fiscal policy is serving, and whether a fiscal realignment could lead to improved environmental and equity outcomes.
Status quo biases effectively lend inertia to current patterns of economic development, often at the expense of the emergence of circular business models.	Policy could therefore aim to ensure that existing regulatory frameworks are coherent and fit for purpose, and not serving to preserve an existing status quo.
In some cases, the development of markets for circular products and services appears to be held back by a lack of consumer interest.	Policymakers could consider how existing educational and information programmes can be improved to provide individuals with a better understanding of the unintended consequences of their consumption choices. The use of behavioural insights and nudges, such as through labelling requirements, may be a promising way forward.
Policymakers interested in promoting the more widespread adoption of circular business models could implement a range of additional enabling policy measures.	Examples of the former include eco-design standards, strengthened EPR schemes, and the provision of targeted R&D funding. Examples of the latter include differentiated VAT rates, recycled content mandates, product labelling standards, and green public procurement.
Transition to a more resource efficient and circular economy will be at least partially driven by the diffusion of material efficient production technologies and the emergence of more cost-competitive circular business models.	Policy can influence the composition (and therefore the environmental footprint) of the rebound effect by ensuring that the full social costs of production and consumption are reflected in market prices.

institutional approach identifies the regulatory aspects that can both support and inhibit the adoption of and transition to a circular economy (Ranta et al. 2018, 72). Examples they provide show how regulations, such as a ban on landfill, can help to support circular initiatives by discouraging wastefulness and motivating circularity. De Jesus and Mendonça (2018) regard institutional and regulatory factors as soft drivers and barriers. For them the emphasis on public policy measures such as legal frameworks, taxes, incentives and infrastructure development help address market failures as well as supporting opportunities for innovation and entrepreneurship that shift the economy to greater levels of circularity. Government policy plays the leading role in promoting the institutional framework. In their analysis of China, the US and the EU, Ranta et al. (2018) found that poorly designed regulatory barriers are one of the most important factors limiting the development of a circular economy. Government regulations also impact on the social and cultural factors relevant to a circular economy. For example, education campaigns can inform citizens and promote behaviour change to less wasteful practices. Well-designed evidence-based government regulations can support cultural norms that regard sustainability as an important and desirable aspect of economic activity. In addition, accurate and appropriate definitions of waste can stem from government policies that identify waste as a resource for reuse and recycling.

Despite the challenges, there is still enthusiasm for the concept of a circular economy as a framework for future sustainable economic development. Government policy will continue to be a key aspect future transition. Policymakers examining methods of establishing circular approaches will operate within the constraints of their institutional arrangements where radical change may not be possible. The focus on closing loops places a circular economy at odds with many of the norms, logics and routines of the linear economy, which, in many ways, makes it counterintuitive to established economic patterns for growth. Long-standing modes of governing the waste systems have established social, institutional, and financial arrangements benefiting policy actors and organisations based on linear arrangements (Bulkeley et al. 2007; Pollans 2017). The argument of this book is that moving to more effective approaches will require facing the challenges and barriers highlighted in the literature. Political priority needs to be given to move beyond current approaches. We need to examine what is required to accord these issues a higher policy priority to help ensure that more radical approaches are adopted. Public policy

literature could provide the answers to this question. There is a need for policy design, for policy coherence and to broaden the scope of circular policy to reflect all pillars of a circular economy not just recycling. For effective transition to occur, these matters need to achieve high political priority on the policy agenda of government to promote change. In the next chapter, a framework based on this literature will be proposed as a means of understanding the complexities of establishing political priority and policy change.

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The Challenge of Political Priority

Abstract This chapter establishes a multi-theory framework to help explain factors and conditions promoting a political priority for policy change. The dimensions of the framework are outlined in the context of waste management policy. The framework is presented as a tool for analysis to identify the specific characteristics contributing to the challenge of policy change. The conclusion leads to the case study chapters that will adopt the framework to examine the issues faced by governments in adopting and implementing circular principles to establish sustainable approaches to waste management.

Keywords Political priority • Framework • Policy change • waste management policy

4.1 INTRODUCTION

In the previous chapters, some of the fundamental weaknesses of current approaches to advancing circular objectives have been revealed. A focus on ‘end of pipe’ policies has been at the expense of the other circular objectives, including social/cultural factors, particularly the reduction of consumption and demand-side objectives to promote greener practices and more sustainable choices (De Jesus and Mendonça 2018). We have seen that despite the challenges and barriers to effectiveness, many governments

continue to make commitments to transitioning from a linear to a circular economy model. Research shows that in 11 Organisation for Economic Co-operation and Development (OECD) countries, with demonstrated commitment to circular objectives, the appropriate institutional arrangements and supporting measures to facilitate the transition were often missing (OECD 2019). While the common approach has focused on waste management, particularly recycling, other actions include green public purchasing, public information and awareness-raising measures, and private sector initiatives, such as voluntary agreements. Achieving effective circular approaches requires policies that address all stages of the materials life cycle. The approach adopted by the EU 2008 Directive was to support planning as the vehicle for change. Research now shows this has contributed to the variations in performance of countries in achieving the waste management and prevention targets (Johansson and Corvellec 2018). This focus of this chapter is to suggest that raising policy priority will be necessary for circular approaches to waste management to become a more central or salient policy commitment.

Survey research undertaken in 2018 of the circular economy plans developed by EU members revealed that more than 85% of policy initiatives are based largely on voluntary measures involving different types of communicative measures in the form of information campaigns (22%), cooperation (9%), investigation (32%) and promotion (23%) (ibid.). Close analysis of waste plans across EU countries reveals a disinclination to address the causes of waste generation. The ultimate purpose of waste prevention plans should be to break ‘the link between economic growth and the environmental impacts associated with the generation of waste’ (European Commission 2018, 18). Yet, measures to reduce consumption constitute less than 1% of all measures in the plans. At the national and European levels, each plan offers only one suggested measure to reduce consumption, while none is offered at the local level. Hence, out of 269 measures, only 2 aim to reduce consumption. Typical measures for waste prevention in the plans are voluntary and adopt the typical lexicon of policy initiatives that are impossible to measure with any accuracy. For example, plans merely commit governments to ‘participate in cooperation’, ‘give advice’, ‘examine opportunities’, ‘develop guidance’, ‘work to facilitate’, ‘promote’, ‘inform’, ‘identify’ and ‘coordinate’. Such measures are soft, not legally binding, with a low degree of governmental intrusiveness and coercion. Most importantly, these measures reflect poor policy practice for implementation and managing performance (Van Dooren

et al. 2010). With these features there is no measurable way to determine if government initiatives actually make a difference: relevant indicators are difficult to develop, and policies cannot be accurately evaluated; as a result, policy learning and improvement become extremely difficult. Establishing institutions and designing policies to deal with the challenges of transitioning to a circular economy requires an understanding of how policymaking processes work, the relevant trade-offs, and the roles of incentives and political barriers to policy implementation (Sternier et al. 2019).

Despite government displays of enthusiasm to take policy action, there has been a reluctance to adopt regulatory measures. Some suggest that the degree of difficulty for regulatory interventions is much higher than for voluntary enabling and education-based approaches (Bulkeley 2010; Rosenzweig et al. 2011). Governments considering mandatory measures can face challenges including perceived adverse effects on industry in terms of employment, productivity and profitability. Environmental regulations have been a particular source of debate in terms of their cost and their negative impact on business (Dechezleprêtre and Sato 2017). As an example, how to reduce the impact of plastic from causing harm to the environment has become a key challenge for governments (Kaza et al. 2018). For consumers, plastic is increasingly impossible to avoid as manufacturers and retailers use it for convenience and durability to avoid contamination and extend product life (Clode 2018). When considering appropriate responses to plastic pollution, governments have been reluctant to propose mandatory measures that would reduce the volumes of plastic in the waste stream because of the potential pushback from consumers, business and industry (Falkner 2017; Clapp 2012). Dauvergne (2018, 23) argues that the current situation, particularly with plastic waste, ‘reflects successful industry advocacy of insipid, business-friendly governance interventions under the guise of corporate sustainability, contributing to an overconfidence in the value of individual responsibility and corporate self-governance as management principles’. As a result, researchers continue to argue that when dealing with such environmental issues, stronger government regulation is pivotal to effective policy change and needs to be stricter, with binding targets and timelines (Dauvergne 2018; Borrelle et al. 2017; Simon 2016; Simões and Marques 2012). We will see in this chapter that policy change involves understanding the political context, the role of key actors in the policy process, the role of ideas in shaping public acceptance for change and influence of the

characteristics of waste as a policy issue. This chapter will outline a multi-theory framework designed to help understand the complexities associated with according these issues a higher policy priority for change.

4.2 A THEORETICAL FRAMEWORK

Building broad government support is fundamental to taking the steps necessary towards achieving circular economy objectives to establish more effective ways to prevent and manage waste and support environmental sustainability (OECD 2019). The argument in this book is that government support alone will be insufficient, and political priority for action is required. For complex and challenging issues, political attention alone will not ensure political action (Baker et al. 2017). Policy change on complex issues requires political priority before governments commit to resourcing interventions (Shiffman and Smith 2007). If governments are to establish effective policies needed to promote circular from linear economic systems, ways are needed to be found to promote priority for policy change with stronger regulatory commitments to circular economy objectives that support a focus on consumption and waste prevention. Waste prevention is broadly considered as having greater environmental potential than the dominant waste management practices of landfilling, energy recovery and recycling (Gentil et al. 2011). Waste prevention is a policy priority in the EU Directive of 2018, and more generally a recommendation from the OECD for the last two decades (2000).

The policy change literature provides guidance and explanation on potential options and consequences to promote priority for stronger action. A framework influenced by multiple policy change theories will help reveal a range of dimensions and their determinants that potentially influence and shape political priority (see Table 4.1). The core argument here is that with political priority the likelihood of policy change towards achieving circular economy objectives will be increased. The framework consists of four interrelated dimensions: political context, power of actors, the influence of ideas and problem characteristics. Kay and Baker (2015) argue that theoretical pluralism, as it is applied in the framework, allows researchers to consider multiple variables and to elaborate on relationships. The framework does not establish direct causation for policy change but outlines a series of determinants from which causal inferences can be drawn.

No single determinant in the framework is sufficient or necessary to generate priority for policy change, but each contributes to increase its

Table 4.1 Framework on dimensions of political priority setting

<i>Dimension</i>	<i>Description</i>	<i>Determinants shaping political priority</i>
Political context	Political and institutional environments in which actors operate	Constitutional responsibilities of government in multilevel systems. Policy windows: political moments, including events, when conditions align favourably, presenting opportunities for advocates to influence decision-makers Governance structure: the degree to which norms and institutions operating in a sector provide a platform for effective collective action
Power of Actors	Strength of individuals and organisations concerned with the issue	Policy community cohesion: degree of coalescence among the network of individuals and organisations centrally involved with the issue Leadership: the presence of individuals capable of uniting the policy community and particularly strong champions for the cause Political parties: the extent to which political parties can facilitate or block policy priority leading to regulation Civil society mobilisation: the extent to which, for example grassroots organisations and academics mobilise to press political authorities to address the issue Industry mobilisation: extent to which corporations mobilise to pressure political authorities to address climate issues
Influence of ideas	How actors understand and portray the issue	Internal frame: degree to which the policy community agrees on the issue definition, causes and solutions External frame: public portrayals of the issue in ways that resonate with external audiences, especially political leaders
Problem characteristics	Features of the problem	Credible indicators: clear measures that show policy action to be effective Severity: the size of the burden relative to other problems, as indicated by objective measures. The urgency of the problem prompted by an event/crisis Effective interventions: extent to which proposed solutions are clearly explained, cost-effective, backed by scientific evidence, simple to implement and inexpensive

Source: Author; derived from: Jones, S. (2020). Establishing political priority for regulatory interventions in waste management in Australia. *Australian Journal of Political Science*, 55(2), 211–227

likelihood. Similarly, in some instances, there may be overlap between the determinants. For example, there is a recognised link between how policy problems are framed, how the problem is understood and the nature of the political action taken. It is the proposition of this book that the political priority framework can be used to investigate factors restricting or facilitating more coordinated and regulated policy action in the context of achieving circular economy objectives. The book's theoretical contribution examines how these various parts can integrate to promote or challenge policy change. In doing so, the framework will identify established power relationships among key actors, the material structures established to support their power, and the ideational framing that contributes to challenging the status quo.

4.3 EXPLAINING THE FRAMEWORK

4.3.1 *Political Context*

As a starting point, the institutionalism literature highlights the need to understand political context to guide actors within institutional structures that significantly influence establishing priority to instigate policy change (Mintrom and Norman 2009). Bell argues that 'institutions matter in political life. More specifically, it is about how the behaviour of political actors is shaped and conditioned by the institutional contexts in which they operate' (2006, 363). Constitutional responsibility sets the context for policymaking; it impacts on laws, customs and established practices and organisational settings that can be powerful and determining for policymaking. This is particularly the case in multilevel systems where policy responsibility for specific issues can rest with one level of government. As mentioned above, responsibility for waste management and environmental issues tends to fall to subnational and local governments. The framework highlights three political context determinants essential for raising the priority of policy initiatives. The first is the constitutional responsibilities in multilevel systems. Within federal systems subnational governments' responsibility for waste can contribute to challenges faced by national governments if they attempt to develop consistent national approaches. For example, state resistance to perceived interference by national governments in Australia and the US has prevented the establishment of consistent approaches to waste management and the recycling industry (Boteler 2018; WWF 2019). A fiscal imbalance can often ensure

the financial weight of national governments and their capacity to incentivise and shape normative behaviour. These challenges are intensified in the European Union where subnational or regional governments can limit the consistency of changes to waste policy agreed by the European Parliament. The impact of this has been producing inconsistent results across the EU in terms of reducing use of landfill and promoting recycling (EEA 2019). Constitutional responsibilities within multilevel systems set the context for intergovernmental relations, and, in the case of waste management, they have played a significant role in determining challenges for policy change.

Where political support for policy change is weak, even after official adoption of policy decisions, implementation will be problematic as ambitious change could face an adverse political and administrative environment. The implementation of the waste hierarchy into waste management; policy objectives or measures promoting eco-design, recycling and reuse; targets for decoupling waste generation from economic growth; and extended producer responsibility schemes, these may all be seen as means of incorporating circular economy principles into policy and legal frameworks. Table 4.2 outlines the common contextual barriers to implementation emerging from institutional arrangements that may impact on the achievement of government policy change objectives. A key barrier to a comprehensive and coherent circular economy policy mix can be the absence of an effective institutional framework to guide policy change. According to the OECD, in order to develop and implement

Table 4.2 Implementation barriers: Political (support and authorisation) barriers (Wu et al. 2010; 75)

Slow authorisation	Plans and resources mobilisation proceed very slowly due to the existence of multiple veto points among stakeholders in a network, making forward progress difficult
Weak political support	Plans may proceed and even attain moderate levels of success in the pilot project stage while flying under the radar of key politicians with opposing interests, until programme begins to scale up
Bureaucratic opposition	Key players in the inter-agency network tasked with implementing policy slow or sabotage implementation due to low priority of the project, lacking incentives or competing interests
Poor implementer incentives	Local implementers (local government coordinating executives or front-line staff of agencies), who were not consulted during the decision-making stage, have inadequate ‘buy-in’ or incentives to comply with directives from below

policies that support the move to a circular economy, governments should seek to build broad government support and inter-ministerial coordination for effective policies that address all stages of the materials life cycle. This will address the challenge that action in this sphere goes beyond the remit of environment ministries. The OECD policy guidance on resource efficiency underlines that where these institutional arrangements are in place, the shift to a circular economy can be treated as a broader economic policy challenge and integrated across sectoral policy responsibilities. Governance structures can therefore shape how an issue will be dealt with and the prominence it can take in the context of other policy issues.

Contexts are defined as ‘complex assemblies of different elements, including interpersonal relations, organizational cultures, structures and procedures, legal frameworks and the political climate’ (Pollitt and Dan 2011, 15). Kingdon (2003) argues that irregularities, produced by either empirical evidence or ‘focusing events’, provide policy windows where groups or policy entrepreneurs raise problems and have opportunities to promote change. The seminal work of Kingdon (2003) and the Multiple Streams Framework (MSF) brings together the dynamics of the context as evidenced by the three ‘streams’ (problems, policies and politics) to explain why particular policy issues enter the policy agenda and take on added priority. Interlinked by the machinations of policy actors, the three streams provide a useful tool to begin analysing causal factors behind policy change. The second determinant in the framework considers the influence of institutional context as it involves consideration of government responses to policy windows as they emerge. Crisis and elections are often seen as part of the context that can impact on policy as they become ‘policy windows’ for both governments to propose a policy commitment and for interest groups to obtain political attention and make proposals for how the government should respond (Kingdon 2003). For Baumgartner and Jones (2010), their punctuated equilibrium theory sees policy change emerging in moments of abrupt and significant change as windows of opportunity in otherwise long periods of stability. Kingdon also recognises the importance of focusing events as policy windows that highlight a problem and feedback on current initiatives that suggests a failure to achieve the original policy goals; each provides various indicators to governments that reveal that a problem exists that warrants policy attention (Kingdon 2003, 113).

The influence of institutions and the response to windows of opportunity contribute to a highly complex range of contextual issues that help shape policy change. In the context of increasing demands from constituents, policymakers need to consider the third determinant of the framework that concerns governance arrangements that increasingly incorporate a wide range of stakeholders that seek to influence policy change. The OECD sees governance in terms of relationships. The instruments and methods of governance include more than just the functions of public administrators in managing the structures of public institutions. Governance encompasses the many and constantly changing sets of relationships between the government and the interests of citizens, who interact with public institutions both as individuals and as participants with mutual interests (Lovan et al. 2017). This dynamic emphasises the political nature of policymaking and suggests that the choice of action may be one that faces the path of least resistance rather than the most effective approach to a policy problem. In terms of the circular economy, this stage will determine the course of action a government will take and which aspects of the circular economy model will be the preferred options for policy. In order to help understand this contextual issue, Cohen et al. (1972) proposed their garbage can model of decision-making. This model applies when there is a very large number of decision-makers and an uncertainty about the source of problems and their potential solutions. A key concept for this model is that of ‘satisficing’, based on what Cohen et al. regarded as a decision that is satisfactory to the goals and standards of the group of policymakers at the time of the decision. Decision-makers rarely consider the range of policy choices with potentially better results. Decision-makers simply define the goals and choose the means as they go along in a process which is necessarily contingent and unpredictable (Howlett and Ramesh 1995; 145). Considerable research attention has been given to how public managers need to come to terms with the political context that produces consultative and networked policymaking environments (Head 2008). Adopting networked approaches is no guarantee that environmental problems will be addressed. Making decision through this process may take a long time to produce policy change and achieve direct benefits for citizens (Head 2008). Many of the most pressing and complex waste problems, with links to the advancement of circular economy objectives, emerge from the realities of the political context of regional and global scales (Bodin 2017; 358).

4.3.2 *Power of Actors*

The framework proposes five main determinants for consideration in examining relevant actors to influencing political priority for policy change. These determinants borrow from Sabatier's Advocacy Coalition Framework (ACF) (Sabatier 1988), which focuses on coalitions of government, and non-government actors that engage in coordinated activity to promote the common cause they want to advance. For Sabatier (1988), events alone are insufficient for long-term change; key policy actors are needed in the form of an advocacy coalition that coalesces around a policy issue. Advocacy coalitions are portrayed as 'people from a variety of positions (e.g., elected and agency officials, interest group leaders, researchers) who share a particular belief system—that is, a set of basic values, causal assumptions, and problem perceptions—and who show a nontrivial degree of coordinated activity over time' (Sabatier 1988; 139).

Coalition participants seek to maintain or change policy in particular areas of mutual interest. The ACF therefore predicts that the primary determinant of network structure is shared systems of policy-relevant beliefs. Members of these coalitions generate policy narratives. Whether groups portray themselves as winning or losing, the policy narrative contains some stable policy core beliefs, shaped by the cultural context (social and economic history and view of the role of government) in which the policy issue occurs (McBeth et al. 2007). But other elements of these narratives are strategically constructed stories, intended to persuade the public and/or decision-makers of the coalition's preferred policy outcome. Policy beliefs are a critical element of policy narratives work as a 'glue' to provide focus and purpose and ensure that the coalition is not distracted by internal disagreement regarding the best policy outcomes and the preferred policy changes. In addition to policy core beliefs, the policy narratives generated by these coalitions harbour divergent narrative strategies, depending on whether the coalition portrays itself as winning or losing in the policy subsystem (McBeth et al. 2007). A 'winners' tale constructs a story that seeks to preserve the status quo, whereas a 'loser's tale' seeks policy change.

Leadership by policy entrepreneurs helps to unite a policy community through forming a link between formation and maintenance of advocacy coalitions (Mintrom and Vergari 1996). Policy entrepreneurs can define problems and build teams in ways that maximise opportunities for

bringing on board coalition partners (Meijerink 2005). The concept of policy entrepreneurship helps us make sense of what happens in and around policy communities when problems are not able to be readily addressed within existing policy settings. But the value of the concept of policy entrepreneurs as change agents is when it is integrated with broader theorisations of the sources of policy stability and policy change. Policy entrepreneurs seek to sell their policy ideas and promote dynamic policy change. Scholars in agenda-setting literature suggest that policy entrepreneurs use several activities to promote their ideas. These include identifying problems, shaping the terms of policy debates, networking in policy circles and building coalitions. Policy entrepreneurs frequently define policy problems in ways that both attract the attention of decision-makers and indicate appropriate policy responses (Kingdon 2003). As policy actors, entrepreneurs attempt to assemble and maintain coalitions to support specific policy ideas, which prove to be valuable political resources during discussions of policy change (Smith 1991).

Research also highlights the role of political parties as key actors in facilitating and blocking priority for policy change (Walgrave and Varone 2008; Carter and Jacobs 2014). Political parties are an important feature of policy debate in parliamentary systems as jurisdictions are influenced by agendas established by the major political parties. Evidence suggests that unified political party groups are the rule in representative assemblies in parliamentary democracies at the subnational level (regional, provincial and/or local) (Denters and Klok 2013; Dewan and Spirling 2011). As an example, in Germany's 16 state legislatures, an examination of parliamentary voting between 1990 and 2011 is one of the most comprehensive analyses of party voting at the subnational level, and perfect unity was the rule rather than the exception. Similarly, research by van Vonno (2019) on Dutch policymaking shows that political representatives consider the party meeting the main decision-making center and are more likely to engage in consensus and unanimous decision-making, thus resulting in party agreement being a more important decision-making mechanism.

Civil society mobilisation in the form of grassroots movements as policy actors, often arise in reaction to perceived social injustices and environmental problems (Smith and Seyfang 2013). Such actors form networks of activists and organisations generating novel bottom-up solutions for sustainable development, solutions that respond to the local situation and the interests and values of the communities involved (Seyfang and Smith

2007). In contrast to mainstream business greening, grassroots initiatives operate in civil society arenas and involve committed activists experimenting with social innovations as well as using greener technologies.

Paying attention to effective action in civil society is crucial, and encouraging grassroots activism with effective leadership, structure and missions is important for policy success (Horwitch and Mulloth 2010). Studies show that grassroots activism strongly influenced policy change towards the development of clean technology in the US. One example is the social activism and social entrepreneurship in New York playing an increasingly important role in the modern innovation process. Grassroots activities can be significant for the generation of new and exciting ideas, and can represent cost-effective ways to promote innovation. A robust grassroots ecology can be important for revitalisation of a region and a sector. Innovation practitioners and scholars argue that policymakers should take social entrepreneurship and grassroots activism into greater account. In supporting greener business innovation, the UK government promoted sustainable consumption through ‘market transformation’, and the development of more sustainable market choices for products and services (DEFRA 2005). The UK strategy recognised the contribution of small-scale local activities, and has a particular emphasis on delivery of sustainable development at all scales (Seyfang and Smith 2007). The prime minister stated: ‘Many local communities understand the links between the need to tackle national and global environmental challenges and everyday actions to improve our neighbourhoods and create better places to live’ (HM Government 2005, 29).

In some policy areas, the push for change emerges from a coalition of actors outside government that coalesce around a specific issue and lobby for policy change. Scholars such as Baker et al. (2017) argue for the need to recognise industry mobilisation as potential determinant of government acting to change specific policy. An economic focus in policy change by governments works in favour of powerful industry stakeholders as advocacy coalitions who continue to support voluntary market-based approaches, as a reflection of economic ideas in structuring policy choices (John 2018). These views have worked in favour of beverage and packaging industries who continue to run resistance campaigns to proposals for regulatory approaches, arguing that customers will eventually pay for regulated changes through increased costs (Bertolini et al. 2007; Wikström et al. 2014). As an example, Unilever claims that it has research that shows only 15% of customers care enough about environmental issues to change

their buying habits. This research is used to argue that stronger measures to change behaviour would be resisted by the majority (Abboud 2019). Over the last two decades, new approaches to policy design, including co-design and co-production, to promote effectiveness in an economically efficient manner have seen the emergence of stronger links between industry and government (Durose and Richardson 2015). As an example, Germany's federal political system and corporatist traditions have given sectoral industry interests privileged access to the political system (Hey 2010, 223). Viewing the management of waste as an industry policy implies waste diversion is the preferred option, which benefits vested interests seeking to expand economic opportunities in recycling, landfill and energy. Election commitments by the Australian government in 2019, allocating funds to identifying waste-processing technologies that, for example, create new sources of energy, maintain the economic frame where waste is a resource that industry can exploit for economic benefits.

4.3.3 *Influence of Ideas*

The framework proposes that support for policy change can be influenced by the way actors frame ideas, or the way in which an issue is understood or portrayed publicly (Hoffman and Ventresca 1999). How an issue is framed contributes to how it resonates with stakeholders which can help move 'essential individuals and organisations to action, especially political leaders who control the resources that policy initiatives need' (Shiffman and Smith 2007; 1371–72). Beland suggests that 'ideas can take the form of economic and social assumptions that either legitimize or challenge existing institutions and policies' (2009, 705). Waste management is currently viewed largely through the economic ideas that frame waste as a resource that needs to be managed for its value. As a key objective for the circular economy approach, effective management of waste is seen as an important contributor to long-term sustainable economic growth. One of the central narratives of the circular economy is the idea that radical institutional and policy transformations are needed to establish competitive economies in the future (Lazarevic and Valve 2017). Economic solutions to environmental problems reflect the neo-liberal approach towards social and environmental policymaking, which has sought to roll back the state's role to look for solutions through market-based measures. As an example, landfill has traditionally been the responsibility of local governments as the least desirable form of disposal because of the production

and release of methane, which contributes immensely to climate change (EPA 2019). Governments advocating for establishing a circular economy view landfill as a source of missed economic opportunities for industry that can benefit from waste where ‘the value of products, materials and resources is maintained in the economy for as long as possible’ (European Parliament 2018).

In Kingdon’s (2003) MSF analysis, ideas contribute to the construction of the issues and problems that enter the policy agenda. When policy-makers frame a problem, it can dictate how it will be treated. Ideational processes help provide the explanation for a dynamic approach to policy change, in which change, or continuity, is possible through ideas and discursive interaction in politics (Kangas et al. 2014). Ideas have a role in helping to shape the policy agenda. How a problem is framed will determine who is invited to participate in the policy process by government. Whether waste is framed in economic or environmental terms will also influence which stakeholders seek to contribute to influencing the policy change. For example, how a government frames waste as a problem will shape the way it will be examined and the potential solutions pursued. Theoretically, the focus of waste prevention policy should be on weakening the relationship between cause (economic growth) and effect (generation of waste), rather than the drivers behind waste generation. Framing can help to convince policymakers, interest groups and the general population that policy action is necessary (Cairney 2009). Barr et al. (2013) argue that, as many environmental concerns become increasingly framed within a climate change agenda, ‘waste’ retains an important place as a visible illustration of the overconsumption that scholars and practitioners alike have blamed for contributing to a long-term environmental crisis (Greyl et al. 2013; Dauvergne 2010). According to Beland (2009), ideas about the most pressing issues of the day help actors to narrow down the list of issues on the policy agenda. Ideas contribute to the construction of the social, economic and environmental problems that political actors may address (*ibid.*).

Agenda setting is about a government recognising that a problem is a ‘public’ problem worthy of attention. It is often considered the most critical stage in the policy process, as governments can only address a limited number of public problems at any particular time (Wu et al. 2010, 19). There is more likelihood of policy change if an issue reaches the government’s policy agenda. The main actors involved in agenda setting commonly emerge from a collective of actors such as interest groups, religious

groups, industry representatives, unions, associations and think tanks. Elections provide opportunities for these actors to pressure political parties to commit to act on their issues. Focus is on a problem that needs attention and the policy actions that can be taken to resolve it places demand for action by government. Peretz (1998) argued for the importance of defining the policy problem in the first instance. ‘Correct problem definition is paramount, as it guides the agenda building process: It directly influences the alternatives debated, the political willingness to advocate a change, and the policy that emerges’ (Perez 1998, 202). For Rochefort and Cobb (1993), a problem’s dimensions guide the agenda building process. They suggest that difficulty in accurately assessing a problem’s severity and likely consequences has plagued environmental decision-making, as has difficulty in distinguishing between a mere problem and a crisis. Solutions can often shape the action taken by policymakers. Policymakers will be more inclined to act on a problem if a solution is thought to be available, acceptable and affordable, hence the economic framing. Deciding what an issue is all about and how serious a problem is can lead to conflict; moreover, policy problems are matters of interpretation. Nevertheless, it is crucial that these problems be interpreted correctly. Interpretation directly influences the alternatives debated, the political willingness to advocate change and the policy that emerges.

4.3.4 *Problem Characteristics*

The final dimension of the framework involves how the characteristics of the problem shape policy priority. The framework suggests three key characteristics that contribute to whether decision-makers decide if policy change is necessary; indicators show policy action is needed, severity of an issue calls for a policy response and policy intervention can be shown to produce the necessary change. Some issues are easier to manage, for example comparatively straightforward issues where policy action can be measured and progress reported (Van Dooren et al. 2010). Shiffman and Smith (2007) argue that problems that cause substantial harm will be treated as more serious by policymakers. Similarly, problems that policymakers can address effectively and cheaply, for example investment in vaccines to improve children’s health, will more likely receive political attention (ibid.). Kingdon (2003) identifies ‘problem’ as one of the three ‘streams’ in his MSF approach. He argues that governments have a long list of problems that they could attend to and that decision-makers pay

attention to some problems and ignore others. ‘Sometimes their attention is affected by more or less a systemic indicator of a problem. At other times, a dramatic event seizes their attention, or feedback from the operation of existing programmes suggests all is not well’ (ibid., 90).

The establishment of indicators relating to environmental sustainability has been a global issue with international commitments. Indicators of relevance to the transition to a circular economy, including the state-of-the-environment indicators established by the UN, help to monitor progress against the 2030 Sustainable Development Goals (SDGs), including goals of direct relevance to a circular economy: Goal 11, namely Sustainable Cities and Communities, and Goal 12, namely Responsible Consumption and Production. These indicators have been tested in actual policy processes (Herzi and Dovers 2006) and often supported with institutional and policy arrangements such as cross-jurisdictional committees and councils or units within government institutions. Most recent reports by the UN show that indicators are revealing that, while there has been some progress, it is not at sufficient speed to realise the SDGs by 2030 (UN 2019). Individual countries are required to measure progress against the indicators and make policy change where necessary to achieve the overall SDGs. Scholars argue that for indicators to be effective in contributing to policy change, they need to be perceived simultaneously—consensually—by a group of policy actors as being legitimate, credible and salient (Bauler 2012). Importantly, the level of the policy actors’ perceptions influences the usability of indicators and their subjective judgement of the indicator’s qualities. The usability and quality of indicators is thus a matter of subjective judgement at the level of the policy actors themselves (ibid.).

An example of the need to establish usable indicators that have the support of policymakers is the European Commission (EC) Circular Economy Monitoring Framework (European Commission 2018). The Monitoring Framework is a set of indicators that cover the different phases of the circular economy. These circular indicators can be used by member countries ‘to show if the existing policy initiatives are successful in delivering the expected results’ and/or to identify ‘areas where more action is needed’ (ibid., 1). The indicators include elements of waste management as well as innovation and economic growth, which, some argue, ‘highlights the attempt to mainstream waste management into economic narratives’ (Giampietro et al. 2019). Concerns were raised by member countries that the indicators tend to be skewed towards

waste management–related information at the expense of other phases of the circular economy such as production, consumption, reuse and repair, thereby missing out on some important transformation trends and economic opportunities. The EU argues that there is an ‘absence of available data or even methodologies to measure these aspects’ (European Commission 2018, 5). As a result, for the foreseeable future it is ‘necessary to work with other available information that may give some more indirect indications of performance’ (ibid.). The focus on waste management by the EU will continue to be supported by the availability of the indicators that measure progress. Without the indicators to support other circular economy objectives, there will be long-term implications for the policy change needed for a transition to a circular economy and the establishment of more sustainable use of resources will remain challenging.

This dimension of the framework also points to the severity of a policy problem prompting policy change. In the case of the circular economy, the crisis relating to recycling practices in many OECD countries has created a situation where governments have been forced to respond. Interestingly, in some cases indicators in countries such as Australia, Canada, the US and the UK had been suggesting the existence of problems in the recycling industry since the 1990s but governments avoided responding to the issues until they became so severe that political priority for policy change became urgent (Tierney 1996; Hook and Reed 2018). As a result, the focus on waste management as a key ‘problem’ for the transition to a circular economy has been driven by the calls for government action to respond to the crisis situation. Dominating debates about the circular economy revolves around the burden of managing growing volumes of waste and the ‘waste as resource’ paradigm to support the idea that economic opportunities are being missed as a result of current practices (Dijkema et al. 2000). What should be done about managing waste has become the central problem rather than how to prevent waste in the first place. The MSF suggests that any given policy problem has an improved chance of rising in the policy agenda as a political priority if coupled with another pressing pre-existing problem (Kingdon 2003). The combination of a crisis situation, coupled with the problem of missed economic opportunities, has reinforced the need for a policy response. These arguments contribute to the framing of waste as an economic problem that warrants a joint government and industry response. Since the 1990s, a shift from an environmental to economic focus helps to reinforce waste as an issue of resource management which can be measured with

reportable results in terms of rates of recycling or transformed into alternative products or energy produced (Gregson and Crang 2015). The reportable results of jobs created and money generated have become attractive stories for policymakers and are used to demonstrate effective approaches to dealing with the issue and help to justify the effectiveness of government intervention.

In the third aspect of this dimension of the framework, policymakers may recognise an opportunity for according issues a higher policy priority on the basis of evidence that government intervention may be successful and in keeping with political objectives. In terms of circular economy, government plans and strategies, where they exist, may outline government involvement in promoting the development of waste industry. This intervention can involve direct participation, for example building and operating waste facilities, usually the domain of municipal governments. Other levels of government may provide incentives if evidence suggests that this will encourage private sector investment. Arguably, in linking this policy response requiring evidence to the severity issue, the recycling crisis has prompted this form of action in some countries. Governments are able to provide evidence based on market failure arguments when politically expedient to support such interventions, citing government and industry reports that support making the issues a policy priority. Such actions are easy to explain, simple to implement and relatively inexpensive, and intervention can be justified in terms of both economic and environmental outcomes. A recent report produced through the European Union's Horizon 2020 Research and Innovation Programme suggests the popularity of these actions are largely as a result of the circular economy being a nexus policy, because it is an attempt to reconcile economic interests with environmental concerns (Giampietro et al. 2019).

Pressure from industry also supports the view that more recycling is good. Many stakeholders support these arguments on the basis of the potential growth of the recycling industry and for the underlying assumption that nothing else needs to change in terms of other circular economy objectives, for example reducing consumer spending, if products can be recycled. Government can provide data that reveals industry employment opportunities, annual revenues generated for every tonne of waste that is recycled, and the number of new jobs created (DEE 2018, 4). These figures are attractive as governments also view waste as a potential source of revenue. Thus, recycling becomes attractive for both industry and consumers. Similarly, the evidence supporting 'waste to energy' projects

focuses on the savings made in terms of reduced need for landfill and the potential to replace fossil fuels as an energy source (UNFCC 2013). Such interventions are relatively easy for governments as they only need to identify incentives for the private sector to invest in these forms of waste management. Different stakeholders within the business, NGOs and government sectors are likely to have divergent views and evidence. In these circumstances, government actors play a major role in the ‘issue naming, blaming, claiming and framing; either formally through their contacts with societal actors, or informally through their influence over the media, think tanks or academia’ (Wu et al. 2010; 22). Viewing waste as an industry implies that waste diversion is the preferred solution to the problem of managing increasing volumes of waste, which benefits vested interests seeking to expand economic opportunities in recycling, landfill and energy (Bulkeley and Gregson 2009). Ignoring consumption curtails the capacity of waste prevention plans to prevent the generation of waste.

4.4 POLICY CHANGE

Once political priority is recognised, policy change should be facilitated through the policy process. This too has its own challenges and has been the focus of a long history of research. The analysis of the policy process is largely based in Easton’s systems theory (1953) of the stages approach. According to this view, political systems consist of inputs, demands from individuals and groups for governments to act, and supports largely voting and obedience to laws and the payment of taxes (Hill 2009, 141–143). These inputs pass through a conversion stage to produce outputs and outcomes in the form of decisions and policies. A feedback loop forms the last stage where the outputs of the process shape future inputs to the system (ibid.). The stages’ approach provides a series of points of analysis that have contributed to a large body of policy analysis literature that recognises the complex and elaborate nature of policymaking. Wu et al. (2010, 7) argue that policy activities do not occur in a linear progression; they are ‘discrete, albeit interrelated, sets of activities that public managers can engage in to achieve society’s and governments policy goals’.

The formulation of policy involves the identification of a possible course of action governments can take to address the problems on the agenda. Options need to be politically acceptable, administratively feasible and technically sound. Wu et al. (2010) argue that policymakers are most often pressured to choose options that are deficient, only marginally different

from existing policies or to take no action at all. Many governments establish guidelines for their policymakers when formulating public policy; these often clarify that the government executives remain firmly in control. Here is an example from Northern Ireland that places policymaking in the context of the obligations of elected government:

Policy-making is the process by which governments translate their political vision into programmes and actions to deliver ‘outcomes’—desired change in the real world. [It] is about establishing what needs to be done—examining the underlying rationale for and effectiveness of policies—then working out how to do it and reviewing on an ongoing basis how well the desired outcomes are being delivered. (Institute for Government 2011, 22)

Definitions such as this reflect political expediency (government’s vision) with some deference to due process (effectiveness and review). Policy formulation involves key actors in the policy process, including the political executives, individual legislators and senior officials of the key government agencies involved with the issue or problem. One essential part of the formulation stage is the policy design, which includes planning of the implementation stage (Howlett 2009). This implies that once policy priority is decided, policymakers decide which tools and instruments they intend to use and what financial and human resources they should allocate. Translating these visions and plans into achievable policies constitutes one of the greatest challenges in policymaking and is a strong indicator of the level of priority the problem has reached for the government. Policymakers have to decide which combination of policy instruments can best be deployed to influence the content and effect of policy action to address a problem and implement a solution. OECD evidence highlights the importance of regulatory policy and governance to ensure that regulations meet the desired objectives and new challenges as efficiently as possible (OECD 2018; 57). As a reflection of political priority for waste management, governments tend to establish regulatory instruments that set rules to govern waste streams, require authorisation for treatment facilities and set standards for their operation according to best available techniques. In addition, several countries have introduced landfills bans to promote recycling and recovery. Some OECD countries have also used economic instruments such as landfill and incineration taxes, which can promote recycling and reduce landfilling. Full cost recovery for municipal waste services is in place in some OECD countries but remains to be addressed in others (OECD 2019; 28).

Governments need to decide to ‘take a course of action (or non-action) to deal with the policy problem’ (Wu et al. 2010; 50). Following the formulation of possible courses of action, governments make the decision on which option to take. Scholars recognise that decisions are made following consideration, and a small number of options and that politics plays a major role in the process. The definition of decision-making established by Brewer and DeLeon (1983, 179) provides some insights on this process:

It is the most overtly political stage in so far as the many potential solutions to a given problem must somehow be winnowed down and but one or a select few picked and readied for use. Obviously most possible choices will not be realized and deciding not to take particular course of action as much a part of selection as finally setting on the best course.

Evaluation is a critical element of the implementation of policy as it involves the assessment of whether original objectives have been achieved. A willingness to undertake a comprehensive evaluation of a policy or programme reflects political priority to ensure policy change. Rutter (2012, 5) argues that ‘real change will come when politicians see evidence and evaluation as ways of helping them entrench policies.’ The results and recommendations of evaluation can be introduced to new stages of policymaking and, depending on political priority, can contribute to the refinement of policy design or to the termination of a programme (Wu et al. 2010; 83). Accurate data is needed to improve the policy base for policy development, implementation and evaluation. Several *Environmental Performance Reviews* conducted by the OECD identified a need for better data collection and quality assurance and the use of good-quality indicators showing the need for policy change. In many countries, data sets are not complete. Inconsistencies in definitions and data collection methods make comparison across countries difficult. Effective information systems are a key tool for policy action. Wu et al., warn that policy evaluation is also a political process that can be used to ‘disguise or conceal’ (2010; 83) the results of policy action. Evaluations can be used for political purposes to prevent critique and lead to preferred conclusions. For example, some governments rely on poor-quality data on recycling, largely provided by the packaging industry, to suggest that there is limited recognition for increasing the political priority for policy intervention (Pickin 2018). NGOs can also undertake their own evaluations that help to reveal poor performance when governments are attempting to use selected data for political advantage (ABC 2019).

4.5 CONCLUSION

Policy action to transition from a linear to a circular economy model requires the commitment of political leaders to prioritise the mobilisation of official institutions and wider policy systems into resourcing regulatory interventions commensurate with social, economic and environmental challenges. The prime focus of most government policy has been on recycling and reducing resource loss. Research shows mixed results due to varying levels of political commitment to deal with the challenges and barriers to reform. Commitments to develop and implement effective waste management policies, including prevention, will contribute to establishing the circular economy objectives of environmentally sustainable practices of consumption and the effective management of waste. Equitable and sustainable responses will require a strong role for government (Keskitalo et al. 2016). The following chapters will examine two case examples of the governments of Belgium and Norway that have given a degree of policy priority to aspects of the circular economy. Their examples will be considered in the context of the issues discussed in this chapter. Of critical importance is their experience and the lessons they provide for other governments in multilevel systems contemplating, according to these issues, a higher policy priority by adopting regulatory approaches to help ensure a stronger policy response for the commitments made to circular objectives.

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Waste Management in Belgium

Abstract This chapter adopts the political priority framework as a tool for analysing the policy effort undertaken in Belgium to establish a circular economy. Of particular relevance is the implementation of sustainable approaches to waste management. The contribution of the multilevel nature of the Belgian political system is highlighted in discussing approaches to policy development and implementation. Challenges and opportunities for the adoption of further aspects of the circular model beyond recycling are also discussed.

Keywords Belgium • Flanders • Brussels • Wallonia • Circular economy • Waste management

5.1 INTRODUCTION

Since the mid-1980s, Belgian governments have developed well-organised waste management systems based on the circular economy principles of reduce, reuse and recycle. Federal and regional legislation supports, policy instruments, governance arrangements, funding, sanctions, planning and data collection. After years of experimentation and review of waste management practices, Belgium now has some of the highest rates of recycling in the European Union (EU) (Eurostat 2019b). As a result of the waste prevention and diversion strategies, the Belgian region of Flanders has

some of the most effective waste prevention results in Europe (EEA 2018). Belgium, as a whole, met the 2020 EU recycling target in 2003 (EEA 2013). The transformation of Belgian waste management systems has been the result of a top-down strategic approach by regional governments in order to meet and often go beyond EU requirements. For Belgium's 11.5 million citizens, the system places considerable responsibility on both households and industry by establishing a high level of sorting and reuse, a collection system based on maximum source separation; a landfill ban for household waste; direct charging of householders for waste disposal; significant use of home composting; producer responsibility schemes for household packaging and other wastes; and legislated limitations on incineration.

5.2 WASTE MANAGEMENT IN BELGIUM

5.2.1 *Policy Context*

Belgium is a federal state comprising three regions (Wallonia, Flanders and Brussels-Capital); waste management is a matter for the regions. Brussels Capital Region represents 9% of the municipal waste generated in Belgium, Flanders 60% and Wallonia 31% (EEA 2013). The Belgian state is the legal entity responsible for compliance with EU legislative requirements for waste. Regional governments are not subordinate to the federal level and are within their constitutional right to deal directly with the EU on waste issues. As in the 2008 European Waste Framework Directive, waste is defined by the three regional governments as any substance or object which the holder discards. Belgian regions have implemented the EU provisions relating to by-products and end of waste status. As an example, the *Materials Decree of 2011*, on the prevention and management of waste substances, lays the foundation of a coordinated and permanent waste policy in Flanders. Through a series of amendments, the decree evolved gradually from final removal or destruction of waste to prevention and useful application. VLAREA (*Flemish Regulation concerning Waste Prevention and Management*, 1998) implements the Waste Decree. The *Implementation Plan for Environmentally Responsible Household Waste Management* (UMBHA) established the general guidelines for Flemish municipalities for the prevention, separate collection and treatment of household waste. The updated version (2016–2022) provides local councils

with ideas and tools to collaborate with the residents, associations, and companies from your municipality, to achieve more waste prevention and re-use, a better source-separated collection and recycling, and less litter. In this manner, we will jointly work together towards a beautiful and material-conscious Flanders showing in Europe at the top regarding its waste policy. (OVAM 2016, 6)

In Belgium there has been a tendency by governments to streamline waste legislation into one code in terms of inspection, prevention, determination and sanctioning of environmental issues. For example, the cooperative agreement between the three regions and the packaging sector was established in 1994 for recovering and recycling the packaging waste. The current version of the *Cooperation Agreement of 04-11-2008 on the prevention and management of packaging waste* (Agreement) argues:

it is essential for all parties involved in the production, use, import and distribution of packaged goods to become more aware of the significance of packaging in generating waste, and whereas these parties assume responsibility for such waste according to the ‘polluter pays principle’. (IVC-CIE 2018b)

This Agreement is based on mandatory stewardship requirements for packaging waste throughout Belgium, where packagers, importers and those who sell packaging and packaged products bear responsibility for reuse and recycling of packaging waste. The Agreement is applicable to the disposal and treatment of both household and industrial/commercial packaging waste.

In reflecting its multilevel character, each Belgian region has its own ministry with responsibility for environmental issues, including waste management. Competencies for environmental issues are exclusive to the regional governments. No federal authority has precedence over the regions exercise of environmental powers. The introduction of circular economy initiatives focused on waste and recycling by the EU has been reflected by each of the governments of Belgium. The Belgian government introduced 21 measures towards establishing a circular economy in 2016 (Belgium 2016), Flanders introduced the ‘Circular Flanders: Together towards a circular economy Kick-off Statement (OVAM 2017a), Wallonia introduced its ‘Strategy for the deployment of circular economy in 2020 (Wallonia 2020) and Brussels City introduced the Brussels Capital

region circular economy strategy in 2016 (Brussels 2020). By dividing responsibility between intergovernmental agencies, municipal governments and industry, regional governments have implemented strategies for circular initiatives for waste prevention, recycling and composting. Importantly, this has not prevented regions forming joint arrangements for mutual activities and country-wide focus to achieve common goals. Recognition of the benefits of coordination and cooperation have been drivers of an interregional agreement on waste reduction and recycling. Regional governments have each established autonomous agencies with specific responsibility for waste policy. In Flanders, Belgium's largest region, the government established the Flemish Public Waste Agency (OVAM) as the competent authority for solid waste established covering waste management and prevention; see Fig. 5.1. OVAM's main task is to prepare waste management legislation on behalf of the Flemish minister responsible for the environment. Once the legislation is approved by the Flemish government, OVAM supervises and coordinates the implementation of waste management across the region. OVAM is also responsible for waste management planning. OVAM positions itself as an organisation for active environmental management that prefers dialogue to build partnerships and to reach a consensus with its target audience, so that mutual support and capacity is created for a sustainable environment' (OVAM 2019a). Much of the work of OVAM, including results, is reasonably well

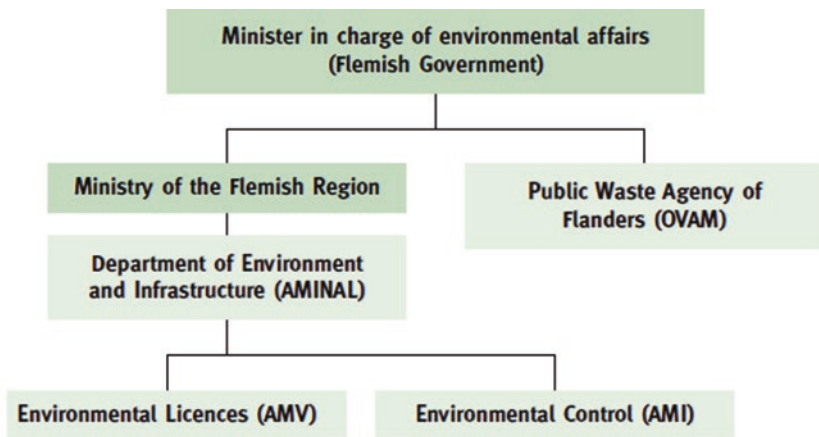


Fig. 5.1 Competent authority for waste management in Flanders (Source: Author; derived from OVAM 2019b)

documented and publicly available and forms the basis of this case study. Where possible, reference is also made to activities in the other regions and to interregional initiatives.

All data regarding waste production and waste treatment in Flanders are collected at the central databases of OVAM; it uses the data to set performance targets and provides investment subsidies to municipalities and inter-municipal associations for waste prevention, separation and treatment. In 2019, there were 308 Flemish municipalities, responsible for municipal solid waste; almost all of them have grouped themselves into associations to provide these services collectively. Municipalities are responsible for implementing the UMBHA and the *Separate Collection of Industrial Waste from Small Enterprises* plan as required by OVAM. UMBHA establishes the general guidelines for the prevention, separate collection and treatment of household waste. OVAM sets targets and signs agreements with municipalities regarding source separated collected waste, residual waste, bulky waste, and street and sweeping waste, litter and waste from street dustbins. Municipalities are also required to deal with industrial waste similar to household waste, that is, waste from businesses of a nature, composition and quantity similar to household waste (OVAM 2017b).

The obligations for municipalities include conducting waste prevention campaigns, provide technical or financial assistance to citizens to reduce waste, sponsor specific campaigns for target groups like schools and so on. This has been done by way of inter-municipal cooperation since the mid-1970s, whereby a group of municipalities merge their waste management activities within one single organisation or inter-municipal partnership. A few cases of mixed inter-municipal partnerships also exist, which include the participation of a private company. Fifty per cent of household waste collection in Flanders is also outsourced to private waste companies. Agreements between municipalities and OVAM often include subsidies to finance public education campaigns as well as home compost programmes and school education programmes. Despite efforts to produce consistent national approaches, ongoing historical differences for recycling rates for municipal waste exist between Brussels Capital Region, Flanders and Wallonia. Recycling rates for material and organic recycling are highest in Flanders throughout the period 2001–2010, whereas Wallonia has made most progress (EEA 2013). Low performance in the capital is explained by the lack of infrastructure for the treatment of organic waste and ‘lack of collection/recycling infrastructure related to the high urban density’ (Zeller et al. 2018, 84).

5.2.2 *Ideas and Approaches Taken*

During the 1990s, there was a high level of resistance and opposition by part of the Flemish population to landfilling and incineration of waste. Belgian regions have some of the highest population densities in the EU (Chepkemoi 2017). Identifying locations for new landfill and incineration options created a situation of strong opposition from local residents (R4R 2014). In the context of European environmental agendas at the time, this made waste an important target of eco-modernisation and infrastructure investment (Savini 2019). Lack of options in Belgian regional areas created a situation of rising costs for the collection and treatment of the municipal solid waste, and municipalities were forced to find new ways to finance those costs. In responding to this policy window, the Flemish government recognised that the establishment of both a ban on landfill and a landfill tax marked the beginning of a transition to new ideas to waste management at the regional level. The banning of landfill along with strict limitations on incineration by the three regions placed added responsibility for municipalities to align their restrictions. The main objective has been around environmental ideas to reduce the amount of waste going to landfill, to limit greenhouse gas emissions and risks of soil contamination, while pushing the recycling or composting of wastes. According to OVAM, the incineration ban has been adopted in order to provide a counterbalance to the landfill ban by ensuring that incineration does not become the only way of dealing with waste and that efforts in waste prevention and recycling still get continuous support (EURELCO 2014).

In addition to waste prevention strategies, Flemish municipalities have introduced ‘Pay As You Throw’ (PAYT) requirements at the household level. By the mid-2000s, these schemes were being introduced in other countries including the United States, in large metropolitan areas such as San Francisco, Seattle and San Jose (Wright et al. 2019). In the Flanders model, the most expensive aspects focused on the collection of residual waste, followed by the collection of the household biodegradable waste (to stimulate the home composting), with lowest taxes applied to plastic bottles, metal packaging and drink cartons (PMD). The separate collection of paper and cardboard, container glass and textiles would be free.

The idea behind PAYT is to stimulate citizens to take some responsibility and sort their waste correctly into different recyclable waste streams by making waste sorting financially more attractive. Elements of PAYT vary

among inter-municipality associations. Some charge for bags that cover the costs of collection while others use bins with electronic chips that charge according to the volume or weight of the waste. For larger containers, there is taxation per volume and per pick up. In this way, more waste could be reused, recycled or composted with less waste going to final treatment (incineration or landfill). The aim has evolved with the goal to recycle as much as possible waste materials in accordance with the *Materials Decree 2011* after being used by the households and to produce less residual waste. Tax on other waste streams varies depending the quantity. The use of the landfill tax had a significant effect on the reduction of the land-filling rate and did not affect significantly the incineration rate; the landfill tax has been a driver for diverting waste from landfilling directly to recycling (EEA 2013).

OVAM has established financial incentives for the purchase of second-hand goods as stated in the Flemish waste prevention programmes. Belgium introduced a reduced VAT rate applicable to reused products, 6% rather than the usual 21% for new products. The tax differentiation is mainly justified by social reasons, but it also supports the redistribution, repair and refurbishment of used products that can then compete more easily with new products. Research shows that taxes are effective in improving rates of recycling but do little to reduce consumption (Morlok et al. 2017). The combination of PAYT schemes with incentives to support waste prevention plans, and tax regulations and more targeted actions at the local level, such as awareness-raising campaigns, reuse initiatives, secondhand markets, repair cafes, support reuse and promote lower levels of consumption. The high reuse rates in Flanders underline the effects of an integrated approach to support reuse with appropriate economic instruments (EEA 2013). OVAM provides subsidies to support municipalities construction and management of waste drop-off centres and compost plants, implement PAYT systems, and other activities. In Flanders, the municipalities are subsidised for implementing the PAYT principle. The municipalities are subsidised for containers including a weighing system for door-to-door collection of residual or biodegradable household waste. Also, civic amenity sites are subsidised. Local authorities can build their facilities in a way they can charge the citizens depending on the quantity and type of waste they deposit. Flemish subsidies since the 1990s have supported the infrastructure necessary for the separate collection of the MSW at source, for example civic amenity sites and composting facilities. OVAM also conducts

regular education campaigns for citizens and industry that reinforce the message that ‘leaving behind waste is socially unacceptable’ (OVAM 2016).

OVAM regards enforcement as the cornerstone of any policy. Sanctions ‘must be visibly clear out in the field that no form of litter and illegal dumping will be accepted anymore’ (OVAM 2016). Enforcement has been interpreted in broad terms: not only fines can be imposed; municipalities can also challenge violators concerning their behaviour and increasing social control. Sanctions for non-compliance are stringently applied in other regions. For example, in the Bruxelles Capital Region fines up to €625 for non-compliance were introduced in 2010. Fines are in place for a range of failures to comply, including taking rubbish bags outside of the authorised collection days/times, and non-sorted or non-compliant bags. In addition, the local government in Brussels has a range of criminal sanctions enforced through the Bruxelles-Propreté. Officers with powers of investigation similar to those of the police, and sometimes even larger, ensure compliance. Prosecutions are heard before a Magistrate’s court, or refer the case to Bruxelles-Propreté, which can impose administrative fines. Administrative fines can reach €62,500. Their amount is set by a Decree on the investigation, detection, prosecution and punishment of offences relating to the environment.

5.2.3 *Policy Actors*

The association of all municipalities and cities in Flanders (VVSG) has a focus on achieving the SDGs. It represents their interests to central government and negotiates sustainability issues on their behalf and with recognised bodies of producers with producer responsibility obligations. OVAM is the Public Waste Management Agency in Flanders which cooperates with municipalities. OVAM coordinates this cooperation, representing Flemish municipalities and intermunicipal waste management organisations in negotiations with administration, cabinet officials and industry. In a short time, OVAM has become a prominent stakeholder on municipal solid waste management for the regional government and official departments.

Through the household waste implementation plan, OVAM expects that between 2016 and 2020 Flemish municipalities will reduce the total quantity of residual waste from households, companies and organisations. It will do this by imposing various targets of residual waste for each cluster

of municipalities. The implementation plan imposes new targets for waste prevention, reuse, litter, illegal dumping and industrial waste in Flanders. OVAM recognises the contextual pressure placed on municipalities regarding waste management. With the implementation plan, municipalities are encouraged to customise their approach to suit local circumstances. Targets for reducing household waste have been ‘tailor-made’ to suit socio-economic circumstances of individual municipalities. For example, coastal municipalities are assigned a less stringent target since they produce more residual waste due to tourism than rural municipalities (OVAM 2016).

The cooperative packaging Agreement is administered by the Interregional Packaging Commission (IVC-CIE), which undertakes supervision and advisory roles to each regional waste authority, including OVAM. The IVC-CIE has contracted Fost Plus to coordinate with packaging manufacturers to collect and process packaging from households, and Val-I-Pac has been contracted to process industrial and commercial packaging waste. These organisations are membership based and work together with packaging manufacturers to achieve the government recycling targets. Fost Plus was established in 1994 as voluntary initiative of private sector organisations. Companies that bring packaged household products onto the Belgian market join up with Fost Plus and pay an annual contribution based on the quantity and type of their packaging. Fost Plus uses this contribution to collect, sort and recycle the packaging after use. In addition to these contributions, Fost Plus also generates income from the sale of the materials collected and uses the revenue for continuous education campaigns for citizens regarding correct sorting rules (R4R 2014). The revenues from the sale of collected materials, together with the member contributions, must cover all the collecting and sorting costs (Fost Plus 2016). Members include major packaging firms such as Unilever, Coca Cola, Carrefour, Total, Proctor and Gamble and Danone (Fost Plus 2017). Participating companies pay a fee based on the type and amount of packaging they are responsible for introducing into the market. The organisation funds the public collection, sorting, and recycling of these materials. This programme covers the entire nation and is monitored. In 2016, household packaging was processed by Fost Plus in Belgium (74.1%) or in Belgium, with 24.1% processed in neighbouring countries (the Netherlands, Germany and France) and 1.5% in the rest of Europe. Only a very limited amount (0.3%) was processed outside Europe (Fost Plus 2016).

5.2.4 *Effective Policy Action?*

Waste management in Belgium seems to be proving effective. While there may be differences between the regions in terms of objectives and approaches taken, the overall results as reported by the EU (Table 5.1) show that Belgium is well above the European average for recycling and well below average for landfilling). In its 2018 report, the IVCE-CIE detailed recycling and recovery figures and the monitoring of reusable packaging throughout Belgium. The recycling and recovery results for 2017 for household packaging waste were 80% for recycling and 2.7% for incineration for energy recovery, with the residual being sent to landfill. (IVC-CIE 2018a). Val-I-Pac achieved a recycling rate by its members of 88.8% for plastic, paper/cardboard, metal and wood, against a target of 80%. Recycling by industry has been improved through the policy support for reusable packaging. The implementation of landfill bans and limitations on incineration supported by tax incentives and financial sanctions for non-compliance contribute to Belgium being the best overall performance across the EU in waste treatment (see Table 5.1). These aspects of the Flemish policy and the scale of the Flemish contribution to the overall result make Flanders the leading contributor to the Belgian recycling scores.

The trend from 2003 to 2017 shows improvement in the reuse of materials, particularly wood; see Fig. 5.2. The implementation of the incineration bans has also been successful; these bans have reduced Flanders' dependency on incineration of residual waste compared to 15 years ago; from 36% in 1991, the share of incineration is now just 25% and seems to have been stable since 2002.

For household waste, the combination of PAYT and incentives focused on reuse has contributed to a reduction in per capita household residual waste; see Fig. 5.3. This continues to be a focus for the government and OVAM as their data suggests that further reductions will need to be made to reduce landfill and incineration rates even further.

The IVC-CIE has set new objectives for recycling: by 2022, at least 90% of beverage packaging waste must be collected and recycled and, by 2025, at least 95% of household packaging waste. Val-I-Pac has been set the objective of reducing residual waste (the material that cannot be recycled) from companies away from landfill, or from export. Belgian regional governments argue that they uphold the 'proximity and self-sufficiency principle' and want as much residual waste as possible to be incinerated in

Table 5.1 Waste Treatment in the EU, % of total, 2016 (Eurostat 2019b)

	<i>Recovery</i>			<i>Disposal</i>	
	<i>Recycling</i>	<i>Backfilling</i>	<i>Energy recovery</i>	<i>Landfill and other</i>	<i>Incineration without energy recovery</i>
<i>EU-28</i>	37.8	9.9	5.6	45.7	1.0
Belgium	76.9	0.0	12.6	6.4	4.1
Bulgaria	5.2	0.0	0.4	94.4	0.0
Czechia	49.5	29.0	4.5	16.6	0.4
Denmark	51.4	0.0	19.5	29.1	0.0
Germany	42.7	26.6	11.3	18.1	1.2
Estonia	21.6	11.2	2.5	64.7	0.0
Ireland	10.6	46.0	4.8	38.4	0.3
Greece	4.8	0.0	0.3	94.8	0.0
Spain	37.1	5.7	3.6	53.6	0.0
France	55.0	10.3	5.4	27.6	1.6
Croatia	47.2	4.0	1.0	47.8	0.0
Italy	78.9	0.1	4.0	14.2	2.7
Cyprus	10.4	28.0	3.8	57.8	0.0
Latvia	71.7	1.1	6.8	20.3	0.0
Lithuania	33.4	4.1	5.8	56.6	0.0
Luxembourg	34.8	24.2	2.1	39.0	0.0
Hungary	54.1	3.7	7.4	34.2	0.6
Malta	19.1	63.4	0.0	17.2	0.4
Netherlands	45.6	0.0	7.6	46.0	0.9
Austria	37.0	11.0	:	45.9	:
Poland	46.2	22.2	3.3	28.0	0.4
Portugal	43.5	9.5	12.1	34.7	0.2
Romania	4.0	0.4	1.4	94.1	0.1
Slovenia	60.2	27.2	4.8	6.9	0.8
Slovakia	40.0	4.7	7.0	47.8	0.5
Finland	7.4	0.0	4.5	88.0	0.0
Sweden	12.0	4.9	6.6	76.3	0.2
United Kingdom	48.5	7.8	3.4	37.5	2.7
Iceland	25.0	51.0	0.4	22.3	1.3
Norway	43.5	2.6	34.0	19.5	0.5
Montenegro	0.8	0.0	0.2	98.9	0.0
Serbia	2.8	0.8	0.2	96.3	0.0
Turkey	33.0	0.0	0.8		0.2
Kosovo ^a	0.0	0.0	0.0	100.0	0.0

Source: Eurostat (online data code: env_wastrt)

^aThis designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence

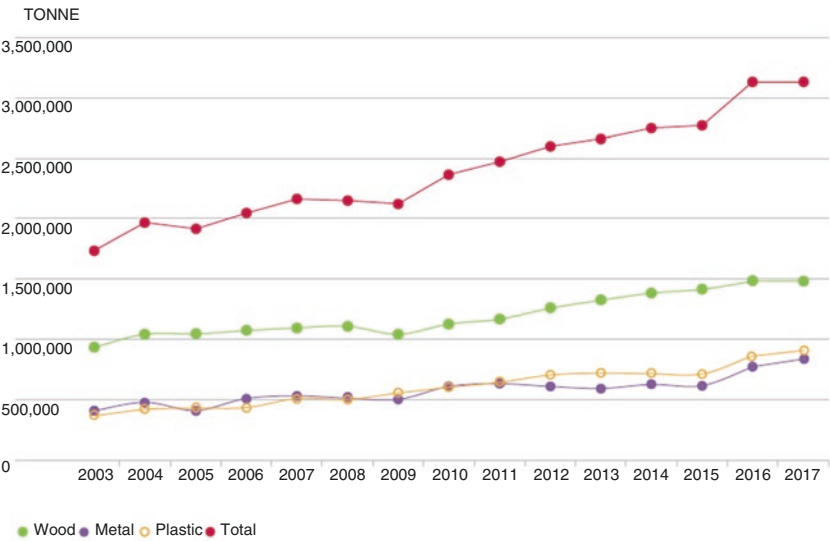


Fig. 5.2 Trend in reusable packaging, all Val-I-Pac members 2003–2017 (IVC-CIE 2018a)

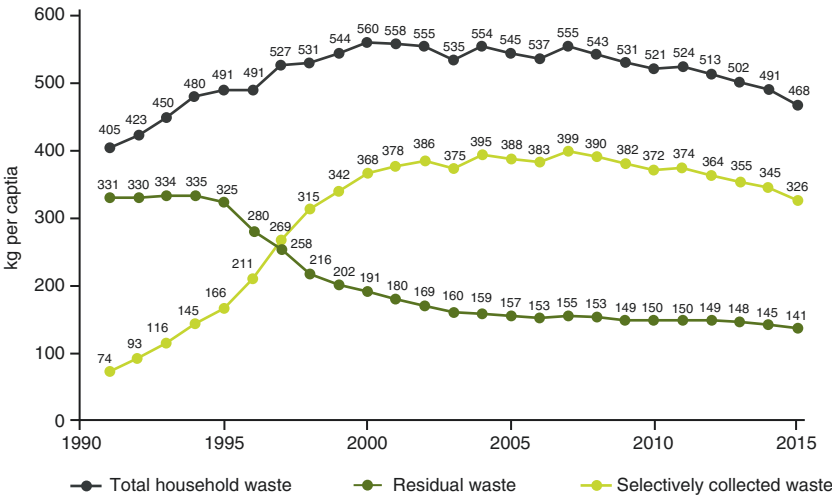


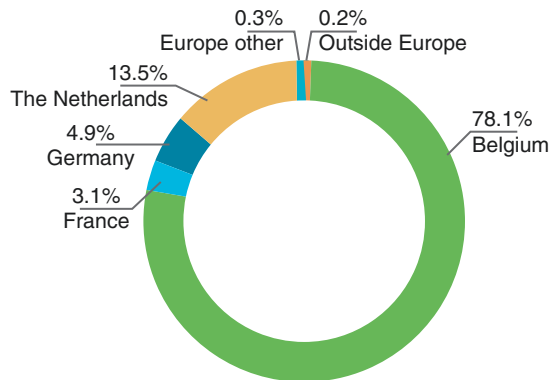
Fig. 5.3 Trends in residual waste Flanders 1990–2015 (OVAM 2016)

Belgium. The overall approach fits within the circular economy agenda as its aim is to ‘preserve as many rare and valuable packaging materials as possible in order to reuse them as raw materials in industrial production’ (IVC-CIE 2018a).

Important indicators relating to the circular economy include the relative strength of the recycling industry. Data suggests that the OVAM support for developing a domestic capacity for recycling has been effective. Belgium’s exposure to the consequences of China’s National Sword policy has been tempered by the waste management practices established under the intergovernmental Agreement. Fost Plus figures show that 99% of package recycling takes place in Belgium or a neighbouring country (see Fig. 5.4), thus reducing exposure to the bans placed by South East Asian countries.

OVAM (2018) argues that companies in Flanders involved in the plastic recycling value chain indicate that they perceive China’s restrictions on the import of waste materials introduced in 2018 is generally seen in a positive light as it creates potential opportunities for more activities and investments in Europe and Flanders. OVAM, however, recognised that China’s decision resulted in a temporary oversupply of plastic waste on the Belgian market, with a corresponding price reduction. It warned that Belgian recyclers could face difficulties with respect to marketing their recycled products since there is currently only a limited amount of applications for recycled plastic. As such, OVAM considered the option of regulations to promote the use of recycled plastic or government subsidies to overcome the uncertainties which can limit possible investments (OVAM 2018).

Fig. 5.4 Recycling of packaging location (Fost Plus 2017)



Despite the dedicated programmes, municipal waste management in Belgium shows a low overall recycling rate for Brussels (EEA 2013). Also, more recent data sets (Eurostat 2018) show a recycling rate of 27% for Brussels, while the average Belgian performance was 54% in 2013. In EEA (2013), the low performance is explained by the lack of infrastructure for the treatment of organic waste and lack of collection/recycling infrastructure related to the high urban density (Zeller et al. 2018). Apart from its objectives on waste prevention and recycling, Flanders wants to maintain its comparatively strong performance by reducing household consumption even further. When compared with other EU countries, Belgium performs very well in reducing per capita waste at the household. This is a challenging area that requires continual awareness campaigns and a focus on changing behaviour. While household waste in the EU grew at an average of 3.4% per annum over the 1995–2017 period, Belgium reduced its household consumption by 9.9%. OVAM recognises the limitations of separated collection, recycling, and treatment of waste. The current view of OVAM is that it is better to prevent waste generation and to reuse goods. Through the new implementation plan, OVAM, in combination with municipalities will attempt to decouple consumption from waste generation. This is important as the Flanders region produced an average of around 522 kg of household waste per capita in 2012, 2013 and 2014, well above the Belgian and EU averages. The current aim in Flanders is to reduce per capita waste to less than 502 kg by 2022 (OVAM 2016) (Table 5.2).

5.3 CHALLENGES AND OPPORTUNITIES

The aim of this case study has been to draw attention to some of the challenges faced by governments in a multilevel system from developing and implementing consistent waste management policies that contribute to the transition from a linear to a circular economy. Belgian regional governments have largely been effective in establishing coordinated waste management policies that reflect many of the circular principles. They have been comparatively successful in recycling waste as they have been willing to apply a suite of policy instruments that include compulsory requirements and financial incentives to encourage behaviour change. Legislated stewardship requirements for packaging producers have also contributed to high levels of recycling both household waste and business

Table 5.2 Municipal waste generated in selected years, 1995–2017 (kg per capita) (Eurostat 2019a)

	1995	2000	2005	2011	2017	Change 2017/1995 (%)
<i>EU-28</i>	470	521	515	497	486	3.4
Belgium	455	471	482	453	410	-9.9
Bulgaria	694	612	588	508	435	-37.3
Czechia	302	335	289	320	344	13.9
Denmark	521	664	736	781	781	49.9
Germany	623	642	565	626	633	1.6
Estonia	371	453	433	301	390	5.1
Ireland	512	599	731	616	:	:
Greece	303	412	442	503	504	66.3
Spain	505	653	588	485	462	-8.5
France	475	514	529	534	514	8.2
Croatia	:	262	336	384	416	:
Italy	454	509	546	529	489	7.7
Cyprus	595	628	688	672	637	7.1
Latvia	264	271	320	350	438	65.9
Lithuania	426	365	387	442	455	6.8
Luxembourg	587	654	672	666	607	3.4
Hungary	460	446	461	382	385	-16.3
Malta	387	533	623	589	604	56.1
Netherlands	539	598	599	568	513	-4.8
Austria	437	580	575	573	570	30.4
Poland	285	320	319	319	315	10.5
Portugal	352	457	452	490	487	38.4
Romania	342	355	383	259	272	-20.5
Slovenia	596	513	494	415	471	-21.0
Slovakia	295	254	273	311	378	28.1
Finland	413	502	478	505	510	23.5
Sweden	386	428	477	449	452	17.1
United Kingdom	498	577	581	491	468	-6.0
Iceland	426	462	516	495	656	54.0
Norway	624	613	426	485	748	19.9
Switzerland	600	656	661	689	706	17.7
Montenegro	:	:	:	524	:	:
North Macedonia	:	:	:	357	344	:
Albania	:	:	:	:	436	:
Serbia	:	:	:	375	306	:
Turkey	441	465	458	416	425	-3.6
Bosnia and Herzegovina	:	:	:	340	352	:
Kosovo ^a	:	:	:	:	228	:

Source: Eurostat (online data code: env_wasmun)

^aThis designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence

waste. In addition, the Belgian experience shows that it is very important that such instruments be supported by a system of levies.

The case study has focused particularly on the experience of the Flanders region as it appears to have taken waste policy action as a political priority over time. For Flanders, the waste management policy encompasses targets for environmental improvement, economic growth and social development, all of which are in harmony with circular principles. The government of Flanders also wants to uncouple the production of waste from increasing consumption. Since 2010, Flanders, through OVAM, has continued to set ambitious per capita waste reduction targets. This objective remains unchanged even in the context of social and economic changes that are seeing increasing numbers of smaller households, increasing consumption and the reduction of the average life cycle of products, and it increases the production of waste materials (OVAM 2017b).

Each of the Belgian regional governments focused on recycling with strong application of separation provisions required of households and business. The application of PAYT to waste has been a common element of waste policy to support recycling in the three regions. Research shows that the implementation of PAYT schemes, along with the development of appropriate infrastructure and awareness raising, helps to achieve some of the demanding objectives of the circular economy (Morlok et al. 2017, 14). In Flanders, results have shown that, while implementing a landfill ban on its own can be effective, it needs to be used in conjunction with an incineration ban so that the fundamental aspects of the waste hierarchy are supported. The more materials that remain in the material cycle, the more likely it is that waste policy can make a contribution to the circular economy. Research also shows that PAYT schemes do not necessarily have an effect on the long-term total amount of waste generated and managed by a country (Morlok et al. 2017). To date Flanders appears to have recognised this by taking steps in recent years to support higher levels of reuse of materials. The experience of other countries is that more effective approaches require other policies developed at the national or the regional level, for example product policies, waste prevention plans and tax regulations, and more targeted actions at the local level, such as awareness-raising campaigns, reuse initiatives, second-hand markets and repair cafes (ibid., 14–15).

The experience of the Belgian regions highlights some weak spots preventing a more comprehensive transition from a linear to a circular economy in a multilevel system. Belgian waste management agencies have

demonstrated effective collection methods, but they are yet to develop systems that process recycled material to the same levels of competence. Exporting recycled material to other European countries for processing remains the main practice. There are also some inconsistent approaches by each region in different aspects that show the challenge of taking policy action to preventing the growth of waste through reducing consumption. Action in this area is a cornerstone of the circular economy as it prevents the use of raw materials entering the waste cycle; however, there appears to be a lack of commitment by governments to challenge consumption as a policy priority. A circular economy necessitates redesigning material life cycles to reduce the volume of materials used. This is a difficult area for government action. There is a tension between promoting economic growth and taking the, seemingly counterintuitive, action to change behaviour and lower levels of consumption. Decades of learned consumption based on linear approaches will require policy priority to establish long-term effective policy measures previously off limits to governments in market-based economies.

Belgium has the highest net financial wealth by households in the EU (Minne et al. 2019). During the global financial crisis from 2008 to 2013, Belgian private consumption still recorded an average annual growth rate of about 1%, well above the average pace that was observed in the three main neighbouring countries. Research suggests that as a country becomes richer, the composition of its waste changes. With more money comes more packaging, imports, electronic waste and broken toys and appliances (Hoorweg et al. 2013). The Waste Framework Directive (EU 2018) obliges EU member states to adopt and implement waste prevention programmes. The revised Waste Framework Directive (EU 2018) strengthens this requirement but does not introduce binding quantified targets for waste prevention. A review of available programmes indicates that countries use a broad range of measures with a focus on information-based instruments and, to a lesser extent, regulatory and economic instruments. Common elements of government policy action include taking an overt focus on end-of-pipe actions lower (3R) options, with no specific measures for reducing the overarching material use (Milios 2018).

The ‘arms-length’ agencies in Belgium, such as those focused on waste policy, tend to have high levels of policy autonomy vis-à-vis the minister (political oversight) (Verschuere 2007). These agencies have been established to help promote coordination and cooperation between regional approaches. The agencies declare that they are able to choose their

preferred target groups and policy instruments. In the case of OVAM, it can develop and implement legislation focused on waste management for the Flanders region. The IVC-CIE has responsibility to formulate proposals and advice for the regional governments on amending the joint agreement (IVC-CIE 2018b). The experience of the IVC-CIE reveals that cooperation is not impossible if regional governments are committed to a joint approach. This has often proven to be challenging in the Belgian federation where the central government does not have the constitutional responsibility to take the lead in bringing the regional governments together to a common integrated approach.

While recycling of plastic packaging has achieved a common approach, challenges remain in other critical areas of waste. As an example, the Flanders Environment Agency Report (2018) reveals the current linear approaches to food production and industry resistance to drastic change. In spite of the pressure exerted on the system by sustainability issues, societal developments and emerging niches, there appears to be no real sense of urgency for structural changes. The regime of conventional agriculture, food industry and retail focus primarily on the preservation of existing organisations, structures and institutions, and on transformation based on technologically supported ecological modernisation. Again, the experience of Flanders is leading the way on this. In Flanders, 92% of all food waste is reused within the food system: 43% is used as animal feed, 44% as material—generally as soil improver or fertiliser, with or without prior composting or fermentation—and 5% is used for energy applications. Only 6% is incinerated (with energy recovery) and about 1% is landfilled or discharged (Flanders Environment Agency 2018, 121).

Research has indicated that agencies in Belgium tend to be more innovative and customer oriented than their administrative counterparts, especially if there is sufficient autonomy and result control (Verhoest et al. 2012). Research by Campbell-Johnston et al. (2019) suggests that multi-level policy integration is needed to alter value chains to enable greater reduction in material inputs and changes in actor behaviour towards a transitions to a circular economy. Whether Belgian waste management agencies can take coordinated policy action on the more challenging circular aspects, such as reducing consumption, without pushback from political and business interests, remains to be seen.

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Waste Management in Norway

Abstract This chapter adopts the political priority framework as a tool for analysing the policy effort undertaken in Norway to establish a circular economy. Of particular relevance is the implementation of sustainable approaches to waste management. The contribution of the multilevel nature of the Norwegian political system is highlighted in discussing approaches to policy development and implementation. Challenges and opportunities for the adoption of further aspects of the circular model beyond recycling are also discussed.

Keywords Norway • Recycling • Municipalities • Competitiveness • Circular economy

6.1 INTRODUCTION

Waste management in Norway is characterised by complexities and challenges that reveal a need for according these issues a higher policy priority support towards more sustainable approaches. There has been a focus on exporting recycled material rather than the development of a local recycling industry capable of accommodating the volumes of waste produced (Milton 2018). Rising volumes of hazardous waste are derived from consumer goods such as computers and mobile phones (NEA 2016). Reports by Statistics Norway show that waste volumes have continued to increase

since 2012. While waste from manufacturing has slowly decreased, waste from households has shown no sign of reducing (SSB 2017, 2018a, 2019b). The Norwegian Environment Agency sees affluence as a prime driver of increasing volumes of household waste (NEA 2016). Studies reveal that waste prevention at the household level has a long history of failure in the Norwegian context (Hildebrand 2013). Despite government commitments and statements of support to EU circular initiatives, Norway has no clear policy or strategy on establishing more sustainable approaches nor a single responsible ministry. The various aspects of circular economy are addressed as appropriate by several ministries under their individual areas of responsibility (EEA 2019a). A lack of strong legislative support at the national level for industry compliance and uncoordinated governance arrangements at the ministerial level, combined with inconsistent approaches at the municipal level, continue to provide challenges in this key area of supporting sustainability focused policy initiatives in the management of waste.

The 2017b White Paper, *Waste as resource—Waste policy and circular economy*, outlines the Norwegian government's proposals to meet EU 2008 Waste Framework Directive, including requirements under the EU 2015 Circular Economy Package (EEA 2019). The primary purpose of the White Paper was to contribute to the establishment of a government strategy that would promote resource efficiency as the core of a circular economy. The focus is on initiatives for the reduction of food loss, support for recycling and a strategy for plastics, with a priority on microplastics and marine littering. There is also a requirement for implementing the European Commission's waste regulations, particularly more ambitious targets for recycling municipal waste. Questions have been raised regarding the level of commitment the Norwegian government has to achieving many of the waste-related targets and whether there is any serious intention to establish a circular economy. The White Paper has been criticised for not developing specific indicators or other measurement tools for determining progress towards circular approaches. In this regard the International Solid Waste Association claims that the Norwegian approach 'leaves a lot to be desired' (ISWA 2018). While there have been strong results in Norway's recycling of plastic bottles and cans, there have been ongoing challenges in reducing consumption to prevent the continuing growth in volumes of waste.

6.2 WASTE MANAGEMENT IN NORWAY

6.2.1 *Policy Context*

Norway is a constitutional monarchy, with legislative power vested in its unicameral parliament (Stortinget). The Parliament's 169 members are directly elected by a system of proportional representation for four-year terms. It is led by a presidium consisting of a president and five vice presidents. In 2020, the parliament of Norway consisted of minor parties ranging from conservative, centre right/left, green and Christian Democrats. Since 2019, the Right Party, the Progressive Party, the Left party and the Christian People's Party have reached an agreement to establish a majority government. At the committee level there are opportunities for political parties to participate in the decisions that help determine government policy. The Standing Committee for Energy and the Environment has an interest in the circular economy and waste management; it has 17 members, with representation from each of eight political parties (Stortinget 2020). There is general agreement in the Stortinget:

The government's political cooperation platform says that Norway should be a pioneer in developing a green, circular economy that makes better use of resources, and that a national strategy on circular economy should be prepared. (Norway 2020b)

Although not a member of the EU, Norwegian approaches to waste comply with the EU Waste Framework Directive. As a member of the European Economic Area (EEA) Agreement, Norway is also a member of the European Free Trade Association (EFTA) and needs to conform with the EU policies on waste management if it is to continue to benefit from EU subsidies and trade. As a result, Norwegian environmental policy has been strongly influenced by the EU. Norway has also often influenced EU environmental policy, and in some areas has adopted requirements more stringent than those of the EU. Norway has shared values and high degree of integration with EU environmental initiatives. It is in Norway's economic interest in promoting European competitiveness and high standards for the protection of the environment. As a high-level influence, substantial aspects of the legislation proposed in the European Commission's *European Green Deal* to promote waste-focused initiatives associated with a circular economy will fall within the scope of the EEA. Norway is very active in the

bureaucracy of the EU and sees itself making a contribution to the development of these initiatives (Norway 2020a).

In terms of institutional settings, the Norwegian government develops national waste policy, establishing the general framework for stakeholders with adherence to EU commitments. Municipalities and industry share responsibility for local waste collection and treatment solutions. Important waste policy instruments include legislation, taxes and economic incentives targeted at the municipalities, business and industry. There is considerable variation in approaches to waste management between municipalities based on population, resources and local conditions. Municipalities are sovereign legal entities, and national policy initiatives are proposed more as expectations than regulated requirements. The Norwegian Association of Local and Regional Authorities states that municipalities have connections with the EU that ‘require both legal and political connections’ (KS 2020). The EEA is one area where municipal governments see opportunities to influence EU affairs. Compliance with national objectives is monitored by national environmental authorities and county governors; the process entails problem identification and resolution, along with follow-up supervision through relevant ministries. Similar to other areas of environment policy in Norway, waste regulation resides with the Ministry of the Climate and the Environment; however, the laws that mandate actual measures are enforced by a number of other authorities subsumed under several ministries (Hanssen et al. 2016). This feature of policy implementation can contribute to challenges for coordination and the measurement of results. Complicating the scenario is the fact that inter-municipal companies represent the most common approach to collection and processing of waste with the majority of municipalities cooperating to organise their waste services. The largest industry group is Avfall Norge, a trade association for waste management and recycling companies in Norway. Avfall Norge membership includes 100 municipal and inter-municipal solid waste organisations, and covers about 95% of Norway’s municipalities (Avfall Norge 2020a). Approximately 28 municipalities run waste services in-house; some support competitive tendering, resulting in out-of-municipality provision, either by public companies from other municipalities or private companies (Torsteinsen and Genugten 2016). Waste management is one of the municipal services with the highest degree of variation in organisational forms, both public and private, delivering Norwegian public services.

The Norwegian government relies on a variety of policy measures to provide incentives for waste prevention, including relying on extended

producer responsibility (EPR) arrangements for business and encouraging changes to consumer behaviour. Waste prevention activities tend to focus on selected types of waste, including food waste, waste from building and construction, electric and electronic waste, and textiles. Measures for waste prevention are assessed on where prevention will have the greatest environmental effects throughout the life cycle of each product and where there will be the largest potential for economic benefit of the measures (Papineschi et al. 2019, 122).

The first unified Norwegian legislation concerning pollution and waste was the *Pollution Control Act of 1981*. Waste treatments have traditionally involved recycling and incineration; for example, in 1991 Norway introduced a recovery target for 80% of municipal waste. In 1999, landfill and incineration taxes were introduced. By 2015, the tax was abolished as administrative costs were greater than the revenue generated. In 2009, a landfill ban for biodegradable waste was introduced for paper, tree and food waste. The incineration tax was terminated in 2010 largely due to the fact that Sweden had already abolished its incineration tax—creating a market in which Norwegian incineration plants were uncompetitive. As a result, almost all of the municipal solid waste (MSW) (and waste in general) exported from Norway goes to Sweden and almost exclusively to incinerate in waste-to-energy (WtE) plants for district heating. Detailed statistics are difficult to obtain but it is estimated that 1.6 million tonnes of MSW are exported every five years. The topic is complex, and lower processing costs in Sweden (which has a WtE overcapacity) are considered the main reason for the MSW exports (NEA 2017b). In an ironic twist, Norway has recently been importing around 400,000 tonnes waste per year for the emerging Norwegian WtE plants in particular, mainly refuse-derived fuel (RDF) from the UK (NEA 2017b).

The Norwegian government recognises a need for a greater focus on waste prevention especially for food waste, construction and industrial waste, electrical products and textiles. Scholars argue that Norwegian government initiatives are relatively weak as they aim to a small degree at directly preventing waste (Malinauskaite et al. 2017). The Nordic Council of Ministers has argued that Norway needs to identify and develop cost-effective prevention solutions—not least to meet the targets of the 2018 EU Directives on waste (Papineschi et al. 2019, 124). In its most recent report, the NEA states: ‘From 2014 to 2015 waste rose by 3 %, while GDP increased by 2 %, as a result the national target for waste prevention was not achieved’ (NEA 2017a).

6.2.2 *Ideas and Approaches Taken*

In an attempt to focus waste policies in the direction of circular initiatives, the Norwegian government released the *Strategy for Green Competitiveness* in 2017 (Strategy) (NMCE 2017a). This strategy contains basic ideas and principles emerging from the 2017 White Paper that forms the basis of its core aspects, including the circular economy as one contribution to green competitiveness. The strategy is a key milestone for the Norwegian government and for the waste and recycling industry because it regards the sector as a catalyst for moving towards a circular economy. The government claims it will promote a transition to sustainable practices through a set of four waste-related initiatives:

1. Seek to strengthen markets for secondary raw material.
2. Further develop environmentally sound use of waste
3. Increase recycling rates
4. Strengthen demand for circular economy solutions through cooperation with the EU labelling schemes to encourage green consumption (NMCE 2017a).

The minister for climate and environment has suggested that Norway recognises the importance of waste policy as it can reflect many circular principles: ‘waste is no longer first and foremost a problem—it is also a resource. Almost everything we consider as waste can be reused or recovered. Recycling and measures to reduce waste are important elements in our waste policies’ (NMCE 2017a).

The Norwegian government relies on regulatory measures established under the *Pollution Control Act* and assorted *Waste Regulations*, as the means of achieving its waste management goals ((Papineschi et al. 2019). A key objective of the strategy is to promote access to and production of high-quality secondary raw materials using financial incentives to encourage business uptake. The government is proposing a requirement that business should draw up clear criteria for secondary raw materials and communicate them to manufacturers. For its part the government will take steps to strengthen the market for secondary raw materials in cooperation with the manufacturing and waste management sectors. These ideas reflect the proposals made in the White Paper and the Strategy that reflect the Norwegian government’s tendency to avoid setting specific

targets for broad-scale recycling and separation of waste and take serious steps to increase useful and environmentally sound use of waste and waste-based products (Norway 2017, 47). There is some recognition within government that the EU Green Deal initiative could have important implications for Norwegian business and industry; it has been framed primarily as a waste management problem and an economic opportunity for Norwegian companies that can offer ‘new smart, green solutions and technology that will improve resource efficiency’ (NMCE 2017b, 47). As a result, the strategy has raised attention to the necessity for companies to prepare to compete in the context of strict rules on resource efficiency (NMCE 2017b). In 2018, Deloitte conducted a survey of 50 Norwegian companies to illustrate circular initiatives being taken. The key finding was that few companies are undertaking comprehensive circular efforts. Companies that have some interest in circular approaches deal primarily in consumer goods and related services linked closely to their EPR obligations: ‘usually related to end-of-lifecycle returns, and customer engagement, usually related to educating the consumer in how they can reduce their own waste’ (Deloitte 2018). The objective of the survey was to ‘motivate conversations between government and business that can work as a starting point for developing a green economy’ (ibid., 2).

As part of the preparation of the strategy, the Standing Committee on Energy and Environment invited specific industries to develop roadmaps to promote more circular practices and reflect the idiosyncrasies of their business base. Part of the roadmap proposals have been the industry perspective on the most appropriate government response to their needs. This interaction between the committee and external groups reflects a long-standing practice of Norwegian governments observed in other areas of environment policy. Bailey observed this characteristic in research on Norway’s policy action on commercial whaling:

Environmental and other civil society organizations are drawn into the corporatist channels where power has been traditionally centered. Civil society organizations participate in the system of committees where policy formation occurs and play a role in policy implementation. This system, which incorporates civil society actors into governance and negotiates outcomes, generally reduces the need for NGOs to play an external “watchdog” role, to rely on broad public campaigns to push for legislative change, and to turn to litigation to enforce environmental laws and regulations. (Bailey 2009, 86)

The result of this approach has been a close relationship between industry and government in terms of framing environment policy arguments in favour of business interests. Dryzek et al. (2003) observed this close relationship between these groups and the state in Norway, in a system that values consensus. Avfall Norge developed the most significant roadmap in the context of Norway's ambitions to move to a circular economy given its focus on the management of waste. While the roadmap reflects similar proposals for other European countries, the authors see specific recommendations for Norway. To enhance reuse/recycling, a reduction of taxes on labor and an increase of taxes on the use of primary raw materials (Wijkman and Skanberg 2015) as well as introducing end-of-waste criteria for specific products that could contribute to increase the market for secondary materials. The managing director of Avfall Norge made this observation:

We need the government to actively drive and encourage the circular economy. It establishes standards, acts as a facilitator and driver of change, and ensures a level playing field on the market. The roadmap recommended that the Government creates a clear national strategy for resource efficiency which includes goals for waste minimization, reuse and material recovery, as well as a distinct framework for the economic actors. The strategy must of course be rooted in the EU's Circular Economy Package. (ISWA 2018)

Other roadmaps encourage the government to take stronger legislative action than has hitherto been the case, for example the Norwegian Federation of Industries argues that a feature of a low carbon economy is higher demand for products with small carbon footprints from both production and use. 'Norwegian process industries are, and will continue to be, capable of supplying this demand with new, increasingly clean and innovative products and processes. Achieving this requires predictable framework conditions and continued access to renewable energy at competitive terms' (FNI 2016).

A summary of the ideas from different Norwegian industry roadmaps is outlined in Table 6.1.

A long-term preference by the Norwegian government has been to establish voluntary agreements between government and industry. In this regard the government frames the solution to waste issues as the responsibility of both industry and households. The government approach is to set boundaries and expectations and require industry participants to achieve

Table 6.1 Norway industry roadmap response (Nordic Council of Ministers (NCM) 2020)

<i>Organisation</i>	<i>Policy instrument</i>
The Federation of Norwegian Industries	Increase recycling rates for building and construction. Adopt strict recycling goals in legislation. Legislated waste plan for all buildings.
The Federation of Norwegian Construction Industries	Legislated recycled content in new products. Regulated documentation requirements for materials used in new constructions
The trade organisation Byggeten Genser	Legislate traceability of building material/products. Environmental labelling for all building materials Increase knowledge of circular economy by focusing on industrial symbiosis
Norwegian Association of Heavy Equipment Contractors	Building regulations to require development of waste plans and environmental management. Regulation of documentation of all materials used in new constructions.

specific targets within agreed timeframes. Waste treatment is regulated and influenced by policies and measures between different ministries. The Ministry of Environment, the Ministry of Oil and Energy and the Ministry of Finance are jointly responsible for environmental taxes on different energy resources and carriers and tax policies in general (Bauer and Fischer-Bogason 2011). Research shows that the mix of voluntary agreements with other financial instruments can result in a situation of economic funding and taxes that fail to give the right incentives to actors in the market, to manage waste in the most sustainable way (Raadal et al. 2003).

The processing of food waste in Norway is an example of a voluntary sectoral agreement. The 2017 *Industry agreement on the reduction of food waste* involved a cross-section of policy actors in the management of waste. These included various government agencies, including the Ministry for Climate and Environment, Ministry of Agriculture and Ministry of Trade, Industry and Fisheries. Industry groups were also critical actors as they could volunteer to be part of the Agreement including groups like the Groceries Sector's Environmental Forum, the National Federation of Service Industries, the Norwegian Fishermen's Association and the Norwegian Farmers and Smallholders Union have committed to participate (Norway 2017). The Agreement is an example of the Norwegian

approach that attempts to share responsibilities between consumers and producers. Industry organisations have signed the agreement to halve food waste throughout the food value chain by 2030. The agreement is a follow-up measure in line with UN Sustainable Development Goal 12.3. It is more ambitious because the goal applies to the entire food value chain, from primary production to consumers. The agreement may be voluntary, but it is binding for the contracting parties (EEA 2019). These schemes however have been criticised for creating opportunities for ‘free riders’ as there is no compulsion for food manufacturers to participate in the Agreement, only to comply if they commit to it. Other weaknesses include a lack of monitoring and performance assessments, lack of transparency on their cost effectiveness, failure of these schemes to promote improved sustainable product design and distortions of international trade markets that may disadvantage local firms participating in EPR schemes (Zero Waste Europe 2017). The agreement on food waste reflects similar agreements in Norway that adopt EPR principles. These include voluntary schemes on waste electrical and electronic equipment (WEEE), batteries, tyres, end-of-life vehicles (ELVs), packaging waste and beverage packaging.

The purpose of Norway’s EPR provisions is to facilitate take-back systems to incentivise households in a way that promotes high recycling/recovery rates. The Norwegian Waste Regulations, implemented in 2004, contained chapters regarding the treatment of different waste streams and requirements for recycling. There are requirements for the reception, collection, recycling and other treatment of electrical and electronic waste. Distributors of these products are required to receive household WEEE free of charge from shops or other collection points. Municipalities are also required to ensure that there are sufficient reception facilities for these products and accept this waste free of charge. Producer responsibility is maintained by requiring participating producers to fund the collection, sorting and treatment of WEEE through membership of a collectively-, or individually-, funded return company. The regulation sets out recycling targets which must be met by the return companies. Similar to the WEE scheme, distributors of batteries are required to accept returned batteries free of charge from shops or similar facilities. Norway is also investigating possible EPR schemes and financial mechanisms for new take-back systems on leisure boats and equipment from the fishing and fish-farming industries (EEA 2019).

The most successful, and widely known Norwegian EPR arrangement, is the recycling of approximately 97% of plastic bottles since 2011 by using

a nationwide bottle deposit scheme. The scheme is again based on key policy actors in both government and the private sector. The state secretary for the Norwegian Ministry of Climate and Environment points out that while the container scheme is successful and even a good model for other countries, government should actually take a hands-off position: ‘There should not be any bureaucracy involved. It’s been proven to work and it’s a good idea in accordance with the plastic discussion’ (Milton 2018, 2). Whether or not this position is the result of industry lobbying is difficult to assess. The scheme involves the application of an environmental tax that bottle producers must pay unless they take responsibility for recycling over 95% of plastic bottles (Taylor 2018). The scheme is seen to demonstrate the responsiveness of business to such incentives and the willingness of the Norwegian households to participate and benefit financially in reverse vending arrangements if they are easily accessible.

Jørgensen (2013, 513) argues that the Norwegian bottle deposit scheme highlights three key insights into factors that influence consumer recycling conditions. First, there is a financial incentive to return the plastic containers; second, the return system is clearly defined and convenient; and third, responsibility for the scheme rests with the industrial actors that produce and use the plastic containers. In the context of the arguments in this book, a fourth insight is also clear, which is that governments with responsibility for the relevant policy instruments, in this case the environmental tax, make its introduction a policy priority. The policy actions of the Norwegian government applying the polluter-pays principle to packaging delegated the environmental and economic responsibility of recycling and reusing packaging to business (ibid., 511). The Norwegian state secretary for the Ministry for Climate and Environment stated in 2018: ‘A lot of our plastic waste is exported to Sweden and Germany because they have a better recycling industry, they have a better system than Norway’ (Milton 2018). How to raise the policy priority for strengthening recycling capacity will become increasingly important for Norway as the circular targets of the EU Parliament continue to place pressure on signatories of the EEA to improve waste management policies and practices.

6.2.3 Policy Actors

The *Norwegian Public Report* (NOU) requires each ministry to invite experts and central stakeholders, to make a statement on current knowledge in a policy area (Norway 2020a). Through this process key actors

relevant to policy debates have opportunities for input at the Green Paper stage. Policy actors are instructed to arrange different forms of seminars and input. The NOU is sent on public hearing so anyone can have an opinion. In drafting a White Paper, each ministry explains their positions and general policy approaches. This is a closed process, and there are bureaucratic and political negotiations between sectors; it is the bureaucracy's statement of position with a political backing. *Stortinget* is the process of receiving the White Paper to make decisions within committee—and decisions are open in the form that specific issues should be dealt with, but not as a statement of new regulation or budget. Rather, the ministry will later have to defend whether the decisions are taken into account and explain how. The *Stortinget's Proposal* is a public document, but a different form of White Paper explicitly suggesting and arguing for a new regulation (or budget allocation). The *Proposal* might be subject to public hearing, particularly if regulatory change is involved, and in either case is subject to internal hearing within the ministries. The ministries will usually involve stakeholders, but this is an obscure process and depends on existing networks and forums and trust relations. The *Stortinget* passes law, and this law proposal will be subject of a public hearing.

The traditional Norwegian approach is reflected in the recent policy debate in the management of hazardous waste. Evidence suggests that there are multiple issues relating to hazardous waste including the identification of new landfill sites and the need to reduce the volumes of hazardous material being illegally dumped. The waste industry has been critical of the government's delay on determining new landfill sites to replace the Langoya site which is reaching capacity (Avfall Norge 2020d). The minister for climate and environment appointed an expert committee to examine the issues in 2019. The committee considered how to reduce hazardous waste and possible solutions to challenges of landfill. The committee is a good example of the key policy actors in waste management in Norway, consisting of five representatives from the waste industry, one from municipal government, one from the Department of Environment and one academic from the Faculty of Economics (NTNU). Interestingly the committee did not have representation from the construction industry—the main source of hazardous waste, or the incineration industry—one of the main alternatives to landfill. The committee report argued that the government needed to establish 'clear targets for recycling and resource utilization be taken into account by the authorities when making decisions related to hazardous waste' (Norway 2019a). The committee took the

opportunity to argue that a circular economy involved more than a focus on waste. The government had been slow to act on promoting a circular economy and needed to ‘act quickly’ in establishing measures to support research, innovation and commercialisation (ibid.). In response to questions in the *Stortinget* in 2020, the minister for climate and environment admitted that there had been no follow-up to the committee’s report. The minister confirmed that the ministry was undertaking its own assessments including ‘dialogue with key industry players about possible solutions’. There was no conclusion on the future treatment capacity for hazardous waste or the establishment of new landfill sites (Avfall Norge 2020).

The *Strategy for Green Competitiveness* (2017a) was drafted in a collaboration between the ministries of climate and environment, finance, trade and industry, and petroleum and energy. A key finding of the Strategy committee was that there needs to be improvements in cooperation between authorities, (including municipal governments) researchers and the business sector. EPR-based requirements involve policy actors directly involved in the production, disposal and recycling of waste. These actors have been outlined in the relevant sections throughout this case study. Government arguments on this suggest they believe that these actors have better insight into the opportunities and challenges facing specific industries. As a result, the government has been ‘strengthening cooperation in the process industry sector between business and industry partners, the public administration and researchers, and has established a long-term strategic forum called Prosess21’ (Norway 2017, 30). Early initiatives suggest that this new approach includes stakeholders from the industrial and research sectors, Innovation Norway, the Research Council, and the Norwegian Environment Agency. There are no guarantees however that this approach will lead to policy change in waste management practices. Steiner-Khamisi et al. (2020) have analysed the Norwegian policy process and the links between expert advice and evidence and the committee stage (Green Papers) and the political policy stage (White Papers). They conclude that in Norway around ‘90 percent of texts amassed by expert commissions in order to provide evidence-based policy advice to the government is ignored’ (p. 137). In contrast to consultation, Norwegian ministries tend to focus on their own evidence over other expert sources. It is certainly difficult to ascertain any clarity on this matter through the procedures of the *Stortinget*, where there is little information on debates either in the Committees or in the Parliament. There is no public access to submissions that may have been made by industry representatives to the

debates on the discussion about the circular economy or waste management as outlined in the strategy.

According to surveys among Norway's MPs, the nature of political representation in the Norwegian Parliament means that lobby groups, as policy actors, push their agenda through individual MPs. Rommetvedt (2004) argued that 80–90% of the MPs agree that interest group lobbying furnishes them with alternative information and counter expertise and, therefore, improves their ability to control the executive's follow-up of the resolutions and intentions of the *Stortinget*. The politically fragmented nature of political representation through a broad range of political parties in the Norwegian parliament would suggest many opportunities for pressure through lobbying. One example where lobbying has proven to be successful has been the efforts by WWF, over what it claims were many years, for Norway to ban disposable plastic products. In 2019, the WWF claimed its efforts had been somewhat vindicated when the minister for climate and environment announced a Norwegian ban that would introduce producer responsibility for these products in 2020. The WWF argued that it was disappointing that the government bill did not include a 'clear regulatory liability scheme for all plastic manufacturers' (WWF 2020). Whether the Norwegian approach produces the most effective policy for the overall management of waste and the achievement of stated goals remains to be seen.

6.3 CHALLENGES AND OPPORTUNITIES

6.3.1 *Quantities of Waste Continue to Rise*

Despite setting a policy objective of decoupling waste from economic growth, government figures show that waste continues to increase at a higher rate than GDP (SSB 2017). The Norwegian Environment Agency argues that between 2007 and 2009 the growth in waste rates were lower than economic growth, but after 2009 waste volumes increased more than GDP, primarily due to an increase in household waste (NEA 2017a). The largest source of waste in Norway has been the construction industry, but much of this waste stream is recovered. Waste generation by industrial activities has declined in the past ten years. Registered exports of waste from Norway continue to increase with much of this waste exported to Sweden for waste-to-energy (WtE) purposes (Eurostat 2019b). The state secretary for the Norwegian Ministry of Climate and Environment argues

that despite the reliance on other countries taking the plastic collected in Norway, there could be changes in the future. He mentions companies in Norway taking an interest: ‘Several new companies are now building different factories, different plants around the country and they can recycle the plastic into bioethanol which is biofuel. So, there is a growing industry in Norway’ (Milton 2018, 3). This approach reflects the corporatised nature of Norwegian politics that industry should drive innovation in this area rather than the government. Such approaches will continue to benefit the interests of business and industry.

Current analysis by Statistics Norway shows the following: the total amount of waste generated in Norway was 11.8 million tonnes in 2018; 73% of all waste was recovered in 2018; there was 67% rise in total waste quantities from 1995 to 2018 (SSB 2018a, 2018b). In 2018, each Norwegian, on average, produced 421 kg waste (SSB 2019b), while the average figure for the 28 EU countries was 488 kg (Eurostat 2019a) (Fig. 6.1).

Waste amounts tend to fluctuate above and below GDP but the trend is one that continues to rise. The trend for material recycling tends to go down. This is mainly due to growth in waste from the construction industry, as the main source of an increasing amount of waste that is landfilled (Fig. 6.2).

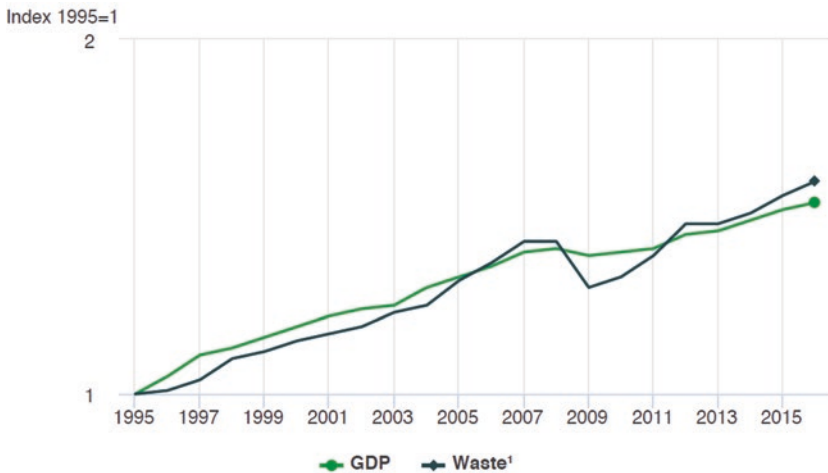


Fig. 6.1 Total waste is still going up (Source: SSB 2018)

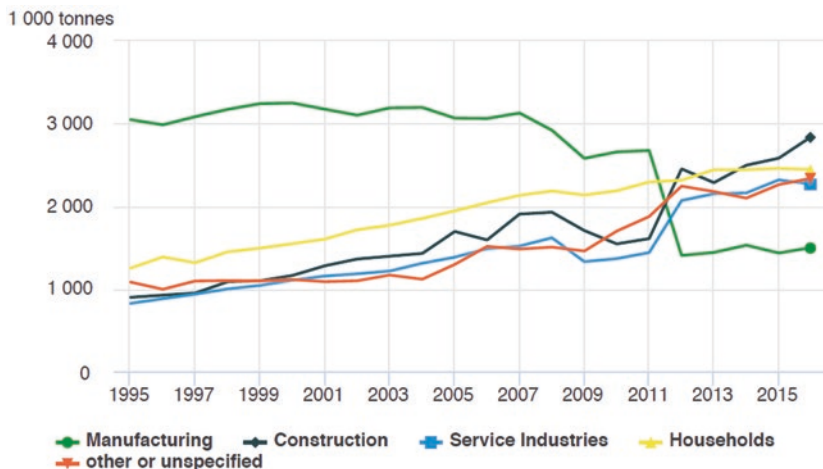


Fig. 6.2 Waste in Norway by source (Source: SSB 2018)

6.3.2 Hazardous Waste

Hazardous waste contains substances that are hazardous to health and the environment, and in order to ensure that people and the environment are not damaged by the hazardous waste, it is important that it is delivered for proper treatment. The export of hazardous waste from Norway increased from 505 thousand tonnes in 2012 to 1042 thousand tonnes in 2014. Only France, with 1526 thousand tonnes has a higher rate than Norway; see Fig. 6.3. These are the only recorded figures provided by Norway in a context where EU countries report annually. To compare this figure, Belgium's (with double Norway's population) export of hazardous waste in 2012 was 631 thousand tonnes and 637 thousand tonnes in 2014 (Eurostat 2019b). Reasons for the export increase include an insufficient combustion capacity in Norway and a ban on the landfilling of biodegradable waste, coupled with changes in economic and market factors (Malinauskaite et al. 2017, 2034). A lack of recycling facilities across Norway contributes to the need for increasing volumes of waste being exported for disposal through incineration on other countries.

In 2016, the recovery of non-hazardous waste undergoing known treatment was 74%, a decrease of 3% from 2015, this corresponds to 7.3 million tonnes. In 2016, 27% of non-hazardous waste undergoing known

	2001	2003	2005	2007	2009	2010	2011	2012	2013	2014	2015	2016
EU-28	3 985	4 445	5 785	8 105	7 427	5 272	6 155	5 351	5 619	6 030	6 098	6 479
Belgium	721	792	829	1 007	673	689	835	631	680	637	685	707
Bulgaria	-	-	-	-	0	9	5	5	3	5	11	12
Czechia	4	2	2	4	7	15	11	18	31	34	37	32
Denmark	177	135	85	117	176	102	64	274	222	150	300	272
Germany	270	185	229	249	164	309	317	334	495	620	546	783
Estonia	3	1	0	3	5	1	2	3	10	13	13	12
Ireland	282	389	257	323	191	199	211	193	246	232	256	275
Greece	1	3	3	9	23	39	44	22	49	180	44	82
Spain	61	49	44	60	54	52	104	59	74	43	78	55
France	149	710	552	942	971	1 400	1 223	985	1 526	1 147	926	722
Croatia	-	-	-	-	-	-	-	21	19	22	20	19
Italy	183	243	818	1 243	1 405	1 459	1 354	977	852	825	824	842
Cyprus	2	2	3	4	2	5	8	5	4	4	5	6
Latvia	17	15	1	7	11	17	14	12	14	18	21	9
Lithuania	-	84	2	4	17	18	24	21	24	21	29	27
Luxembourg	89	85	46	73	114	89	81	89	92	85	268	374
Hungary	18	31	75	72	69	49	29	19	26	29	30	31
Malta	5	-	1	2	2	18	17	14	11	19	17	110
Netherlands	1 627	1 177	3 221	3 121	2 743	738	813	788	777	778	875	812
Austria	105	150	191	285	173	295	300	270	320	278	262	273
Poland	18	37	10	65	26	20	14	14	13	24	36	46
Portugal	63	92	108	8	61	54	63	17	70	55	53	49
Romania	-	-	-	37	23	4	2	7	14	25	27	24
Slovenia	8	15	22	70	58	35	45	47	47	57	61	59
Slovakia	0	2	3	2	3	4	4	5	7	12	11	13
Finland	39	60	68	74	107	120	92	95	105	117	123	105
Sweden	105	119	95	176	184	310	284	250	180	324	307	345
United Kingdom	35	60	120	149	164	222	192	174	707	275	231	383
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Liechtenstein	-	-	-	-	-	-	-	-	1	4	4	1
Norway	-	-	-	-	-	-	-	507	1 039	1 042	-	-

- - - not available
Source: Eurostat

Fig. 6.3 Shipment of hazardous waste from EU member states and EFTA countries, 2001–2016. (1000 tonnes) (Eurostat 2019b)

treatment was energy recovered, while 38% was subject to material recovery. The main reason for the decrease in recovery is less waste used as filling compounds and cover materials in 2016 compared to the years before. The hazardous waste statistics show that in 2016 around 19,000 tonnes, or 1%, of all hazardous waste generated in Norway were delivered to unknown handling—either dumped or illegally shipped (SSB 2019). The amount has decreased compared to previous years. These figures suggest that the approaches taken in Norway are beginning to trend in accordance with the expected reductions. Despite this, however, Norway continues to be less effective than other European countries and below the targets set by the EU (Fig. 6.4).

6.3.3 Recycling

Current EEA figures on recycling in Europe show Norway lagging behind the leading countries in terms of both municipal waste and packaging waste (EEA 2019b). In 2018, 47.5% of waste generated in EU countries was recycled; in Norway the figure was 40.7%. There has been little

Hazardous waste for approved handling, by type of material. 1000 tonnes					
	2018	2017	2014	Percentage change	
				2017 - 2018	2014 - 2018
Overall	1 545	1 654	1 502	-6.6	2.9
Oil	577	626	522	-7.8	10.5
Solvent borne	39	38	37	2.6	5.4
Other organic	52	75	45	-30.7	15.6
Heavy metal waste and contaminated pulp	519	510	523	1.8	-0.8
corrosive	268	291	340	-7.9	-21.2
Other inorganic	17	24	10	-29.2	70.0
process water	73	90	23	-18.9	217.4
Photochemicals	0	0	1	.	-100.0
Unknown	0	0	0	.	.

Fig. 6.4 Hazardous waste in Norway (Source: SSB 2019)

improvement in Norway since 2006 when 40.3% of municipal waste was recycled, which at the time was a higher rate than the EU average of 33.2% (Eurostat 2020). By comparison, Germany has the highest recycling rate for municipal waste of 67.3%. For packaging waste, the EU figure was 67.5% recycled, and for Norway it was 56.1%, down from 70.3% in 2006 (EEA 2019b). Less than one-third of the plastic packaging in Norway is recycled for new products (Avfall Norge 2020). By comparison, Belgium recycles 83.8% of packaging waste. Statistics from the Norwegian government 2018 showed that overall more waste was going to landfill, including food waste, and less was being recycled (SSB 2018). Unfortunately, according to the Eurostat figures, the trajectory for recycling rates for MSW and packaging waste in Norway seems to be trending downwards over the last decade, despite the waste management policies intended to promote more recycling. More positively, e-waste and biowaste have been trending up. Table 6.2 shows Norway's performance in the circular economy measures applied to different aspects of waste over the 2006–2018 period.

Two other circular economy measures developed by the EU include the trade in recyclable materials across EU borders, including plastic, paper and precious metals. Figures cover the period 2007–2019. Another measure focuses on the circular material use rate, with a focus on material recovered and fed back into the economy over the period 2010–2017. As a reflection of Norway's delay in establishing a circular strategy, the government has been unable to provide data to the EU on these measures (Eurostat 2020).

Table 6.2 EU circular economy measures 2006–2018: Norway (Eurostat 2020)

<i>Measure</i>	<i>2006</i>	<i>2018</i>	<i>EU 2018</i>
Recycling of municipal waste	40.3	40.7	47.1
Recycling of all waste excluding major mineral waste	NA	NA	57
Recycling of packaging waste	70.3	56.1	67
Recycling of e-waste	35.5 (2008)	49.3 (2017)	39.4
Recycling of bio-waste	62	72	83
Recovery rate of construction and demolition waste	44 (2010)	71 (2016)	89

Table 6.3 Household waste in Norway (SSB 2019b)

<i>Household waste: Main figures</i>					
	<i>In total</i>			<i>Percentage change</i>	
	2016	2017	2018	2016–2017	2017–2018
In total 1000 tonnes	2277	2256	2241	-0.9	-0.7
Per capita	433.0	426.0	421.0	-1.6	-1.3
Sent to material recycling (1000 tonnes)	868	881	892	1.5	1.3
Sent to material recycling. Per capita	165.0	166.3	167.5	0.8	0.7

The table was corrected 24 October 2019

The statistics on waste from households in Table 6.3 shows that Norway has not been able to fulfil the requirement for material recycling in a per capita basis in previous years. In 2008, the proportion of household waste delivered for recycling was up to 44%. Since then, the share has dropped, and has remained at just under 40% since 2011. A key issue for recycling is the inconsistency of approaches taken by Norwegian municipalities.

Larger municipal governments have access to resources, and in some cases the political will, to support a stronger focus on recycling. One of the most successful has been the Oslo Kommune, which won the *European Green Capital Award* in 2019 for its approach to environmental issues, including waste management. The city has been recognised for its approach to environmental issues set ambitious climate change goals including reducing greenhouse gas emissions by 95% by 2030 and achieving climate neutrality by 2050. The management of waste in the city makes a major contribution to these goals (Oslo 2019). In terms of recycling, the city has invested in sorting technology in addition to source separation at the household. Oslo is one of a few Norwegian cities to introduce source separation of food waste and plastic packaging to help reduce greenhouse gas emissions and improve local air quality. Source separation also helps improve recycling rates and the recovery of valuable resources found in waste products (Karstensen et al. 2020). The life cycle-based waste management system in Oslo involves waste sorting using fully automated optical sorting process for source-separated household waste, separated into bags with specific colours. The optical sorting plants are equipped with cameras that can identify the colours of the bags with about 98% accuracy.

The Haraldrud sorting plant in Oslo is currently the world's largest (Oslo 2017). Households in Oslo sort their waste into three categories: food is sorted in green bags, plastic packaging in blue bags and residual waste in regular shopping bags. This type of waste separation is in addition to existing systems for sorting paper and cardboard, glass, metal and hazardous waste. A major advantage of this system is that the bags can all be placed into the same bin and transported in the same vehicle to the waste management plant. Plastic waste in the blue bags is sent to treatment plants in Germany and Sweden, where it is sorted into five to seven categories. The plastic is melted into granules and then used as raw material in making new plastic products. The Oslo Energy Recycling Agency collects household waste from the municipality, produces district heating and makes biogas and biofertiliser. The life cycle-based waste management system contributes to helping the city to achieve its ambitious climate goals, for example material for recycling of 50% (Oslo 2017).

In Norway, the Ministry of Climate and the Environment oversees implementation of the nation's waste management goals. In many respects, Norway can be regarded as a leader in the development and application of recycling and sorting technologies, particularly for its plastic bottle deposit scheme. Despite this success there are a number of challenges resulting from the institutional characteristics of the multilevel Norwegian context that need policy priority to overcome if future performance is to achieve the expectations set by the EU. While the promotion of the circular economy in both the EU and Norway is focused on waste management, there are specific areas that require stronger regulatory action if circular objectives are to be advanced.

In some municipalities, waste collection charges are at, or close to, cost-recovery levels. More differentiated charges, according to weight or waste fractions, could provide further incentives to increase recycling and waste reduction. Extended producer responsibility regimes have been broadened and their effectiveness has been enhanced by the introduction of taxes connected with deposit-refund systems for end-of-life products. Further refinement of these policies could be supported by a clearer regulatory framework to overcome the weaknesses identified on the EPR schemes that create unfair competition in the marketplace and a lack of innovation in product design. The waste industry argues that the government could use its considerable purchasing power more effectively in promoting demands on how much waste is to be recycled. There are inconsistencies across government departments in their purchasing

regimes that fail to ensure that stronger requirements of suppliers and manufacturers meet EPR requirements (Avfall Norge 2019d). Ensuring that new products placed on the market contain less hazardous substances will also be important. In order to achieve this, product standards or design requirements could be developed and applied through the government procurement processes. A policy priority for sustainability and interest from the public all contribute to potential success in meeting stronger recycling targets.

Access to current and accurate data on waste management has been problematic in completing this case study. The demand for good waste statistics is increasing in light of ambitious material recycling targets in the EU. In 2018, the Stortinget announced that it would support strengthening the waste statistics. To achieve ambitious material recycling goals requires good systems to measure progress. It seems good-quality data has not been a priority area in Norway. The EU plans to implement changes in how material recycling is measured from 2020. It is material recycling that will count, where losses in various sorting and recycling processes will be deducted. In addition, rules are being developed for how to report preparation for reuse 'prepare for reuse' (Avfall Norge 2019g). Norwegian statistics indicate approximately 38% material recycling, both for household waste and waste from service industries. In practice, the amount actually used as raw material for new products is considerably lower, which gives a poorer starting point in relation to new ambitious requirements. Avfall Norge (ibid.) has identified various practices in municipalities on how to report quantity to material recycling. There has been obscurity and grey areas in terms of inclusions and exclusions of different types of waste and sources. Problems include the following: reporting forms are incomplete and somewhat inconsistent, reporting guidelines are imprecise, allowing for different interpretations and practices, statistics reporting does not focus on the municipalities, and, finally, statistics do not show a complete picture of the amount of household waste. The result is that users of the statistics find it to be inaccurate and uncertain. Comparative data between municipalities can give incorrect information about both specific waste quantities and the efficiency of sorting and recycling.

There are calls for Norway's collection systems to avoid over-reliance on sorting recyclables from mixed waste or co-mingled streams. The concern is that the quality of certain streams such as paper and cardboard is considerably higher when separated at source than when extracted from more mixed streams. Additionally, material losses from sorting

technologies are greater than those from separate collection, and this becomes a particular issue when recycling targets rise. As such, whilst sorting technologies will likely form a valuable part of Norway's approach to meeting the increasing recycling targets, they should be used in conjunction with approaches which prioritise separate collection and high capture rates of high quality of recycling, as in the Oslo Kommune example. In 2018, mixed residual waste accounted for 42% of the total amount of household waste and represents the largest waste fraction. Much of the residual waste goes to energy recovery where WtE facilities are available. According to Avfall Norge (2019c), there are large amounts of food waste and plastic within the residual component that could have been sorted out and recycled. Analyses of Norwegian municipalities show that up to half of all food waste is thrown in the residual waste, instead of in the bag for food waste. Waste industry calls for regulatory measures to ban the use of black plastic bags is one simple measure that could improve transparency and sorting quality. (Avfall Norge 2019e). The utilisation of waste resources through material recycling is central to EU waste targets and environmental legislation. As an EEA member, Norway is bound by the EU waste framework directive that requires 50% material recycling of household waste and household-like waste by 2020. These figures suggest that Norway will struggle to meet the EU's circular economy targets of recycling municipal waste set at 55% by 2025, 60% by 2030 and 65% by 2035 without stronger government commitment to establish targets and measures to support them (Neligan 2018).

Jørgensen argues that the 'history of Norwegian packaging recycling in the twentieth century demonstrates that recycling requires not only an awareness of waste generation but also a commitment to involving waste management in everyday practices' (2013, 499). The Norwegian situation also reflects waste management challenges in other multilevel systems. The government has a responsibility to monitor and respond to trends in changing attitudes to waste and recycling. There has been acceptance of disposal fee schemes and refund deposit schemes. Such schemes, where implemented, have resulted in improvements in rates of recycling. Unfortunately, there has not been the political will to make such schemes universal as implementation is largely a municipal responsibility (Kipperberg 2007). There is a general reluctance at the national level to propose initiatives that can be interpreted as reducing municipal sovereignty. The Nordic Council of Environment Ministers report on waste practices in Norway recognises that regional differences in recycling rates are notable.

As recycling collections are a municipal responsibility, there is for the national government to promote greater consistency in approach to collections, improve consumer understanding and send a clearer message about desired recycling behaviour. Such changes have the potential to ensure that all municipalities offer a service that is likely to support improved rates of recycling (Papineschi et al. 2019).

A lack of clear regulation also impacts on the environmental crime in connection with the management of waste from the construction industry. The main challenge is that the current regulations allow for cheating. The challenge seems to be that there are no barriers in the regulations that ensure transparency in waste management for demolition waste. There are grey areas in the building regulations and in the pollution regulations that lead to illegal mass handling. Stronger regulatory interventions at the municipal level that allow for transparency and monitoring need to be introduced. Construction waste and illegal dumping are areas of waste management that continue to increase, and stakeholders have been lobbying for government interventions (Avfall Norge 2019f). Increased collections of hazardous waste and treatment of hazardous waste collected have contributed to reducing the environmental impact of Norway's waste.

The Nordic Council of Ministers report shows that municipal waste generation in Norway is higher than Organisation for Economic Co-operation and Development (OECD) or EU15 averages, although the reported household waste fraction corresponds to the OECD average (Papineschi et al. 2019). While there have been some important achievements in the recycling of certain elements of plastic waste and e-waste, more needs to be done in other sources of waste if Norway continues to deal with the challenges of managing waste in the context of EU directives. The political priority framework, as applied in this chapter, has helped to reveal some of the key factors and complexities that shape waste management policy in Norway. Current government commitments and statements continue to support EU initiatives. Despite these commitments, the Norwegian government is yet (at the time of writing 2020) to produce the circular economy strategy as intended in the 2017 White Paper. In a speech to the Norwegian Circular Economy Conference, the minister for climate and environment gave an indication of the challenges being faced in developing the strategy: 'In our work with the circular economy strategy, ten ministries are cooperating, in close connection with the industry. Cross-ministerial cooperation can be challenging, but it is the only way to go forwards' (NMCE 2020). The evidence covered in this

case study suggests that policy priority for change will continue to play an integral role in establishing interventions in improvements in waste management outcomes and support stronger commitments to circular objectives in Norway.

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Synthesis and Conclusions: Unsustainable Status Quo?

Abstract This chapter presents a synthesis of the material covered in the previous chapters. The waste crisis is highlighted as a significant policy issue facing governments. The need for policy change to become a priority for policymakers is discussed. The evidence presented in the case studies reveals the challenges faced in promoting and advancing a circular in multilevel political systems. Ideas for governments considering circular approaches to waste management are also outlined.

Keywords Circular economy • Policy change • Multilevel systems • political priority

7.1 A WASTE MANAGEMENT CRISIS

How developed countries can transition to more economically and environmentally sustainable approaches to waste management has become a key policy question for governments. In its purest form, sustainable approaches progressively eliminate waste by keeping resources in continual use. The complex issues surrounding waste management policy reveal the nature and scope of the challenges facing governments attempting to implement sustainable approaches. This book started with a question: What happens to our waste? The evidence presented throughout suggests that the answer is increasingly more to do with politics and competition

between powerful interests than about sustainability practices and preventing environmental damage. The contemporary view of waste is that it is a valuable resource that needs new methods and approaches to extract the best value. As we approach the target date for the UN Sustainable Development Goals (SDGs) in 2030, what happens to our waste over the next decade is a critical policy problem for government policymakers.

In 2015, the UN advocated taking a holistic approach towards waste management and recognising waste and resource management as a significant contributor to achieving more sustainable development. The UN acknowledged a need for addressing governance issues which help to establish sustainable solutions—including regulatory and other policy instruments, the partnerships and the financing models (UNEP 2015). Current debates about the crisis in waste management raise many issues requiring policy action. The recycling failures revealed in the media highlight policy issues that have potential to impact on citizen trust in political decision-makers. Citizens who comply with recycling requirements set by governments have expectations that environmental values will be met, with a corresponding loss of trust if they are not (Blaug et al. 2006; Saphores et al. 2012). Canada's prime minister referred to this in 2019, when he said: 'To be honest, as a dad, it's tough trying to explain this to my kids. How do you explain dead whales washing up on beaches around the world, their stomachs jam-packed with plastic bags?' (ABC 2019). The struggle to deliver solutions to crucial public challenges like waste management has contributed to a reduction of trust in governments in some Organisation for Economic Co-operation and Development (OECD) countries (OECD 2019). Governments are increasingly seen to be placing interests of business over the demands of citizens. This has been supported by recent surveys in Europe that show institutional trust levels of individuals and trustworthiness of government 'should be considered important factors for recycling behaviour' (Nilsson and Harring 2017).

The waste crisis has created a sense of urgency towards identifying actions that governments can take to establish more sustainable approaches to manage waste. Despite the introduction of waste management policies in many OECD countries that reflect sustainability principles, evidence presented in Chap. 1 shows that, while there are some improvements, there continues to be a crisis that appears to be worsening. Research suggests waste generation is a key contributor to the problem with the growth in waste seemingly uncontrollable (Ferronato and Torretta 2019; Minelgaite and Liobikiene 2019). As population in urban areas continues

to increase, living standards improve, and higher standards of living support greater levels of production and consumption—volumes of waste continue to rise exponentially. As a result of these trends, current predictions show that, without urgent policy action, global volumes of waste will increase by 70% by 2050 (World Bank 2018).

The notion of a circular economy is of great interest to both researchers and practitioners as it is seen to reinvigorate enthusiasm in the concept of sustainability. Proposals for circular approaches require a distinct shift away from long-term linear practices that include one of capitalism's driving principles—planned obsolescence. Responsibilities for business include designing better products that last longer; manufacturing better-quality goods; using fewer virgin raw materials; and viewing waste as a resource. With such changes it is argued that a circular economy can begin to develop. To achieve these outcomes, government policies can provide support to help make corporations more responsible in terms of their impact on natural resources and the environment generally. Without some form of intervention to prioritise more sustainable practices, current forecasts reveal a continuation of the unsustainable status quo (Forcinio 2020; Hartley et al. 2020).

7.2 A CIRCULAR RESPONSE

The reduction of waste and the promotion of recycling industries are critical to circular approaches in collecting waste materials and end-of-life products and processing them for reuse as new products. Government policy plays an important role in supporting the transition by industry and society and promoting widespread penetration of circular approaches. The discourse of zero-waste and the circular economy has been championed by key policy actors, such as the European Commission, management consultancies, NGOs and multinational companies (Valenzuela and Böhm 2017). The circular economy is primarily discussed through the 3R principles of the waste hierarchy of reducing, reusing and recycling (Ranta et al. 2018; Milios 2018). The OECD also takes a waste management-based approach to a circular economy and emphasises resource efficiency and effectiveness as key values.

In 2014, the European Commission released *Towards a circular economy: A zero waste programme for Europe*, emphasising the link between a circular economy and waste management. The EU claims that the economic benefits of a circular economy will be numerous and significant,

including enhancing the security of supply for raw materials, stimulating GDP growth, strengthening the competitiveness of businesses in the EU and helping to protect the environment (European Parliament 2014). One area of particular interest has been the recycling of precious metals found in electronic goods. The UN and the EU do not want to risk the future development of energy efficient technologies through a lack of access to critical metals (UNEP 2009). The EU Directive 2018/851 on waste updates a 2008 EU Directive and establishes targets for waste prevention, reuse and recycling that reflect the EU ambition to move to a circular economy (EU 2018). There has been mixed response by member states to the 2008 Directive so in 2018 the EU argued that it needed to set clear targets to improve performance.

Member states of the EU adopt an individual policy approach to achieve the targets set in the 2018 Directive. The EU regulations are taken as a minimum standard, and some countries have set higher targets. Research by the European Environment Agency shows that 19 out of 35 EU countries have increased their recycling rates by 10% since 2008. In some countries, such as Estonia, Malta and Serbia, the very low proportion of recycled municipal waste barely changed (EEA 2019). Results suggest that there are inconsistencies in the approaches taken across the EU because of factors unique to each jurisdiction that impact on the policy response and the results achieved. For example, some countries have banned incineration, while others have been establishing incinerators as another ‘end of pipe’ method of disposal. Like landfill, incineration is contrary to circular principles as it removes material from the waste process that can no longer be recycled or reused. The EU Directive of 2018 reinforces the commitment to waste management as the focus of policy action to shift the EU from a linear to a circular economy. New targets reinforce the importance of recycling over landfill, the mandatory separation of bio-waste and the application of the ‘polluter pays’ principle through extended producer responsibility.

In multilevel systems, policymakers examining methods of advancing circular economy approaches operate within the constraints of their institutional arrangements, where radical change may not be possible due to competing priorities between levels of government. The focus on closing loops places circular economy at odds with many of the norms, logics and routines of the linear economy which, in many ways, makes it counterintuitive to established economic patterns for growth. Long-standing modes of governing the waste systems have established social, institutional and

financial arrangements benefiting policy actors and organisations based on linear arrangements (Bulkeley et al. 2007; Pollans 2017). Despite the challenges, as outlined in Chap. 2, there is still enthusiasm for the concept of a circular economy as a framework for future sustainable economic development. Policy priority needs to be strengthened to move beyond current approaches. We need to examine what is required to achieve priority on the political agenda to help ensure that more substantial approaches are adopted. There is a need for policy design, for policy coherence and to broaden the scope of circular economy policy to reflect all pillars of circular economy and not just recycling. For effective transition to circular economy to occur, these matters need to achieve high political priority on the policy agenda of government to promote change.

7.3 POLITICAL PRIORITY

The policy change literature on environmental policy shows how governments have been reluctant to act, particularly in the integration of new policy initiatives across jurisdictions in multilevel systems (Ross and Dovers 2008). In many jurisdictions, environment policy resides primarily with the subnational and local governments. This is particularly true for waste management policy where municipal governments are generally responsible. The framework of political priority proposed in Chap. 3 is derived from multiple policy change theories that reveal a range of dimensions and their determinants to potentially influence and shape political priority. The core argument is that with increased political priority circular approaches to waste management will become a more central or salient policy commitments. The framework consists of four interrelated dimensions: political context, (the political and institutional environments in which actors operate), the power of actors, (political strength of individuals and organisations concerned with the issue), the influence of ideas, (how political actors understand and frame the issue) and problem characteristics (the features of the problem being considered).

By utilising the determinants of political priority outlined in the framework, we have some understanding of the complexities that may emerge in according these issues a higher policy priority for a transition from the linear to the circular economy. Political priority will be necessary for policy change to support acting on the key objectives beyond recycling and waste management. Negotiating the idiosyncrasies of policymaking around circular issues in individual policy contexts will also play an important role in

determining policy change once political priority has been established. In order to gain a deeper understanding of the complexities around these issues, the experiences gleaned from the case studies in Chaps. 3 and 4 of Belgium and Norway are informative for other multilevel systems considering progressing their circular economy agenda.

The achievement of the UN 2030 SDGs will require intergovernmental approaches with effective institutional coordination and coherence at all levels of policymaking. This will contribute to ensuring more integrated policy frameworks for sustainable development; promoting synergies between economic, social and environmental policies; identifying trade-offs; and considering transboundary and intergenerational impacts. Without these critical elements, developing and implementing circular economy objectives will be challenging. In order to ensure that these aspects are incorporated into government policies, political priority will be critical. In the next section, the experiences of Belgium and Norway will be outlined under each of the dimensions of the analytical framework.

7.4 REALITY CHECK: WHAT THE CASES REVEAL

7.4.1 *Policy Context*

The policy context reveals the constitutional and institutional arrangements that determine responsibilities and authority for policies relevant for waste management. Constitutional responsibility sets the context for policymaking; it impacts on laws, customs and established practices and organisational settings that can be powerful in determining policy action. This is particularly the case in multilevel systems where policy responsibility for specific issues can rest with one level of government. Belgium is a federal state with quite autonomous regional governments which all move at a different pace towards sustainable development. There are difficulties in implementing a common strategy on the national level, as regional governments have a high degree of self-rule, and many contrasting interests stand in the way of a consensus. In recent years, Flanders has set up a strong institutional sustainable development framework, including the framework for the development of a regional sustainable development strategy (Bachus and Spillemaeckers 2012, 62). The Belgian state is the legal entity responsible for compliance with EU legislative requirements for waste. No federal authority has precedence over the regions exercise of environmental powers. As in the European Waste Framework Directive

2008, waste is defined by the three regional governments, Wallonia, Flanders and Brussels, as any substance or object which the holder discards. Municipal governments are responsible for implementation of regional waste policy priorities. Belgian regions have implemented the European provisions relating to by-products and end of waste status. Belgium's initial response to a policy window created by public pressure over reducing landfill in the 1990s was part of a European trend to support greater levels of sustainability particularly in the management of waste. The work of OVAM and the Interregional Packaging Commission helps support institutional arrangements to promote policy coordination and cooperation between the regional governments that are important for facilitating policy change. These institutional arrangements are decentralised and allow for experimentation and mutual learning that are important advantages of multilevel systems.

The introduction of circular economy initiatives by the EU has been reflected by each of the Belgian governments. The Belgian government introduced 21 measures towards establishing a circular economy in 2016 (Belgium 2016); Flanders introduced the 'Circular Flanders: Together towards a circular economy. Kick-off Statement' (OVAM 2017b); Wallonia introduced its 'Strategy for the deployment of circular economy in 2020' (Wallonia 2020); Brussels City introduced the 'Brussels Capital region circular economy strategy in 2016' (Brussels 2020). There has been a tendency to streamline waste legislation into one code in terms of inspection, prevention, determination and sanctioning of environmental issues. For example, the cooperative agreement between the three regions and the packaging sector was established in 1994 for recovering and recycling the packaging waste. The current version is the *Cooperation Agreement of 04-11-2008 on the prevention and management of packaging waste*. Belgium has established 'arms-length' government agencies, with responsibility for waste policy, with governance arrangements that support high levels of policy autonomy vis-à-vis the minister (political oversight). These agencies declare that they are able to choose their preferred target groups and policy instruments. In the case of OVAM in Flanders, it can develop and implement legislation focused on waste management for the Flanders region with a focus on establishing a circular economy. Waste management has been regarded as a reasonably uncontroversial policy area in the past and so requires little political oversight. The intergovernmental IVC-CIE has responsibility to formulate proposals and advice for the regional governments on amending a joint agreement on waste management

(IVC-CIE 2018). Research has indicated that Belgian agencies tend to be more innovative and customer oriented than their government counterparts, especially if there is sufficient autonomy and result control (Verhoest et al. 2012). Research by Campbell- Johnson et al. (2019) suggests that multilevel policy integration is needed to alter value chains to enable greater reduction in material inputs and changes in actor behaviour towards a transition to a circular economy. Whether Belgian waste management agencies can take policy action on the more challenging, and perhaps controversial, aspects of the circular economy, such as reducing consumption, without pushback from political and business interests remains to be seen.

In 2017, the Norwegian government produced a White Paper, *Waste as a resource—waste policy and circular economy*, which outlines proposals on how Norway could potentially meet EU circular economy objectives. By 2020, the government was yet to introduce a strategy aimed at establishing a circular economy (NMCE 2020). The national government has overall responsibility for regulating waste, setting the general framework for stakeholders, and leaving municipalities and industry responsible for local collection and treatment solutions. By 2020, only the Oslo city government mentioned a circular economy in the context of its green city objectives that include waste management (Oslo Kommune 2020). The *National Waste Management and Prevention Plan ‘From Waste to Resources’*, was an attempt by the national government to establish a comprehensive coordinated waste management plan across each level of government. In 2013, the Norwegian Ministry of Climate and Environment set 26 environmental targets, including dealing with biodiversity, climate change, pollution, outdoor recreation, cultural heritage and the polar regions. Important waste policy instruments include legislation, taxes and economic incentives targeted at the municipalities, business and industry. As a result, there is considerable variation between municipalities based on population, resources and local conditions. Waste regulation resides with the Ministry of the Climate and the Environment; the laws that mandate actual measures are enforced by a number of other authorities subsumed under several ministries (Hanssen et al. 2016). Governance arrangements present a high level of complication that produce inconsistent approaches across the country.

Inter-municipal companies represent the most common approach to collection and processing with 334 municipalities out of a total of 428 municipalities cooperating to organise their waste services. Some

municipalities support competitive tendering, resulting in out-of-municipality provision, either by public companies from other municipalities or by private companies (Torsteinsen and Genugten 2016). Waste management is one of the municipal services with the highest degree of variation in organisational forms, both public and private, delivering Norwegian public services. The Norwegian government recognises a need for a greater focus on waste prevention especially for food waste, construction and industrial waste, electrical products and textiles. Scholars argue that Norwegian government initiatives are relatively weak as they aim to a small degree at directly preventing waste (Malinauskaite et al. 2017). In an attempt to focus waste policies in the direction of circular initiatives the Norwegian government released the *Strategy for Green Competitiveness* in 2017. This strategy contains basic ideas and principles emerging from the 2017 White Paper that reflect EU circular economy objectives to form the basis of future Norwegian policies, as well as a description of its core aspects, including the circular economy as one contribution to the country's economic competitiveness rather than environmental sustainability.

7.4.2 Policy Actors

This aspect of the framework utilises the Sabatier's Advocacy Coalition Framework (1998) to consider relevant actors attempts at influencing political priority for policy change. These determinants focus on coalitions of government, and non-government actors that engage in coordinated activity to promote the common cause they want to advance. Advocacy coalitions can consist of elected and agency officials, interest group leaders, and researchers who share a particular views and values that draw them together in an attempt to influence waste policy. Leadership by policy entrepreneurs helps to unite a policy community through forming a link between formation and maintenance of advocacy coalitions (Mintrom and Phillipa 2009). As policy actors, entrepreneurs attempt to assemble and maintain coalitions to support specific policy ideas, which prove to be valuable political resources during discussions of policy change (Smith 1991). Political parties are an important feature of policy debate in parliamentary systems as jurisdictions are influenced by agendas established by the major political parties. Civil society mobilisation, in the form of grass-roots movements as policy actors, often arises in reaction to perceived social injustices and environmental problems (Smith and Seyfang 2013). Scholars such as Baker et al. (2017) argue for the need to recognise

industry mobilisation as potential determinant of government acting to change specific policy. An economic focus in policy change by governments works in favour of powerful industry stakeholders as advocacy coalitions who can mobilise to continue to support voluntary market-based approaches, as a reflection of economic ideas in structuring policy choices (John 2018).

In Belgium, there is a high degree of cooperation between municipalities as key policy actors at the regional level. For example, the VVSG is an association of all municipalities in Flanders. As a key policy actor, it represents their interests on sustainability issues with the regional government, and negotiates on their behalf with government and with recognised bodies of producers with producer responsibility obligations. OVAM is the waste management agency that works as a policy entrepreneur as it also coordinates this cooperation, working through Flemish municipalities and intermunicipal waste management organisations in negotiations with administration, cabinet officials and industry. OVAM has become a prominent stakeholder on municipal solid waste management for the regional government and official departments. In the past, OVAM has made representations to the EU on landfill mining issues, including waste recovery opportunities (OVAM 2020). OVAM's 2017 implementation plan for household waste raised the issue of reducing consumption but provided no clear ideas on how it could be done. The Interregional Packaging Commission (IVC-CIE) undertakes supervision and advisory roles to the regional waste authorities, including OVAM. The IVC-CIE has contracted Fost Plus to coordinate with packaging manufacturers to collect and process packaging from households and Val-I-Pac has been contracted to process industrial and commercial packaging waste. Fost Plus has become a key policy actor representing industry with membership including major packaging firms such as Unilever, Coca Cola, Carrefour, Total, Proctor and Gamble and Danone (Fost Plus 2017). Fost Plus has helped to mobilise industry in promoting circular approaches and regularly makes representations to governments on what industry requires in terms of policy change. Recent issues have included resisting the introduction of a container deposit scheme, promoting waste sorting schemes in public spaces, establishing awards for sustainable packaging and strategies to reduce free riding by packaging companies (Fost Plus 2017). The government focus on recycling tends to work in favour of Fost Plus and its members as it encourages more consumption and programmes that support some of the highest rates of recycling in the EU. In its 2018 Annual Report that

focuses on advancing to a circular economy, Fost Plus make this ambition clear: ‘Our ambition for the years ahead is clear: to collect more packaging waste, to achieve higher recycling rates and to continue developing efficient and sustainable systems’ (Fost Plus 2018).

According to surveys among Norwegian members of parliament, the nature of political representation in Norway means that lobby groups, as policy actors, push their agenda through individual MPs. Rommetvedt (2004) argued that 80–90% of the MPs agree that interest group lobbying furnishes them with alternative information and counter expertise and, therefore, improves their ability to control the executive’s follow-up of the resolutions and intentions of the *Stortinget*. Norway is a constitutional monarchy, with legislative power being vested in its unicameral parliament. In 2020, the parliament of Norway consists of minor parties ranging from conservative, centre right/left, green and Christian democrats. Since 2019, the Right Party, the Progressive Party, and the Left and the Christian People’s Party have reached an agreement to establish a majority government. Such a diverse range of political actors will contribute to challenges in gaining political agreement to prioritise policy action. At the committee level, there are opportunities for political parties to participate in the decisions that help determine government policy. The Standing Committee for Energy and the Environment has an interest in the circular economy and waste management; it has 17 members, with representation from each of the eight political parties (Stortinget 2020). These institutional arrangements with diverse political party interests add to the complexity of the policymaking process. Norway has been identified as a rather unusual case with regard to the relationship between NGOs and policy-makers (Hermansen et al. 2017). Dryzek et al. (2003) observed a close relationship between these groups and the state in Norway, in a system that values consensus. Environment-focused groups are able to participate in the committee stage of policy development. In many respects, this reduces the watchdog and attention raising role usually played by such groups. The experience of the WWF in arguing through committees for a ban on single-use plastics in Norway has been long running. Some progress was achieved in 2020 when the government agreed to impose a limited EPR scheme for these plastics (WWF 2020).

As a result of the institutional context, municipal governments are key policy actors in Norway in achieving sustainability goals. Research suggest that there has been some progress in many areas of environmental policy, in particular regarding pollution and waste. For example, the part of

household waste which is recycled has increased from close to 0–40% in some municipalities. Such results highlight the potential influence of municipal governments in this aspect of waste policy. Unfortunately, household waste per person has increased by more than 50%, and the trend is projected to increase over the next decade (Espigares et al. 2016, 652). Furthermore, with respect to sustainable development, increasing conflicts of interests over the use of land and natural resources in Norway have been an issue in terms of safeguarding public interests in land-use planning, including environmental protection. Research on sustainability in the Oslo Kommune is one example of the dilemmas faced. There tends to be a low level of demand for sustainability as a value when compared with projects promoting economic development (Andersen and Skrede 2017). While the municipality's legal, or formal, authorities plan for a sustainable development, powerful policy actors such as real estate developers are able to ensure that the notion of sustainability fits within a model that ensures profitability over environmental concerns. Such attitudes flow into waste management ideas whereby Oslo is investing heavily in both recycling facilities and incineration as economic opportunities for the city (Oslo Kommune 2020). One challenge to waste recycling and re-circulation of materials is the partial lock-in that can be caused through municipal commitments to, and investments in, incineration for energy recovery with Denmark, Sweden and Norway. While this may reduce municipal waste companies' commitment to waste prevention and material recycling, it gives the impression that waste is being managed effectively.

Norway's largest waste industry group, Avfall Norge, is a key policy actor as a trade association for waste management and recycling companies. It has 100 municipal and intermunicipal solid waste organisations; approximately 70 associated members cover about 95% of Norway's municipalities, directly or via an inter-municipal organisation (Avfall Norge 2020a). The association has mobilised industry action and has lobbied the government to do more about coordination between agencies and strengthening regulations to prevent contaminated construction waste entering the waste stream. One consequence of this lack of coordination by governments is inconsistency across departments in their purchasing regimes that fail to ensure that stronger requirements of suppliers and manufacturers meet EPR requirements (Avfall Norge 2019b). Avfall Norge has also been pressuring the government to make a decision on the location of new landfill sites and strengthening regulations on hazardous waste. The association has been most critical of government inaction on

waste regulations and for allowing the continuation of conditions that support free riding of EPR schemes by packaging companies. In other compelling critiques, Avfall Norge argues that the legislative weaknesses identified will prevent Norway advancing towards a circular economy (Avfall Norge 2019a). The government position on the policymaking process suggest that they believe policy actors have better insight into the opportunities and challenges facing specific waste-related industries. As a result, the government claims that it has been ‘strengthening cooperation in the process industry sector between business and industry partners, the public administration and researchers, and has established a long-term strategic forum called Prosess21 (NMCE 2017a, 30)’. Early initiatives suggest that this approach includes stakeholders from the industrial and research sectors, Innovation Norway, the Research Council and the Norwegian Environment Agency. Results suggests that Norwegian ministries have been undertaking consultation; however, they tend to focus on their own evidence over other expert sources (Steiner-Khamisi et al. 2020).

7.4.3 *Policy Ideas*

Waste management is currently viewed largely through the economic ideas that frame waste as a resource that needs to be managed for its value. As a key objective of the circular economy approach, effective management of waste is seen as an important contributor to long-term sustainable economic growth. When policymakers frame a problem, it can dictate whether and how it will be treated. Ideational processes help provide the explanation for a dynamic approach to policy change, in which change, or continuity, is possible through ideas and discursive interaction in politics (Kangas et al. 2014). Ideas have a role in helping to shape the policy agenda. Whether waste is framed in economic or environmental terms will also influence which stakeholders seek to contribute to influencing the policy change. For example, how a government frames waste as a problem will shape the way it will be examined, and the potential solutions pursued. Agenda setting is about a government recognising that a problem is a ‘public’ problem worthy of attention. It is often considered the most critical stage in the policy process, as limited resources mean that governments can only prioritise a limited number of public problems at any particular time (Wu et al. 2010, 19). There is more likelihood of policy change if an issue reaches the government’s policy agenda.

As a member of the EU, the approaches taken by Belgian governments largely reflect the ideas of the *Towards a circular economy: A zero waste programme for Europe*, emphasising the link between circular economy and waste management. Belgian policy documents regard the economic gains of the circular economy and the future prosperity of the country rather than sustainability or environmental benefits (OVAM 2017b). In the majority of instances, the Belgian approaches have been in accordance with focusing on promoting recycling and reducing landfill. The underlying idea has been one of self-sufficiency and the ‘recovery’ of waste as a resource (OVAM 2017a). The focus on sorting at the household level is designed to improve the quality of recycling outputs and reduce disposal by transferring. Similarly, the ban on landfill and the limitations on incineration are designed to raise the volume of material capable of being recycled. From 2008 to 2015, OVAM emphasised the environmental benefits of the management of household waste through the *Implementation Plan for Environmentally Responsible Waste Management*. In 2016, the focus moved towards emphasising waste prevention, more reuse and raising targets for the collection of packaging. The responsibility for packaging has been a key requirement of industry in Belgium, and VAL-PAC and Fost-Plus collect and process packaging waste. There have been some concerns expressed regarding the changes in EU ideas about waste management. The EU Directive 2018/851 on waste is potentially problematic for the future of the Flemish waste management. The recycling targets under this directive are much lower than what is already achieved in Flanders, so it may not give Flanders incentives to improve its recycling rates or to keep them at their existing level. The EU Directive also redefines some incinerators as ‘recovery’ rather than ‘disposal’, which is likely to push incineration further to the detriment of recycling. This new idea is contrary to the long-standing view in Belgium that prefers recovery to disposal.

The Norwegian government released the *Strategy for Green Competitiveness* in 2017 as a key milestone and a catalyst for moving Norway towards a circular economy. As the EU is Norway’s largest export market, the EU initiative for a transition to a circular economy is seen to have implications for Norwegian business and industry. The *Strategy* points to the necessity for companies to prepare to compete in the context of strict rules on resource efficiency. Business has been encouraged to take more responsibility for products along the whole value chain. The EU initiatives to establish a circular economy have been framed by the Norwegian government as primarily both a waste management problem

and an economic opportunity for local companies that can offer ‘new smart, green solutions and technology that will improve resource efficiency’ (NMCE 2017a, 47). The result has been a close relationship between industry and government in terms of framing environment policy arguments in favour of business interests. A long-term preference by the Norwegian government has been to establish voluntary agreements with industry. The government sets regulatory boundaries and expectations and requires industry participant to achieve specific targets within agreed time frames. The most successful, and widely known, EPR arrangement is the recycling of approximately 97% of plastic bottles since 2011 by using a nationwide EPR-based bottle deposit scheme. The scheme is seen to demonstrate the responsiveness of business to such incentives and the willingness of the Norwegian public to participate in reverse vending arrangements if they are easily accessible.

Voluntary schemes in Norway reflect the framing of waste as an issue for industry. These schemes have been the preference since the early 1990s, and there has been research critiquing their effectiveness for some time. The weaknesses will have implications for substantial circular initiatives should they be adopted. Critics of the Norwegian approach to EPR point to the voluntary participation resulting in distortion in the market. Free riders who benefit from the scheme without contributing to its cost are able to sell their products at a lower cost. For Avfall Norge, this has been the underlying weakness of the Norwegian schemes that has not been addressed through stronger regulation (Avfall Norge 2020b). Effective EPR schemes are seen to be fundamental to the success of circular economy as they have potential to improve sustainability of products, reduce reliance on disposal technologies and lower costs. Harmonisation of approaches to EPR across the EU is proposed as an important first step that could lead to reducing the impacts of the current weaknesses experienced in individual countries (Leal Filho et al. 2019).

7.4.4 *Problem Characteristics*

This dimension of the framework points to the aspects of a policy problem prompting policy change. Kingdon (2003) argues that governments have a long list of problems that they could attend to and that decision-makers pay attention to some problems and ignore others. ‘Sometimes their attention is affected by more or less a systemic indicator of a problem. At other times, a dramatic event seizes their attention, or feedback from the

operation of existing programmes suggests all is not well' (ibid., 90). In the case of waste, we have seen through the case studies that current indicators show that consumption is producing volumes of waste beyond the capacity of waste management systems to cope. The current crisis has revealed that recycling has been failing to achieve expected targets as a result of poor management practices and ineffective policy responses to establish a market for recycled materials, particularly plastics. In the case of the circular economy, the crisis relating to recycling practices in many OECD countries has created a situation where governments have been forced to respond. As a result, the focus on waste management as a key 'problem' for the transition to a circular economy has been driven by the calls for government action to respond to the crisis situation. What should be done about managing waste has become the central problem rather than how to prevent waste in the first place.

Kingdon (2003) suggests that any given policy problem has an improved chance of rising in the policy agenda as a priority if coupled with another pressing pre-existing problem. The experiences of Belgium and Norway suggest that the combination of a crisis situation and the problem of missed economic opportunities has reinforced the need for a policy response. Viewing waste as an industry implies that waste diversion is the preferred solution to the problem of managing increasing volumes of waste, which benefits vested interests seeking to expand economic opportunities in recycling, landfill and energy (Bulkeley and Gregson 2009). Ignoring consumption curtails the capacity of waste prevention plans to reduce the generation of waste. The evidence from the case studies suggests that there are some improvements in the management of waste; for example, there have been increasing rates of recycling by industry in Belgium.

Belgian regional governments have been effective in establishing waste management policies that reflect aspects of waste as a problem in the context of a circular economy. They have been comparatively successful in recycling waste as they have been willing to apply a suite of policy instruments that include compulsory requirements and financial incentives to encourage behaviour change. Legislated stewardship requirements for packaging producers have also contributed to high levels of recycling both household and business waste. In addition, the Belgian experience shows that it is very important that such instruments be supported by a system of levies. The case study has focused particularly on the experience of the Flanders region as it appears to have taken waste policy action as a policy

priority over time. For Flanders, the waste management policy encompasses targets for environmental improvement, economic growth and social development, all of which are in harmony with circular economy principles. The government of Flanders also wants to uncouple the production of waste from increasing consumption. Since 2010, Flanders, through OVAM, has continued to set ambitious per capita waste reduction targets. This objective remains unchanged even in the context of social and economic changes that are seeing increasing numbers of smaller households, increasing consumption and the reduction of the average life cycle of products, increases the production of waste materials (OVAM 2017a).

The 2019 Nordic Council of Ministers report shows that municipal waste generation in Norway is higher than the OECD or EU15 average, although the reported household waste fraction corresponds to the OECD average (Papineschi et al. 2019). While there have been some important achievements in the recycling of certain elements of plastic waste and e-waste, more needs to be done in other sources of waste if Norway continues to deal with the challenges of managing waste in the context of EU directives. Despite this, long standing issues continue such as waste pollution entering ecological systems, like marine litter and microplastics in the Norwegian Sea (NMCE 2017b). The export of hazardous waste from Norway increased from 505 thousand tonnes in 2012 to 1042 thousand tonnes in 2014. Policy actors such as Avfall Norge have been lobbying for government interventions in this important area of waste (Avfall Norge 2019c). Only France, with 1526 thousand tonnes, has a higher rate than Norway. These are the only recorded figures provided by Norway in a context where EU countries report annually. To compare this figure, Belgium's (with double Norway's population) export of hazardous waste in 2012 was 631 thousand tonnes and 637 thousand tonnes in 2014 (Eurostat 2019). Reasons for the export increase from Norway include an insufficient combustion capacity and a ban on the landfilling of biodegradable waste, coupled with changes in economic and market factors (Malinauskaite et al. 2017, 2034).

The experience of Belgium and Norway also highlights some weak spots, preventing a more comprehensive transition from a linear to a circular economy. Each region shows the challenge of taking policy action to preventing the growth of waste through reducing consumption. Action in this area is a cornerstone of the circular economy as it prevents the use of raw materials entering the waste cycle; however, there appears to be a lack

of commitment in both countries to seriously challenge consumption as a policy priority. The revised Waste Framework Directive (EU 2018) strengthens this requirement but does not introduce binding quantified targets for waste prevention. Circular economy necessitates redesigning material life cycles to reduce the volume of materials used. This is a difficult area for government action due to the complexities of waste as a policy problem. There is a tension between promoting economic growth and taking the, seemingly counterintuitive, action to change behaviour and lower levels of consumption. Belgium and Norway have some of the highest net financial wealth by households in the EU (Minne et al. 2019). Research suggests that as country becomes richer, the composition of its waste changes. With more money comes more packaging, imports, electronic waste and broken toys and appliances (Hoornweg et al. 2013). During the global financial crisis from 2008 to 2013, Belgian private consumption still recorded an average annual growth rate of about 1%, well above the average pace that was observed in neighbouring countries. Decades of learned consumption based on linear approaches will require increased political priority to establish long-term effective policy measures previously off limits to governments in market-based economies.

7.5 CONCLUSION

The political priority framework highlights some fundamental challenges for advancing a circular economy. The experience of Belgium and Norway reveals the complexities evident in multilevel systems that provide added challenges particularly in the area of waste management as a key element of advancing circular approaches. The material covered in this book has produced important insights for stakeholders in other multilevel systems intending to move towards a circular economy. After considering the determinants of according these issues a higher priority for policy change outlined in the framework, we have some understanding of the complexities that may emerge in transitioning from the linear to the circular economy. Political priority will be required for policy change to support acting on the key objectives beyond recycling and waste management. Negotiating the idiosyncrasies of policymaking around circular issues in individual political contexts will also play an important role in determining policy change once political priority has been achieved. The complexity of waste as a policy problem contributes to the barriers and opportunities of achieving priority on the policy agenda. This will have implications for advancing

a circular economy as the sustainable management of waste is a central element of a transition from the established linear approaches.

Achieving effective circular economy objectives requires a political priority to implement policies that address all stages of the materials life cycle. One area common to government efforts to promote a circular economy is the lack of focus on reducing consumption. Serious action to stem the flow of increasing volumes of waste is becoming a critical issue. Challenges need to be faced by individual consumers and industry as the generators of waste. They must assume a high degree of responsibility for placing contaminants into the recycling system that the waste management system must deal with (Thornton 2019). The Government of Flanders has set a general goal of reducing consumption, without specifying what this actually means or entails. Norway seems to have avoided the issue altogether as it is not mentioned in documents related to the circular economy. The *Strategy for Green Competitiveness* only mentions ‘encouraging green consumption’—not reducing consumption. Attention to this aspect of waste management will be critical to advancing the circular model. Both Belgium and Norway show that as consumption levels continue to rise there is a corresponding increase in the volumes of waste. Neither country has successfully broken the link between consumption and waste. The crisis with plastic waste and the consequent threat to marine ecosystems provides a valuable opportunity to frame that debate about consumption. Policymakers need to remember that, largely as a result of the waste crisis, the issue of trust in government infuses debates about sustainability and recycling. The framework shows that ideational framing will be an important element in contributing to a policy priority for change. Policy actors can contribute to framing aspects of waste policy that support the need for policy change.

Government focus has been on framing recycling as the right thing to do in terms of limiting environmental damage. This has largely been directed at consumers in Belgium who carry the burden through household sorting requirements. Framing waste as a valuable resource not to be lost has also contributed to the introduction of EPR schemes in both countries that require limited responsibilities on packaging manufacturers to support recycling. Further work needs to be undertaken to establish ideas about framing consumption in such a way that it becomes part of the policy agenda. Progress on addressing the transition to a circular economy and achieving UN Sustainable Development Goal 12, ‘to promote sustainable production and consumption’, will depend on changing (or

limiting) human behaviour, which must include restricting consumption. As Hood (2016) suggests, we need to place value on ‘conspicuous non-consumption and re-use’ if we are to advance circular approaches. Even if societies determine that restrictions need to be imposed, individual attitudes and beliefs about restricting consumption will be important to achieving long-term reductions. Research reveals that ‘changing consumption behavior will depend on changing intentions, attitudes, expectations and perceived control, all of which are malleable and can be targeted either individually or a population level’ (Santor et al. 2020, 10). Research suggests that government policies can have significant effects on low carbon consumption behaviour, among which policy factors include information feedback and information cue (carbon labels, normative tips, etc.), economic policies, technical policies and mandatory administrative regulations (Ding et al. 2018, 11). The Household Preferences for Reducing GHG Emissions (HOPE) project reveals that in the EU, at least, targeted regulations can be viewed positively for ‘driving changes in attitudes, norms, or practices could shape consumption (Dubois et al. 2019, 152). In fact, the authors report that ‘we may have to rely on forced consumption changes in order to buy us time to take advantage of technology to replace many high energy consuming products and services, such as motor vehicles and international travel’ (ibid.). Other research shows that ‘targeting specific domains of consumption will be far more difficult and costly than targeting consumption in general, although it remains an open question which approach general or specific is more affective at changing both intentions and behavior’ (Santor et al. 2020, 10). Such issues should become a key element of future research on political priority for policy change.

Given this understanding, the following scenario can be proposed as a summation of the current circumstances in respect of government policy advancing the circular economy as a solution to the waste crisis:

1. The problems of pursuing all of the objectives of the circular economy are difficult for governments to develop an effective response; key aspects are phenomena with which governments are reluctant to deal, for example reducing consumption.
2. Key policy actors want to be seen to be doing something (they have made public statements supporting a transition to a circular economy, developed plans and strategies that appear to commit to change).

3. Some of the policy actors are driven by strong ideological commitment to promote sustainability and economic development as necessary conditions for the future. Others are driven by vested interests that recognise economic opportunities.
4. The result is a series of actions that are presented as policy change, for example recycling and waste to energy proposals are promoted. These actions may equally be the thrashing around of a system that needs to be seen as active but does not really know what to do. To support their cause, policy actors use rational action language to support what is essentially limited action.

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