

# **Cigarette butt litter and key policy responses in Australia**

Lucinda Wallbank

Department of Environmental Sciences  
Faculty of Science and Engineering  
Macquarie University

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## **Abstract**

The health risks of tobacco consumption are well established, but there is markedly less awareness of the environmental impacts of cigarette consumption and cigarette butt disposal. The by-products of the 6.3 trillion cigarettes smoked annually are filters containing benzene, nicotine, cadmium, and dozens of other chemicals, and it is estimated that between one- and two-thirds of all filters are discarded on roadways, pavements, and green spaces. Butt litter as an environmental and public health hazard is a relatively new field of study but recent research, conducted primarily in the United States, into filter composition and toxicology, clean-up costs, regulatory response, and key policy actors has obvious implications for Australia. Cigarette butts are consistently found to be the most littered item by Australian environmental organisations, yet there has been little analysis of their environmental and health impacts. This thesis argues that there is a clear need for such research. It first establishes the scale of the butt litter problem in Australia using existing data, then assesses policy response to date. The thesis then analyses roles played by government, non-governmental organisations, and the tobacco industry in framing related issues, and in constructing policy response. It concludes with recommendations for further research and policy.



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## **Statement**

The work in this thesis has not been submitted for a higher degree to any other university or institution. The sources of information used and the extent to which the work of others has been utilised are indicated in the thesis. Macquarie University Ethics Committee approval has been obtained for this research (protocol/approval number 5201500598).

A handwritten signature in black ink, appearing to read 'Hampel', followed by a period.

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## List of Acronyms and Abbreviations

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
AMCS	Australian Marine Conservation Society
APC	Australian Packaging Covenant
AUD	Australian dollars
BAT	British American Tobacco
BATA	British American Tobacco Australia
BFA/ BLT	Butt Free Australia/ Butt Littering Trust
CSR	Corporate Social Responsibility
CVA	Conservation Volunteers Australia
DEE	Australian Government Department of the Environment and Energy
DEWHA	Australian Government Department of the Environment, Water, Heritage and the Arts
DoH	Australian Government Department of Health
EPA	Environment Protection Authority (NSW, VIC) Environmental Protection Agency (US)
EPR	Extended Producer Responsibility
ITA	Imperial Tobacco Australia
KAB	Keep Australia Beautiful
KAmB	Keep America Beautiful
KESAB	KESAB <i>environmental solutions</i> /Keep South Australia Beautiful
NPCIA	National Packaging Covenant Industry Association
NSW	New South Wales
NSW DECCW	New South Wales Department of Environment, Climate Change and Water
NT	Northern Territory
PMI	Philip Morris International
PS	Product Stewardship
QLD	Queensland
SA	South Australia
TAS	Tasmania
TTID	Truth Tobacco Industry Documents
VIC	Victoria
VLAA	Victorian Litter Action Alliance
WA	Western Australia

# Chapter 1: Introduction

## 1.1 Thesis introduction

The health risks of tobacco consumption are well established. An estimated 6 million people die as a result of tobacco use every year, a figure that will rise to 8 million by 2030, and will result in more than one billion deaths this century (Mathers and Loncar 2006; Jha 2009). There is markedly less awareness of the environmental impact of smoking, and research in this area has been largely focused on broader health implications such as second-hand smoke exposure which results in an estimated 600,000 deaths annually among non-smokers each year (Öberg et al. 2010).

Growing concerns related to tobacco production and deforestation, use of pesticides and chemical fertilisers, impacts of manufacturing and distribution, and disposal of tobacco product waste have led to research into the impacts of the cigarette lifecycle from cultivation and curing, production, and consumption, to post-consumption disposal (Novotny et al. 2015). Tobacco product waste has, until recently, received limited attention, yet post-consumption waste produced by the approximately 6.3 trillion cigarettes smoked globally every year, amounts to some 300 billion cigarette packs that produce an estimated 1,800,000 tonnes of waste paper, cellophane, foil and glue, and trillions of cigarette butts that are littered on roadways and pavements, and in parks and other green spaces (Novotny et al. 2015). A large quantity of this waste ends up in marine environments, with butts among the most abundant items collected in beach clean-ups around the world (for example, Cunningham and Wilson 2003; Martinez-Ribes 2007; Ariza, Jimenez and Sarda 2008; Bravo et al. 2009; Ocean Conservancy 2016).

Discussion of the potential environmental impact of discarded cigarette butts has, in some cases, met with scepticism or simple reductionism about the scale and scope of the problem, focussing too narrowly on a single aspect of current research (Chapman 2016). The reality, however, is that trillions of cigarette butts, which equate to almost one billion kilograms of non-biodegradable, cellulose acetate filters infused with benzene, nicotine, cadmium, and dozens of other chemicals drawn from the cigarette, are discarded annually (Proctor 2012). It is estimated that of the approximately 6 trillion cigarettes consumed annually, 75% (4.5 trillion) are littered, equating to approximately 175,200 tonnes of discarded filters in the environment (Novotny and Slaughter 2014; Novotny et al. 2015). Further, cigarette butts are unique, in that they are more likely to be littered than most other items for a number of reasons, including personal burn risk, not knowing what else to do with them, and a perceived acceptability of littering butts compared with other rubbish (Smith

and Novotny 2011). Analysis also revealed that smokers disliked cigarette butts whether in ashtrays or discarded, and were unenthusiastic about eco-friendly cigarettes, anti-litter campaigns, and portable or permanent ashtrays, leading industry analysts to conclude that the “complex psychology of butt littering made difficult identifying any message that might change the behaviour” (Smith and Novotny 2011).

Research into the potential environmental and public health impacts of butt litter has been carried out for less than two decades. Specific research topics have included toxicological analysis of filter composition and leachates; costs of butt clean-ups in urban settings; potential regulatory responses; and strategies of key policy actors. To date, the majority of research has been undertaken in the United States, particularly California. Given comparable concerns regarding ocean and coastline ecology, cost of clean-up, and the role of similar policy actors in discussions around responsibility, the issue of cigarette butt disposal has clear relevance for Australia.

Smokers in Australia discard some 7 billion butts into the environment each year (Scollo and Winstanley 2015), and reports from anti-litter non-government organisations (NGOs) such as Clean Up Australia have consistently found cigarette butts to be the most littered item in the country over the past fifteen years. At the time of writing, however, the potential environmental and health impacts of discarded cigarette butts in Australia have yet to be adequately assessed, and strategies and policy responses to mitigate the problem are inadequate at best. Despite significant reduction in smoking rates in Australia over this same period, there has not been a proportionate reduction in the volume of butt litter.

## **1.2 Thesis aims**

The aim of this thesis is to examine the problem of cigarette butt litter in the Australian context. There is a growing body of literature focused on other countries but to date, little research has been undertaken in Australia. This thesis aims to provide a basis for further research on the environmental impacts of butt litter, and strategies for management and mitigation. It also aims to identify the role of tobacco industry corporate social responsibility strategies in shifting responsibility for the problem and avoiding regulation and litigation.

### **1.3 Thesis structure**

Chapter 2 reviews the existing literature on butt litter, including related environmental impacts, mitigation and management costs, and recommended responses and their implementation. It also summarises previous studies of tobacco industry strategies relating to the environmental impacts of their products, and industry attempts to influence policy. An adapted version of Chapter 2 has been published by the environmental journal *Ambio*, and is included in Appendix D.

Methods are outlined in Chapter 3. Research on Australia involved a mixed methods approach that included qualitative interviews with representatives of environmental organisations, and analysis of academic articles, tobacco industry documents, government and NGO reports and policies, and grey literature.

Chapter 4 describes the Australian context, focusing on estimates of butt litter in Australia, and assesses campaigns aimed at raising public awareness, and attempts to provide solutions, predominantly by local government and non-profit organisations.

Chapter 5 presents findings from interviews conducted with environmental organisations in Australia, and from analysis of tobacco industry documents. It provides a comprehensive discussion of tobacco industry strategies, including corporate social responsibility (CSR) activities around butt litter in Australia that broadly mirror strategies pursued in the United States and other countries. While a number of environmental organisations have accepted money from the tobacco industry, including well-known charities such as Keep Australia Beautiful and Conservation Volunteers Australia, evidence of any positive impact on the butt litter issue is limited.

Based on existing literature, Chapter 6 assesses potential ways of managing butt litter mitigation which would hold tobacco companies responsible for economic costs. A range of options is considered, including dedicated municipal per-pack fees, a Model Tobacco Waste Act, tobacco deposit/return fees, further product labelling, and litigation against the tobacco industry.

By addressing key aspects of the butt litter situation in Australia, this thesis contributes to existing literature through analysis of the butt litter situation in a geographical and environmental setting in which it has received limited attention, and brings to light new evidence on the tobacco industry's attempts to avoid responsibility for mitigation, and to influence policy. It concludes (Chapter 7) with recommendations for further research similar to that carried out elsewhere, particularly into



toxicology, environmental impacts on extensive and biodiverse coastlines and wildlife, and the policy process.

## **Chapter 2: Literature Review**

### **2.1 Introduction**

The potential environmental health impacts of cigarette butt litter were first addressed in 1999 by Novotny and Zhao. Their wide-ranging paper described and calculated waste from discarded butts, packages and cartons, and suggested a series of measures to mitigate related problems.

Since then, research in the field has expanded to include assessments of the scale of the issue; environmental impacts; economic costs of clean-up; recommendations for management; and the role of the tobacco industry in related discussions about responsibility for discarded cigarette butts. The geographic scope of the work has also expanded. While the vast majority of studies have been undertaken in California, related analysis has been conducted in other parts of the United States, Germany, Taiwan, Australia and Iran (Witkowski 2014; Roder Green, Putschew and Nehls 2014; Lee and Lee 2014; Booth et al. 2015; Dobaradaran et al. 2016).

Filters were first added to cigarettes in the 1950s to mitigate public health concerns around an increasing body of scientific evidence suggesting negative health impacts of smoking (Pauly et al. 1995; Novotny et al. 2009; Harris 2011). They had the desired effect of allaying health fears and providing consumers with a sense that they were better protected from dangerous chemicals in cigarettes. Filters are, however, ineffectual, and evidence suggests that filtered cigarettes may even be more harmful than unfiltered. This is because the vast majority of cigarette filters are composed of around 12,000 fibres of cellulose acetate, a non-biodegradable plastic product which can be inhaled and has reportedly been found in the lung tissue of lung cancer patients (Pauly et al. 1995; Novotny et al. 2009). Additionally, smokers tend to inhale filtered and unfiltered cigarettes differently to maximise the inhalation of nicotine and tar, for example by covering ventilation holes and inhaling more deeply, and this may have led to a shift in the type and location of lung cancers developed by smokers – from central to peripheral, and from squamous cell carcinoma to the potentially more aggressive adenocarcinoma (Brooks et al. 2005; Novotny et al. 2009).

### **2.2 Cigarette butt litter and toxicology**

The potential environmental impact of trillions of discarded cigarette butts has been investigated in toxicological studies that have identified quantifiable risks to marine and freshwater species, and to humans. The first comprehensive toxicological study into the impact of cigarette butt litter was undertaken in 2000. The study consisted of bioassays using the freshwater daphnid (water flea), *Daphnia magna*, developed using the US EPA's standardised 'Aquatic invertebrate acute toxicity

test for freshwater daphnids' with the water fleas being introduced to petri dishes with dilution water and a test solution made by soaking the components of cigarette butts in distilled, deionised water, and allowing the chemicals in the butts to leach into the water (Register 2000). The result of these experiments was evidence that "toxic chemicals leached from discarded cigarette butts present a biohazard to the water flea at concentrations of more than 0.125 butts per liter, or about one butt per two gallons of water" (Register 2000). While acknowledging that the exact level of real-world exposure of *Daphnia magna* to cigarette butt leachates was yet to be determined, Register (2000) notes that the results of the experiments "reveal relevant patterns of exposure."

Register's work was the catalyst for further toxicological analyses of the effects of cigarette butt litter. This includes Micevska et al.'s 2006 study of *Vibrio fischeri* (a gram-negative bacterium found in marine environments) and cladocera – *Ceriodaphnia* cf. *dubia* (a type of freshwater flea). By assessing two different species the researchers were able to determine that organisms have varying levels of sensitivity to butt litter leachate, and that different cigarette brands have different levels of toxicity. It also found that the primary compounds that caused toxicity were organic compounds; primarily nicotine and ethylphenol (Micevska et al. 2006).

Slaughter et al.'s (2011) study of the toxicity of cigarette butts and marine and freshwater fish marked the first analysis of the impacts on larger species. Similar to the research by Micevska et al., Slaughter et al. looked at two comparable species in both marine and freshwater environments, in this case identifying the LC50 (concentration at which half the sample population will die) of butt leachate. Like Register's work with water fleas, the US EPA standard acute bioassay was used, with tests undertaken for three different types of leachate: 1) from smoked cigarette butts with 1-2 cm of remnant tobacco remaining, 2) from smoked cigarette butts with all remnant tobacco removed, and 3) from unsmoked cigarette butts (Slaughter et al. 2011). The results showed that all types of cigarette butt litter were acutely toxic to both species, with an LC50 for smoked cigarette butts of approximately one butt per litre for both (Slaughter et al. 2011).

In 2014, researchers in Taiwan analysed the developmental toxicity of butt leachate to medaka (Japanese rice fish) embryos (Lee and Lee 2014). By exposing embryos to different concentrations of leachates from smoked and unsmoked tobacco and filters, Lee and Lee (2014) found that low concentrations of leachates from smoked and unsmoked tobacco, and from smoked filters increased heart rate, accelerated development and changed behaviours, while high concentrations from the same lowered the heart rate, suppressed development and increased mortality. The following year, Australian researchers published their findings on the lethal and sub-lethal impacts of cigarette butt

leachate on tidepool snails (Booth et al. 2015), which included behavioural changes as well as mortality rates. They reported that behaviours and activity levels of the snails varied at different concentrations of leachate, and that 100 per cent mortality was recorded for all species at the highest leachate concentration (5 butts per litre with 2 hours soak time) after eight days (Booth et al. 2015). At lower concentrations, species-specific differences in mortality were observed, with some species less tolerant than others – one incurred mortality at just 10 per cent of the highest leachate concentration. As the authors noted, lower leachate pollution levels may result in “changes in relative snail species abundances” and this “could dramatically change the dynamics of their interactions” (Booth et al. 2015, p. 364).

Recent toxicological analysis has examined the potential impacts of butt leachate on human health through urban water contamination in Berlin. Roder Green, Putschew and Nehls (2014) focused specifically on the extent to which nicotine is released into urban waterways from butts littered and left in standing puddles (i.e., pooled rainwater). Findings that nicotine released from standing puddles poses a significant risk to urban water resources, as it potentially exists in concentrations higher than European Union hazardous and toxic waste thresholds, led to recommendations for further study of the potential pathways of nicotine into urban waterways (Roder Green, Putschew and Nehls 2014).

Nicotine is not the only potentially hazardous component in cigarette butt leachate, and studies have been undertaken into other chemical components. A 2009 paper in *Waste Management* reported that, in addition to nicotine, cigarette butts eluted arsenic, heavy metals including lead, copper, chromium and cadmium, as well as polycyclic aromatic hydrocarbons (PAHs) (Moriwaki, Kitajima and Katahira 2009). These findings were confirmed by Moerman’s and Potts’ (2011) research into metals leached from smoked cigarette litter. They found that cigarette litter was a point source for metal contamination, including aluminium, barium, cadmium, chromium, copper, iron, lead, manganese, nickel, strontium, titanium and zinc, and noted that concentrations of barium, iron, manganese and strontium increased over time, which is significant for clean up efforts. More recent analysis by Iranian researchers (Dobaradaran et al. 2016) provides further evidence for this, finding that cadmium, iron, arsenic, copper, nickel, zinc and manganese are eluted into marine environments from butt litter. Arsenic, cadmium and lead appear on the World Health Organization’s list of 10 chemicals of major public health concern (WHO 2015), and PAHs have been identified as carcinogenic, mutagenic and teratogenic, with the US Environmental Protection Agency (EPA) having designated 16 PAHs as priority pollutants (US EPA 2014).

The environmental health impact of chemical leachate on soil and water from cigarette butts is still to be quantified. However, given the volume of filters discarded into the environment, detailed in Chapter 1, and recent identification of residual wastes from medicines, pesticides and plastic microbeads used in cosmetics in water sources, it is possible that filter leachates may affect the quality of drinking water, constitute an environmental contaminant, and result in bioaccumulation in the food chain that could pose a human health hazard (Novotny et al. 2015).

### **2.3 Putting a cost on cigarette butt litter**

In 2011, Schneider et al. developed a conceptual methodology to assess the economic cost of cigarette butt litter clean-up in San Francisco which calculated direct costs such as mechanical and manual abatement (street sweepers, filters at sewage treatment plants etc.), but excluded indirect costs such as harm to business and tourism. Their research was aimed at determining the actual cost of mitigating the negative externalities of cigarette butt litter, and to establish whether or not these costs could be recouped through a per-pack fee. They found that the total ‘recoverable’ cost of the litter was around USD 6.5 million per year, with a maximum permissible per pack fee of approximately USD 0.22 (Schneider et al. 2011). Reports of smaller scale clean-up efforts have indicated that these can also be expensive for institutions as well as cities. A frequently cited report by The Pennsylvania State University estimated that annual costs of campus cigarette butt litter clean-up reached USD 150,000 (Lackey 2007, cited in Sawdey, Lindsay and Novotny. 2011).

The tobacco industry is aware of concerns about cigarette butt litter and its status as an environmental hazard, and has attempted to block recommendations to mitigate its impacts. When San Francisco implemented a litter mitigation fee, Freiberg (2014) suggests that the tobacco industry:

so feared the proliferation of laws [like this] that they challenged the law on two fronts.

First, they unsuccessfully challenged the law as an unauthorized tax rather than a fee.

Second, they donated extensively to a successful statewide ballot initiative that sharply limited the authority of local jurisdictions to adopt similar measures (p. 207).

Philip Morris, for instance, contributed USD 1.75 million to “Stop Hidden Taxes”, which Freiberg (2014) describes as a ‘front group’ funded by alcohol, tobacco, oil and business interests to support the passage of Proposition 26.<sup>1</sup> For now, however, the litter fee remains in San Francisco, although its efficacy in reducing butt litter has been questioned (Sabatini 2015).

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<sup>1</sup> This would mean that a two-thirds supermajority vote in the California State Legislature would be required to pass many fees, levies, charges and tax revenue allocations that under the state’s previous rules could be enacted by a simple majority vote [Ballotpedia 2015]).

## **2.4 Responses to cigarette butt litter**

Continued research into the impacts of butt litter provides a strong basis for the legislative and policy recommendations that have been made. In 1999, Novotny and Zhao recommended:

1. Better enforcement of existing litter laws;
2. Additional taxes on tobacco products to be used for environmental clean-up for both consumption and production waste;
3. Improved biodegradability of filters;
4. Provision of disposal facilities outside worksites and public buildings (to be provided by building administrators);
5. Increased public awareness about the environmental and health impacts of cigarette butt litter.

Since the publication of this paper, there have been significant changes in discussion of butt litter that can, in large part, be attributed to the release of tobacco industry documents under the terms of the 1998 Master Settlement Agreement (MSA).

### ***2.4.1 The Master Settlement Agreement and the butt litter literature***

The MSA was a legal action taken by 46 US states against the US tobacco industry to recover treatment costs of smoking-related illness. Comprehensive detail of the legal proceedings and settlement, including the court-ordered disclosure of some 40 million pages of industry records, is available elsewhere (Ciresi 1999; Ciresi et al. 1999). In August 2016, more than 88 million pages in 14,618,911 documents were publicly available online at the Truth Tobacco Industry Library (UCSF 2016a). The documents are diverse in content and format, and provide remarkable insights into the advertising, manufacturing, marketing, scientific research and political activities of leading United States-based tobacco corporations, as well as British American Tobacco. Of particular relevance to the current study, documents also indicate that the tobacco industry was aware as early as 1992 that “environmental concerns about discarded butts might become more important to consumers and policymakers” (Novotny et al. 2009, p. 1695).

Release of the documents has led to a shift in recommendations on who should be held responsible for the costs of mitigation and clean-up. Recent analysis (Novotny et al. 2009; Smith and Novotny 2011; Curtis et al. 2014; Novotny and Slaughter 2014; Witkowski 2014; Curtis et al. 2016) places clear responsibility onto tobacco companies, and recommends fines against manufacturers based on the quantity of their brands littered, and even legal action against industry on the basis of environmental impacts of cigarette butt litter.

### 2.4.2 Legislation and litigation

Recent analysis of possible remedies and responses to butt litter have suggested that US public nuisance legislation, hazardous waste laws (such as those applied in California) and product liability law could be used to hold the tobacco industry responsible for mitigation and clean-up (Witkowski 2014). Alternative legal options to hold the tobacco industry responsible have also been proposed and in some cases, attempted, such as pre-emptive legislation and bans on specific components of cigarettes and cigarette filters (Freiberg 2014; General Assembly of Maryland 2014; California State Assembly Democratic Caucus 2015; California Legislative Information 2015). Details of these proposed options are discussed in Chapter 6.

Smith and McDaniel (2011) recommend that researchers, policy makers and others seeking solutions to the problem should reframe cigarette butt litter as an issue of *waste* versus *litter*. Litter, they argue, makes the problem one of disposal; waste, conversely, redirects the focus of responsibility to the producer. A useful practical starting point for researchers and advocates is the California Department of Public Health's *Tobacco Product Waste Reduction Toolkit* (Novotny 2013) which provides useful information on related science, methods for estimating clean-up costs, developing policy response, mounting advocacy campaigns, and establishing partnerships.

Aligning with this recommendation, the most frequently discussed policy and legislative principles are Extended Producer Responsibility (EPR) and Product Stewardship (PS). Development of the concept of EPR is associated with Thomas Lindhqvist, who defines it as:

[a] strategy to reach an environmental objective of a decreased total environmental impact from a product, by making the producer of the product responsible for the entire life cycle of the product, and especially for the take-back, recycling and final disposal of the product (Lindhqvist 2000 p. ii).

PS is similar to EPR, with the main point of difference that it includes the consumer and the retailer as active participants in the regulation. Including the consumer is not unreasonable – 2012 research found that 74.1% of smokers reported having littered cigarette butts once in their life, and over half reported dropping cigarette butts on the ground, or down a sewer or drain in the past month (Rath et al. 2012).

Most recent studies recommend a model that combines aspects of EPR and PS (Barnes 2011; Curtis et al. 2014; Novotny and Slaughter 2014; Curtis et al. 2016). In 2011, Barnes undertook a review of the two approaches, and found that EPR laws in the United States often relied heavily on voluntary consumer compliance and were essentially unenforceable (Barnes 2011). Reliance on consumer

compliance is unlikely to be effective, particularly without additional policy changes such as increased fines for littering, and consumer education (Smith and Novotny 2011). As such, Barnes recommends a model that adopts aspects of both EPR and PS, shifting responsibility for collection, transportation and safe disposal of butt litter back to tobacco companies (2011).

In 2014, Novotny and Slaughter, and Curtis et al. made similar recommendations in papers that considered a wide range of policy and regulatory options for mitigating the environmental impacts of cigarette butt litter. These included not only EPR and PS, but also the Polluter Pays Principle and the Precautionary Principle, bans on single-use filters, product labelling, litigation against the tobacco industry, waste and litter fees, and deposit/return (Curtis et al. 2014; Novotny and Slaughter 2014). Both Barnes (2011) and Curtis et al. (2014) concluded that a regulatory system that includes components of EPR and PS is likely to be the most effective model because the two systems are complementary, able to “work in tandem to prevent, reduce and mitigate [tobacco product waste’s] environmental effects” (Curtis et al. 2014, p. 7) by sharing responsibility for waste across the lifecycle of the product and shifting the economic costs of clean up to the producers of the toxic product – the tobacco companies.

Most recently, a Model Tobacco Waste Act was proposed by Curtis et al. (2016). Based on both EPR and PS principles, it provides a regulatory framework for the development, financing and implementation of programs to safely dispose of post-consumer tobacco waste (Curtis et al. 2016). This draft Act and other legislative approaches mentioned above are discussed in further detail in Chapter 6.

## **2.5 Tobacco companies: engagement with butt litter debates**

Research shows that the tobacco industry has also attempted to manage the butt litter issue, often as part of wider corporate social responsibility (CSR) programs. Analysis of tobacco industry use of CSR (Hirschhorn 2004; Palazzo and Richter 2005; Yang and Malone 2008; Smith and McDaniel 2010; McDaniel and Malone 2012; Fooks et al. 2013; Fooks and Gilmore 2013) highlights the obvious disconnect of an industry that produces and markets a product that kills half its users (Hirschhorn 2004) representing itself as socially responsible and ethical. Fooks and Gilmore (2013) found that British American Tobacco (BAT) was not only using their CSR activities to neutralise the perception of the company being a poor corporate citizen, but also in an attempt to shape the tobacco control agenda, particularly by pre-empting binding legislation and securing access to and building relationships with policy makers. McDaniel and Malone (2012) found similar outcomes in their analysis of BAT’s partnership with the United Kingdom-based Earthwatch Europe. Other



tobacco companies have also developed CSR relationships with environmental organisations, discussed further in Chapter 5, in an attempt to achieve three goals:

- 1) to “prevent litter from impacting the social acceptability of smoking”;
- 2) to avoid bans and restrictions being implemented as a result of cigarette butt litter;
- 3) to ensure that the tobacco industry was not held practically or financially responsible for cigarette butt litter (Smith and McDaniel 2011).

## **2.6 Conclusion**

As the literature in the field of cigarette butt litter grows, it adds to existing evidence for its potentially dangerous effects on environmental health, highlighting the importance of Smith and McDaniel’s (2011) recommendation for reframing the issue. A number of academics, legal experts and politicians have made recommendations for stronger regulation; little, however, has been implemented. In part, this is due to tobacco industry strategies that work to influence public perception and the policy agenda. As such, there is still enormous scope for further research in the field – in particular, continuing to expand the field outside of the US to emphasise the global scale of this issue. To date, little academic research in the field has been undertaken in Australia into the scale of the problem, tobacco industry attempts to influence opinion and policy, and potential management strategies and there is a clear need to expand on this to develop an evidence base for new policy and legislation.

## **Chapter 3: Methods**

### **3.1 Introduction**

This thesis utilises a mixed methodology. It includes review of relevant academic articles, tobacco industry documents, reports and submissions to Australian Government agencies, and data produced by government and environmental organisations on smoking rates and butt litter. Significantly, research also incorporated interviews with environmental organisations involved in butt litter management, a number of which have received tobacco industry support.

### **3.2 Academic articles**

A review of peer reviewed research articles up to July 2016 identified environmental and health impacts of tobacco product litter, policy responses, and the role of the tobacco industry as main issues. Significant attention was also given to peer reviewed papers on the financial costs associated with butt litter reduction and mitigation activities.

Databases used for article searches included Expanded Academic ASAP, PubMed, Science Direct, Scopus and Web of Science, and a range of search terms related to various aspects of this research were used. To find articles on butt litter, combinations of the following terms were used: ‘cigarette’, ‘butt’, ‘litter’, ‘tobacco’, ‘product’, ‘waste’, ‘toxicity’, ‘environment’, ‘public health’, and ‘impact.’ For tobacco industry and corporate social responsibility (CSR), combinations of the following terms were used: ‘environmental’, ‘organisations’, ‘charities’, ‘tobacco’, ‘companies’, ‘industry’, ‘corporate’, ‘social’, ‘responsibility, and ‘philanthropy.’ Other searches for relevant background information included ‘tobacco denormalisation’, ‘Australia’, ‘health’, ‘risks’, ‘cigarette’, ‘butt’, ‘filters’ and ‘master settlement agreement.’ Searches for new literature specifically on butt litter were undertaken on a monthly basis, to identify additions to the constantly expanding body of work in the area. In total, approximately 60 peer-reviewed research articles were reviewed.

### **3.3 Tobacco industry resources**

Research into the Australian tobacco industry’s position on and strategic responses to butt litter focused on internal tobacco industry documents, reports to external monitoring organisations and information posted on the websites of British American Tobacco Australia (BATA), Imperial Tobacco Australia (ITA), and Philip Morris International (PMI).

Document research involved analysis of previously confidential internal tobacco industry documents made publicly accessible through litigation, and available at The University of California, San Francisco’s Truth Tobacco Industry Documents (TTID) depository (formerly the

Legacy Tobacco Documents Library). The TTID is the result of provisions of the United States Master Settlement Agreement in 1998 (UCSF 2016) and contained approximately 88 million pages in 14.6 million documents in August 2016 (UCSF 2016a). The provenance, mechanics and limitations of using tobacco industry documents are described elsewhere (Carter 2005).

The documents provide valuable information on industry responses to cigarette butt litter issues that have been analysed in a number of US-based studies (Hirschhorn 2004; Tesler and Malone 2008; Yang and Malone 2008; Smith and McDaniel 2011; McDaniel and Malone 2012). Research methods followed well-established practices of tobacco document research (Malone and Balbach 2000; MacKenzie and Holden forthcoming, 2016). Searches were carried out on documents available up to and including August 2016 using standard snowball research techniques (Anderson et al. 2011) in which initial searches returned terms that were used in subsequent, more specific searches. Initial search terms were taken from US-based studies, and names of Australian environmental and clean-up organisations including ‘KESAB’, ‘Keep Australia Beautiful’, ‘Keep South Australia Beautiful’ and ‘Conservation Volunteers Australia.’ A total of 35 relevant documents were retrieved and analysed in the context of other sources (including interviews and governmental and NGO data) to build a narrative to describe the tobacco industry’s knowledge of the butt litter issue and their policy responses to this.

In addition to information identified from the TTID, the three main Australian tobacco companies (BATA; Imperial Brands; PMI) promote related activities on their websites. All three are also members of the Australian Packaging Covenant and their annual reports to this body are a valuable source of information on their environmental activities and donations throughout the year.

### **3.4 Data on butt litter in Australia: government, non-government organisations and other sources**

National, state and territory government websites were searched for data on smoking rates in Australia and for tobacco control legislation and other initiatives undertaken to reduce smoking prevalence. Local council websites also provided information on their activities such as public education initiatives and provision of butt litter receptacles, and in some cases provided evidence of the efficacy of their work.

Non-government organisations (NGOs) were another source of relevant information, particularly in terms of reporting on litter collected, including cigarette butt litter as a proportion of all litter collected. Clean Up Australia, KESAB *environmental solutions* (KESAB), and Keep Australia

Beautiful (KAB) were particularly useful, particularly their annual reports and branded litter studies (although the latter have not been undertaken since 2011/12). Both Clean Up Australia and Keep Australia Beautiful also break their data down by state.

Some state and Commonwealth government websites and reports provided information on policy related to butt litter. For example, the Commonwealth has published information on the development of product stewardship legislation since 2013 that includes a growing list of products that are covered (Australian Government Department of the Environment and Energy 2016). Information on the limited interaction between the tobacco industry and the Australian Government is also available, such as BATA's 2008 submission to the Commonwealth Government Review into "Australia's Future Tax System" (BATA and Vecchiet 2008), and Imperial Tobacco Australia's submission to the *House Standing Committee on Health and Ageing regarding the Inquiry into Plain Tobacco Packaging* (ITA 2011).

Similarly, relevant environmental NGOs are not simply a resource for information on the quantity and composition of the litter stream in Australia; they also provide insight into societal attitudes towards butt litter and the tobacco industry more broadly. Conservation Volunteers Australia's website (2016), for instance, lists corporate partners including mining and petroleum companies, but does not mention their long-term partnership with BATA.

### **3.5 Market analyses and grey literature**

Data on current smoking patterns and the market share of the relevant tobacco companies was also acquired from Euromonitor International reports. A Factiva search of relevant Australian newspapers including *The Australian* (national), *The Sydney Morning Herald* and *The Daily Telegraph* (Sydney), *The Age* (Melbourne) and *The Advertiser* (Adelaide) used search terms similar to those listed in the literature review and tobacco industry document searches described above.

### **3.6 Interviews**

Environmental organisations in Australia were contacted to request interviews on their butt litter mitigation programs and position on working with the tobacco industry. Four of the organisations contacted receive, or have received, tobacco industry funding, while another four state that they do not receive industry funding (see Table 3.1). The organisations were selected based on their funding status, with the intention of giving equal weight to the positions of organisations that do and do not receive tobacco industry support. Funding status was established through information made public on tobacco company websites, environmental organisation reports, tobacco company annual reports, and reports to the Australian Packaging Covenant. Interviews were approved by Macquarie

University's Faculty of Human Sciences Ethics Subcommittee in October 2015, with amendments approved in January 2016 (approval number: 5201500598).

Initial contact was made via email (see Appendix C), with follow-up emails and/or phone calls made approximately two to three weeks after the first email. Of the eight organisations contacted, three agreed to interviews; KESAB, KAB, and the Victorian Litter Action Alliance. Interviews were undertaken by phone in December 2015 and February 2016 and were 20-30 minutes in duration. All interviews were recorded, and manually transcribed and analysed with permission of the interviewees. Conservation Volunteers Australia (CVA) did not respond, while Landcare Australia declined to be interviewed. Clean Up Australia and the Australian Marine Conservation Society (AMCS) responded to initial approaches, but ultimately ceased correspondence.

Landcare Australia, Clean Up Australia and the AMCS are not believed to receive tobacco industry funding. Landcare Australia cited a lack of resources, staff and time as reasons for not agreeing to an interview.

Questions that guided semi-structured interviews are included in Appendix A. For those organisations currently receiving tobacco industry funding, questions were aimed at determining whether or not the decision to receive this support from the tobacco industry had been a contentious issue for the organisation, and whether they felt that the receipt of these financial donations conflicted with their environmental missions. There was also a question related to the potential benefits that tobacco companies may receive from their association with environmental charities and recycling organisations. The rationale for interviewing organisations that state they do not receive industry funding was: to attempt to identify those that had been approached by the industry but turned down offers of financial support; to determine why some organisations refuse funding or in kind support; and to try to determine why the industry targets specific organisations.

**Table 3.1. Organisations contacted for interview; and tobacco industry funding.**

<b>Organisation</b>	<b>Known to accept funding</b>	<b>Responded</b>	<b>Agreed to interview</b>
Australian Marine Conservation Society	N	Y	N
Clean Up Australia	N	Y	N
Conservation Volunteers Australia	Y	N	N
Keep Australia Beautiful	Y*	Y	Y
KESAB Environmental Solutions	Y	Y	Y
Landcare Australia	N	Y	N
Terracycle	Y	Y	N
Victorian Litter Action Alliance	N	Y	Y

\* Keep Australia Beautiful advised that they do not currently receive funding, however, they have done so in the past. There is evidence of a relationship between PMI and Keep Australia Beautiful as far back as 1975 (PMI 1975), and as early as 1999, the two organisations were working together on the butt litter issue (PMI 1999). BATA also provided funding for the Branded Litter Study of 2011/12 (Keep Australia Beautiful 2012a).

### **3.7 Conclusion**

Findings from analysis of the tobacco industry documents, and interviews with environmental organisations were assessed to address the aims of this thesis, as detailed in Chapter 1. These findings were augmented by government and environmental organisation publications and other resources.

## **Chapter 4: Smoking Prevalence, Tobacco Control and Butt Litter in Australia**

### **4.1 Introduction**

This chapter describes the butt litter situation in Australia within the broader context of smoking prevalence, attitudes, policy actors and regulation. It summarises trends in smoking prevalence and the makeup of the tobacco industry in Australia, and presents data on the quantity of butt litter at both national and state levels. It then addresses the responses of federal, state and local governments, and briefly considers the work of environmental NGOs in mitigating the butt litter problem.

### **4.2 Smoking prevalence**

Between 1991 and 2013, the number of daily smokers (aged 14 and over) in Australia almost halved, from 24.3 per cent of the population to 12.8 per cent (Australian Institute of Health and Welfare [AIHW] 2014). Despite this, smoking remains a significant health problem. In 2014-15, 14.5 per cent of the Australian population aged 18 years and over (age standardised) smoked on a daily basis - approximately 2.6 million people (Australian Bureau of Statistics [ABS] 2015). Disadvantage remains a significant predictor of smoking. The proportion of Aboriginal and Torres Strait Islander people aged 15 years and over who smoke remains at 38.9 per cent (albeit down from 44.6 per cent in 2008) (Australian Government Department of Health [DoH] 2016). Similarly, people (over 14 years) living in the lowest socioeconomic areas are still more than twice as likely to smoke as those living in areas of least disadvantage (21.4 per cent versus 8.0 per cent) (ABS 2015). Smoking kills an estimated 15,000 Australians each year, and costs Australia AUD 31.5 billion in social (including health) and economic costs (ABS 2015).

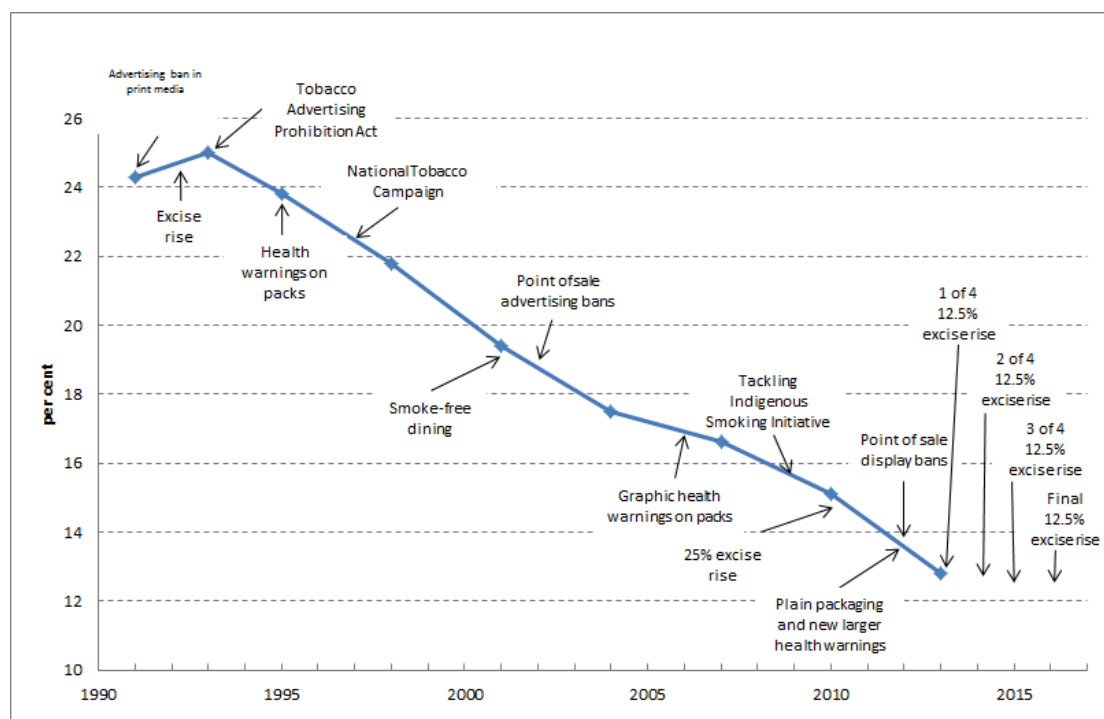
### **4.3 Tobacco control legislation**

The decline in tobacco consumption in Australia can, in large part be attributed to tobacco control measures implemented by the Commonwealth and state governments (see Figure 4.1 for more detail on the impact of Commonwealth measures). Since US Surgeon General's publication of the evidence in 1964 that smoking causes lung cancer (Centers for Disease Control and Prevention 2009), public and official attitudes towards smoking have changed enormously. Australia has been a global leader in tobacco control initiatives for many years, particularly with the 2011 introduction of world-first plain packaging legislation. This legislation has already begun to "achieve its public health objectives of reducing smoking and exposure to tobacco smoke in Australia", with one report estimating that in the 34 months post-implementation between December 2012 and September

2015, there was a statistically significant decline of 0.55 per cent in the number of people who smoked (108,228 individuals) (DoH 2016a)

Plain packaging is the latest intervention in a series of Australian legislative responses to smoking that have included a ban on tobacco advertising in print media in 1990; graphic warnings on cigarette packets in 2006; and increases in tobacco excise between 1992 and 2015. A further excise tax rise in September 2016 resulted in a 100% increase in tobacco taxes over four years (DoH 2016).

Tobacco control legislation has also been implemented at state and territory level, including significant and increasing restrictions placed on the public places in which people may smoke (Scollo and Winstanley 2016). For example, in NSW the *Smoke-free Environment Act 2000* banned smoking in all enclosed public places, with the exception of licensed venues and casinos (NSW Government 2016). By 2007, the Act extended to all enclosed areas of licensed premises and casinos, and in 2015, smoking bans were also applied in commercial outdoor dining areas (NSW Government 2016; NSW Health 2015). Similar bans on smoking outdoors have now been implemented around Australia, except for in Victoria where they will be implemented in 2017 (Victorian Department of Health and Human Services 2016).



**Figure 4.1. Smoking prevalence rates for 14 years or older and key tobacco control measures implemented in Australia since 1990.** (Australian Government Department of Health 2016)



#### 4.4 The tobacco industry

Cigarette sales in Australia have declined significantly over the past five years. Between 2010 and 2015, there was negative growth of -19.6 per cent (Euromonitor 2016). The tobacco market remains dominated by British American Tobacco Australia (38.4 per cent market share); Philip Morris (32.0 per cent); and Imperial Tobacco Australia (27.2 per cent) (Euromonitor 2016), which together control 97.6 per cent of sales.

**Table 4.1. Australia. Cigarette market share by sales, 2011-2015**

	% retail volume by year				
Company	2011	2012	2013	2014	2015
British American Tobacco Australia Ltd	42.4	43.3	42.1	39.6	38.4
Philip Morris (Australia) Ltd	35.5	34.7	34.1	32.3	32.0
Imperial Tobacco Australia Ltd	19.6	19.5	21.7	25.9	27.2
Others	2.5	2.5	2.2	2.2	2.4
Total	100	100	100	100	100

Source: Euromonitor. *Cigarettes in Australia*. 2016

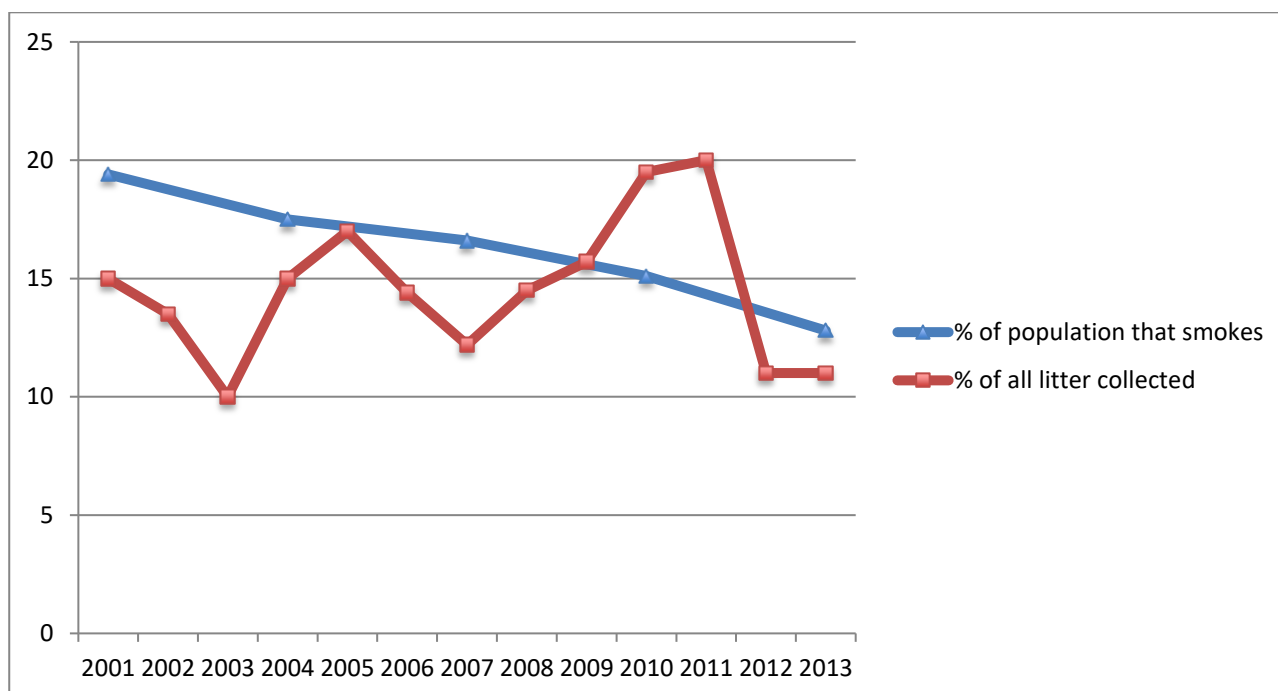
#### 4.5 Environmental impacts: cigarette butt litter

Despite declining smoking rates and cigarette sales, more than 16 billion cigarettes were sold in Australia in 2015, all of which were filtered (Euromonitor 2016). Scollo and Winstanley (2015) estimated that 7 billion cigarette butts are discarded into the environment each year, and they comprised the most frequently identified litter item in 2014-2015 at 22 butts per 1000m<sup>2</sup> (Keep Australia Beautiful [KAB] 2015). Street cleaners in Sydney, the country's largest city, collect a reported 15,000 cigarette butts each day, or nearly 5.5 million annually (City of Sydney 2014), while a litter clean-up covering just 200 metres of St Kilda Beach in Melbourne recovered 5000 butts, approximately 25 per metre<sup>2</sup> (Beach Patrol 2015).

Cigarette butt litter has potentially serious implications for Australia's extensive and biologically diverse coastal environments. Marine species including gram-negative bacteria, tidepool snails and particular species of fish have shown vulnerability to chemicals leached from butt litter (Register 2000; Micevska et al. 2006; Slaughter et al. 2011; Booth et al. 2015). Damage to one species of fish, medaka (Japanese rice fish), has also been shown to occur at the embryonic stage of development (Lee and Lee 2014). Given that research into the toxicity of butt leachate to marine

species is still in its infancy, it can be expected that many other species may also be sensitive to this chemical cocktail which includes carcinogenic, mutagenic and teratogenic compounds (Moriwaki et al. 2009; US EPA 2014).

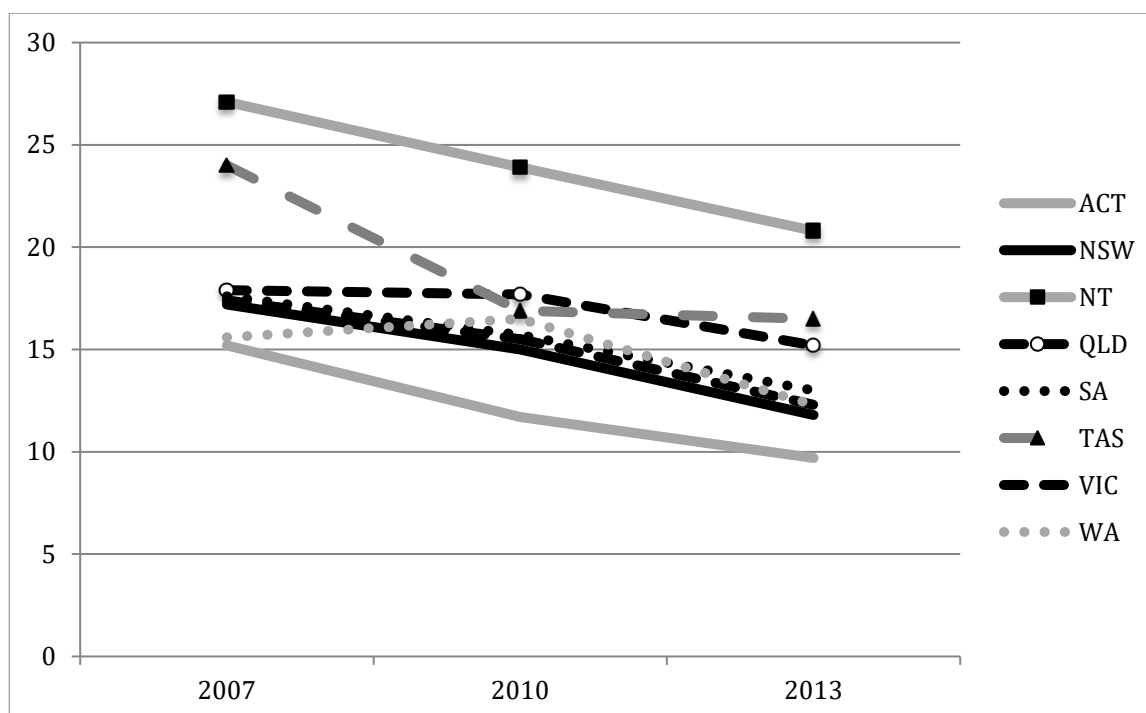
While there is some correlation between decreasing smoking rates and the number of discarded cigarette filters, it is not at all strong or consistent. Figure 4.2 shows the trajectory of both smoking rates and butt litter prevalence nationally between 2001 and 2013.



**Figure 4.2. Comparison between daily smokers (14 years+) and butt litter as a percentage of all litter collected in Australia, 2001-2013.**

Note: data points for percentage of smokers are only available for 2001, 2004, 2007, 2010 and 2013, and this decrease may not have been a linear downward trajectory as the line suggests. (AIHW 2014a; Clean Up Australia 2001-2013).

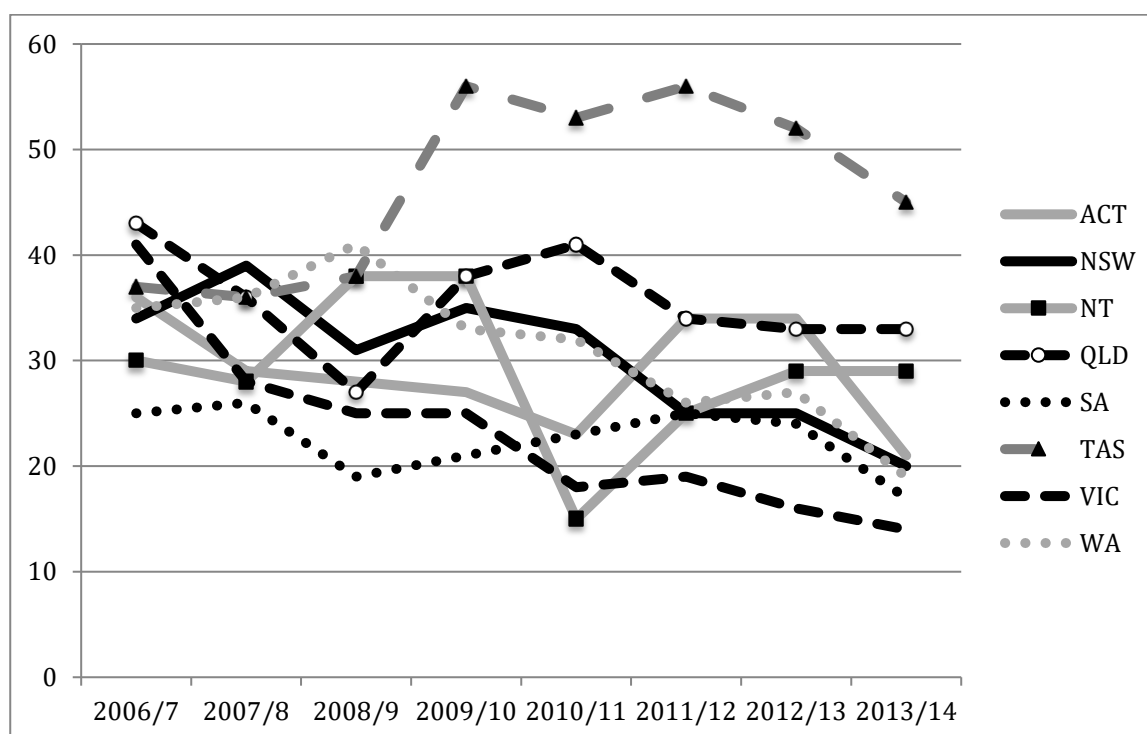
Figures 4.3 and 4.4 describe similar metrics at state level. As with the national data above, significant fluctuations and aberrations suggest that the link between the two is not strong. Data on butt litter as a percentage of litter collected is not available on a state-wide basis, so the number of butts per 1000m<sup>2</sup> (the metric used by Keep Australia Beautiful in their National Litter Index) has been used instead.



**Figure 4.3. Smoking prevalence (%) by jurisdiction for population 18+**

Note that the data for 2013 was for population aged 14 and over. Please see Glossary for State abbreviations.

Source: AIHW 2011, Australian Government Department of Health 2016.



**Figure 4.4. Cigarette butt litter by jurisdiction. Number of pieces of butt litter per 1000m²**

Source: Keep Australia Beautiful National Litter Index, 2013/14.

## 4.6 Government responses

### 4.6.1 Commonwealth and state government response

Despite the reduction in the number of smokers and a slight downward trend in the amount of butt litter, cigarette butts remain the most collected type of litter in clean-up programs around Australia (Clean Up Australia 2015; Keep Australia Beautiful 2015). At the Commonwealth level, little has been done to acknowledge or address the butt litter issue, and when it has been identified as a threat, it has generally been treated as incidental to larger concerns, rather than as a problem in its own right. In 2003, the national *Environmental Protection and Biodiversity Conservation Act 1999* (cited in Australian Government Department of the Environment, Water, Heritage and the Arts [DEWHA] 2009) described “Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris” as a key threatening process – that is, one that may threaten the survival, abundance or evolutionary development of a native species or ecological community (p. iii). A *Threat abatement plan for the impacts of marine debris on vertebrate marine life* was developed to manage these issues in 2009, and a review of the plan was undertaken in 2014 (Australian Government Department of Environment and Energy [DEE] 2014). The focus of the plan was on large marine litter and plastics, and while cigarette butts were listed as an item of concern, their impact was only mentioned once in relation to toxicity and the ingestible nature of butts, and the plan did not mention their toxicity to the marine environment more broadly. However, it should be acknowledged that Source Reduction Plans that were developed in conjunction with a marine protection charity, Tarangoa Blue, did include recommendations for the development of infrastructure, such as an increase in the number of butt bins (DEE 2014).

State governments have also established education initiatives and anti-litter advertising campaigns, some of which have highlighted the cigarette butt problem, but these have been limited. For example, in 2007 Sustainability Victoria launched the “Don’t Be a Tosser - Bin Your Butts” campaign in anticipation of an increase in the amount of butt litter following the Victorian Government’s ban on smoking indoors in licensed venues. In terms of governmental involvement, the campaign was solely educational, with venues responsible for the provision of bin infrastructure and on-site messaging (Victorian Litter Action Alliance [VLAA] 2014a). In 2013, Sustainability Victoria’s partner, the Victorian Litter Action Alliance also developed a *Litter Prevention Kit: Cigarette Butts*, although again, it was expected that the costs of the recommended infrastructure would be borne by private businesses, not the tobacco industry (VLAA 2013). To date, there have been no other state-coordinated campaigns that have solely focused on butt litter.

#### **4.6.2 Local government responses to butt litter**

Local governments play a much greater role in managing and mitigating butt litter, and their responses have generally taken a multi-faceted, ‘hands-on’ approach. This has included advertising, the enforcement of littering fines and the provision of waste management infrastructure such as free portable ashtrays and other tobacco waste receptacles. Canada Bay Council in the Sydney metropolitan area implemented a ‘Bin Your Butts’ anti-litter campaign in 2015, which included the installation of nine new butt bins, face-to-face education and enforcement campaigns, and litter surveys (Canada Bay Council 2015). The Council found this multi-faceted approach to be effective, and suggested that an 87 per cent reduction in the number of littered butts in the target areas was achieved (Canada Bay Council 2015). Other council education campaigns have been more visible and less individually targeted at smokers. In 2013 the City of Sydney Council placed a prominent installation in Hyde Park of smoked cigarette butts in clear perspex letters spelling out the word *Yuk* (Figure 4.5). In 2014, the installation was repeated, as part of a long-term awareness and education campaign (Donegan 2014). While the installation has now been removed, the campaign continues on the City of Sydney Council website (2014).



**Figure 4.5. Yuk installation, City of Sydney Council.**

The City of Sydney Council also provides butt litter receptacles, such as small portable ashtrays that can be picked up from their Neighbourhood Service Centres (City of Sydney Council 2014). City of Perth Council has echoed Sydney’s approach, also erecting the *Yuk* installation, and providing free personal ashtrays, while Melbourne City Council has installed more than 250 wall-mounted butt bins so smokers can dispose of their butts, and equipped more than 200 general litter bins with butt out plates (City of Perth Council 2016; Melbourne City Council 2016).

#### **4.6.3 Assessing government response**

Government responses have been split roughly equally between public education initiatives and, where funds are available, provision of waste management infrastructure. While there is some evidence that Commonwealth, state and local government strategies can be effective, the majority of such campaigns have not been evaluated. Even in cases where their impact has been assessed, it can be difficult to account for confounding factors (for example, unrelated education campaigns, shifts in community attitudes to smoking and littering), or to assess whether a single aspect of a campaign has been more effective than another. Two anti-litter strategies implemented at state and Commonwealth level are discussed below (one of which has been formally evaluated), which illustrate the challenge of attributing change to any one intervention.

##### **4.6.3.1 *Don't Be a Tosser – Bin Your Butt (Victorian Litter Action Alliance, Victorian State Government) - 2007***

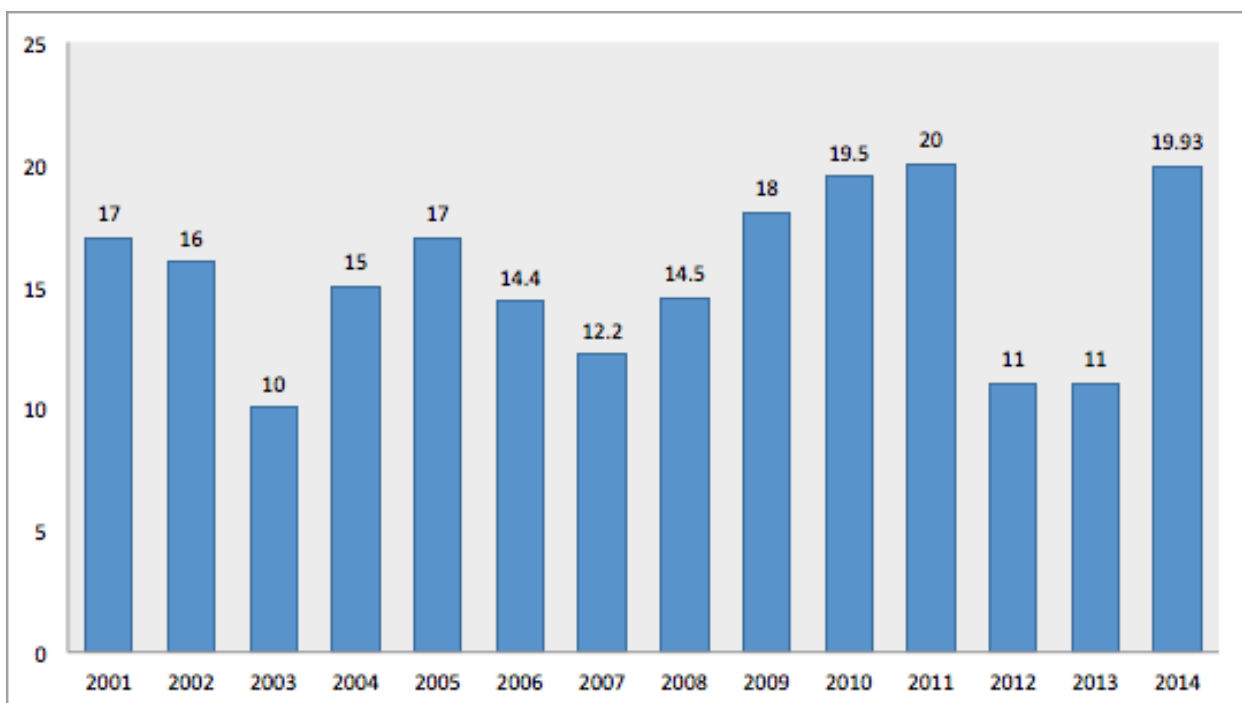
Community Change's 2007 report, *Evaluation of 'Don't Be a Tosser – Bin Your Butt' Litter Campaign*, assessed a campaign by the Victorian Litter Action Alliance which had aimed to include 'BINfrastructure', butt litter prevention signage and outdoor facilities including heating, seating and rain protection in venues in the Melbourne CBD at the point when smoking indoors was banned in licensed venues (Community Change 2007). The review did find a significant reduction in the number of people littering - from 58% to just 33% - by using this combined approach of education and infrastructure (Community Change 2007). However, in those sites where "smoking areas were non-existent or never quite streamlined", 4 out of 5 patrons (79%) exhibited littering behaviour (Community Change 2007, p. 28). The report ultimately found that "the provision of a smoking area, together with the butt litter prevention campaign was associated with significantly lower levels of littering of butts with some evidence of a generalised effect of the campaign in the absence of specific venue changes" (p.4). Campaigns, however, are often limited by financial constraints and many campaigns only utilise one or the other approach. Further, the overwhelming majority of the costs are borne by government and non-tobacco private businesses, rather than by the tobacco companies.

##### **4.6.3.2 *The Australian Packaging Covenant***

Litter does not fall under the Commonwealth Government's remit, and it is therefore not directly involved in any butt litter campaigns. It was, however, involved in the formation of the Australian Packaging Covenant (APC) in 1999, in collaboration with industry (APC 2016a). While not a targeted approach to litter, the APC is another tool that can be utilised to manage the rate of cigarette butt litter. Described on its website as an effective regulatory framework that "delivers

significant environmental, economic and social benefits to the community, industry and government in the most efficient and effective manner compared to other approaches” (National Packaging Covenant Industry Association [NPCIA] 2013a), the APC is a voluntary agreement between government and industry to find ways to minimise the environmental impacts of packaging waste through improved design and production processes, and increased re-use and recycling of used packaging (APC 2016a). The APC also has an anti-litter function, and as such, it is worthwhile considering its contribution, if any, to a reduction in butt litter, particularly in light of the tobacco industry’s membership.

To date, the impact of the APC in driving tobacco industry action on butt litter is unclear. As indicated in Figure 4.6, there is often a significant fluctuation in the percentage of cigarette butts as a proportion of litter collected, but there was a drop of almost 50 per cent between 2011 and 2012, followed by an increase of almost 50 per cent again in 2014. As noted by Clean Up Australia, this may be a statistical anomaly. In 2014, Terracycle was commissioned by the tobacco industry to run the Butt Litter Brigade, which provided a financial incentive for the collection of cigarette butts which may have shifted the focus of volunteers to the collection of cigarette butts rather than other types of litter (Clean Up Australia 2014). Overall, the number of butts littered nationwide has not been significantly impacted by governmental strategies.



**Figure 4.6. Percentage of butts (as a proportion of all litter) collected in annual Clean Up Australia Days 2001-2014.** Source: Clean Up Australia Rubbish Reports 2001-2014.

Anti-litter organisations including Keep Australia Beautiful (KAB), and its state subsidiaries, and Clean Up Australia have also run campaigns to draw attention to the environmental impacts of butt litter and these will be discussed further in the following section.

#### **4.7 The role of non-government organisations and private companies in butt litter management in Australia**

All three levels of government work in conjunction with a range of environmental organisations and charities. Governments provide funding and in-kind support to organisations including Clean Up Australia, KAB, and its state-wide affiliates such as KAB WA and KESAB *environmental solutions*. Clean Up Australia has organised annual national litter clean-ups since 1990, and has produced publicly available annual reports on the composition of this litter since 2001. These reports provide insights into the changing litter landscape in Australia over time, and provide evidence for the minimal impact of reduced smoking rates on butt litter. The Australian Marine Conservation Society (AMCS) campaigns against plastic pollution in the ocean, which is applicable to the cellulose acetate filters in cigarette butts, and provides educational materials on these issues. Together, Clean Up Australia and the AMCS also lobby for the introduction of a National Container Deposit Scheme (Clean Up Australia 2016; AMCS 2016). Currently, two such schemes are operational in South Australia and the Northern Territory, and both NSW and Queensland have plans to implement them over the next two years, but there is no coherent national approach on the horizon. While such a national scheme would only apply to containers such as plastic and glass bottles at this stage, it would also align with one of the recommended solutions to butt litter, of return and deposit schemes funded by the tobacco industry. This is discussed further in Chapter 6.



## **Chapter 5: Non-Governmental Response to Butt Litter: Environmental Organisations and the Tobacco Industry**

### **5.1 Introduction**

Research suggests that the tobacco industry has been concerned for more than two decades that aesthetic and environmental concerns related to cigarette butt litter could contribute to growing social unacceptability of smoking, increase advocacy action by tobacco control and environmental organisations, and ultimately lead to regulation to hold cigarette manufacturers responsible for litter disposal (Tesler and Malone 2008; Yang and Malone 2008; Smith and McDaniel 2011; Dorfman et al. 2012; McDaniel and Malone 2012, Fooks and Gilmore 2013). Just as it has refused to accept responsibility for smoking-related diseases, the tobacco industry has worked to shift the responsibility for cigarette disposal onto smokers, for example, through focusing on anti-litter messaging and the provision of litter infrastructure (Butt Free Australia 2017; ITA 2011 p. 18; BATA 2012; ITA 2012). This chapter assesses previous research into tobacco industry strategies to avoid responsibility for butt litter disposal and analyses whether these strategies have been applied in Australia. Research material, detailed in Chapter 3, includes a range of primary sources, secondary literature, and interviews conducted with environmental organisations that have and have not received support from the tobacco industry.

### **5.2 Background**

Previous research demonstrates that tobacco industry efforts to influence policy around litter and responsibility extend to Australia (Chapman 2006; Smith and McDaniel 2011). Given its potentially significant environmental impacts, further research into the tobacco industry's strategies in Australia is an important aspect of the discussions around butt litter policy. Research findings on the Australian situation presented here are based on analysis of material produced by tobacco companies operating in Australia, environmental organisations, and government agencies. Tobacco industry sources include reports and other material posted on corporate websites; annual submissions to the Australian Packaging Covenant, described below; and industry documents from the TTID, described in Chapter 3. Information from environmental organisations has primarily included annual litter clean-up reports and interviews undertaken during the course of this research.

Starting in the early 1990s, the industry sought solutions to the problem of discarded filters. In 1993, the Cooperation Centre for Scientific Research Relative to Tobacco (CORESTA), a tobacco industry research organisation, formed a Cigarette Degradability Taskforce that included leading cigarette manufacturers and the chemical companies Celanese and Eastman (Deutsch 2000). This

taskforce unsuccessfully sought to produce a biodegradable alternative to cellulose acetate filters. By 2001, a Philip Morris Litter Taskforce recommended that the company “[c]ollaborate with USA filter material suppliers to develop more degradable materials” and also suggested the company “research and develop practical options for self disposal of butts” (Philip Morris 2001, p.20).

Lack of success in filter modification led to greater focus on management in discussions about butt litter. Previous studies (Tesler and Malone 2008; Yang and Malone 2008; Smith and McDaniel, 2011; Dorfman et al 2012; McDaniel and Malone 2012) have argued that the purpose of tobacco industry strategies has been to prevent butt litter becoming part of discussions around social acceptability of smoking; to avoid regulation; and to “ensure that cigarette manufacturers were not held practically or financially responsible for cigarette litter” (Smith and McDaniel 2011). The industry has also recognised, however, that shifting responsibility wholly onto smokers runs the risk of alienating customers, whilst taking no action may lead to a public perception of indifference. Early work to change perceptions of the scale of the problem included lobbying against the numerical counting of litter (which found cigarette butts to be the most littered items) which “BATCo inherently disagree[d] with” (British American Tobacco 1993, p.6). Strategies to create an image of industry concern have included smoker education, installation of street disposal bins, supplying personal ashtrays, developing alliances and providing financial support to environmental organisations, and taking direct and short-term clean-up action to “record a measurable shift in public opinion within 12/24/36 months” such as “Youths to clean up CBD footpaths – “Butt Brigade”” (BATA 1996, p. 6).

Research into anti-litter partnerships between Keep America Beautiful (KAmB), other environmental groups, and leading manufacturers BAT, PMI, and RJ Reynolds has shown that these relationships generated media coverage that focused on industry-preferred solutions such as volunteer clean-up campaigns, and installation of street ashtrays (Smith and McDaniel 2011). Reports mentioning KAmB participation were more often positive in their reporting of the tobacco industry, despite partnership initiatives achieving no significant change in levels of discarded cigarette butts (Smith and McDaniel 2011). Similar alliances were also established in other countries. The United Kingdom Tobacco Manufacturers Association, which represents British American Tobacco, Gallaher, and Imperial Tobacco, has established close links with Keep Britain Tidy (Rath et al 2012), while KAmB has affiliates in the Bahamas, Bermuda, Canada, South Africa and Australia that have, or previously had, links with the tobacco industry (Smith and McDaniel, 2011).

### 5.3 Corporate social responsibility

Such alliances are part of broader corporate social responsibility (CSR) initiatives that have been developed by the tobacco industry. CSR remains a contested term, and debates abound in the business and social science literature around its meaning and interpretation. *Explicit* CSR, “corporate policies that assume and articulate responsibility for some societal interests” which may be in response to societal pressure, is contrasted, for instance, with *implicit* CSR, “corporations’ roles within the wider *formal and informal institutions*” (Matten and Moon 2008. p. 409), and debate exists on whether adoption of CSR by businesses can ever be truly voluntary, given societal pressure for responsible corporate activity (McBarnet 2007; Marsden 2001 cited in Dahlsrud 2008).

For this discussion, Matten and Moon’s (2008) *explicit* CSR definition is used. Their assessment of explicit CSR as the organisational assumption of responsibility of some societal interests is described in a practical sense by Jamali and Mirshak (2007), as “protecting the environment, developing the community, conserving resources, and philanthropic giving” (p. 245). Inclusion of philanthropic giving is important, as corporate philanthropy is key to understanding the tobacco industry’s approach to social responsibility, and indeed public relations. Further, the terms are used relatively interchangeably by the tobacco industry (BATA undated, Imperial Brands 2016). It should be noted though, that most definitions of CSR consider it to be separate to corporate philanthropy. One of the clearest rationales for this separation is that “[c]orporate philanthropy ... [is not a substitute] for responsible corporate conduct” and that it “should therefore not be part of the corporate activity portfolio until the corporate ‘house’ is in order” (Leisinger and Schmitt 2011, p. 10). This may offer some explanation for the tobacco industry’s interchangeable use of the terms.

#### 5.3.1 Can CSR work for the tobacco industry?

Given rates of mortality and morbidity caused by tobacco use, the concept of a socially responsible tobacco industry is considered by many observers to be inherently contradictory (e.g. Hirschhorn 2004; WHO 2004; WHO 2008; McDaniel and Malone 2012; Fooks et al. 2013), or dismissed as strategy to mollify regulators and impede meaningful policy change (e.g. Yang and Malone 2008; Tesler and Malone 2008; McDaniel and Malone 2012). The World Health Organization’s (2008) *Tobacco industry interference with tobacco control* report states that “effective tobacco control and the commercial success of the tobacco industry are fundamentally incompatible and that, accordingly, the tobacco industry can be expected to seek to avoid, prevent, weaken and delay effective policies and programmes which are against its interests” (p. v). Gilmore et al. (2011) call for monitoring of relationships between the tobacco industry and their CSR initiatives, arguing that

their fiduciary responsibilities “*require* them to maximize profits regardless of consequences to health, society or the environment and thus to oppose policies that could risk their profits” (p. 2).

Palazzo and Richter (2005) distinguish between *transformational* CSR, in which a corporation “demonstrates that it is willing to transcend self-interest for the sake of the common good” (p. 396), and a *transactional* approach in which corporations publicise their compliance with legal and moral obligations, and make claims of fair and consistent behaviour. Tobacco companies, they argue, “are not in CSR business in the strict sense” and therefore focus on its *transactional* value (Palazzo and Richter 2005, p. 387). CSR initiatives can offer political and organisational legitimacy that reduces the extent to which they are held responsible for particular negative outcomes. This is particularly the case in terms of financial responsibility for the impacts of their products, and has obvious relevance to discussions of butt litter management. CSR initiatives can also “be a diversionary tactic used by the industry to pretend that they are taking action and to avoid regulation” (Van Rossem et al. 2006, p. ii), and be used to effectively counteract criticism and to influence the tobacco control agenda by pre-empting legislation (Fooks et al. 2013). This, Palazzo and Richter suggest, also limits options for corporate philanthropy, as there is considerable public criticism of charities that accept tobacco industry money, thereby reducing the number of organisations willing to accept such donations (Palazzo and Richter 2005). However, a number of organisations, including environmental groups, have been willing to partner with, and accept financial support from the tobacco industry, generally without public knowledge.

#### **5.4 CSR partnerships: the tobacco industry and environmental NGOs**

Previously confidential tobacco industry documents made publicly available since 1998, described in Chapter 3, provide valuable information on industry responses to cigarette butt litter issues that have been analysed in a number of studies (Hirschhorn 2004; Tesler and Malone 2008; Yang and Malone 2008; Smith and McDaniel 2011; Dorfman et al. 2012; McDaniel and Malone 2012). Key findings include tobacco industry strategies to establish connections with high-profile environmental organisations including Earthwatch Europe and KAmB.

The aim of such relationships has been to provide the industry with a veneer of social legitimacy; gain access to a respectable conduit for their views; influence government policy makers; and to obstruct regulation that could potentially restrict commercial activities, or force the industry to assume financial responsibility for clean-up costs. A May 2000 presentation at BAT’s Corporate and Regulatory Affairs (CORA) Strategic Steering Group meeting, for instance, describes the goals of relationships with environmental NGOs as “third party verification/support for BAT’s

achievements and standards of business integrity”, and to demonstrate that the company was “acting responsibly on social and environmental agendas in order maintain its “licence to operate”” (BAT 2000, p. 114). BAT’s partnership with Earthwatch Europe formed a relationship with a global ally that was perceived as “influential with the public, politicians, regulators, and aid and development policymakers” (McDaniel and Malone 2012).

Similarly, PMI was a founding member of KAmB in 1956 (KAmB and Lyons 2000), and the ongoing relationship between the two can be regarded as an exercise in portraying the company as environmentally responsible while deflecting financial responsibility for the cost of butt litter clean-up. Lamb (2001) describes a 1993 Philip Morris corporate strategy document that both acknowledges that cigarette filters are not biodegradable, and emphasises that there could be no concession to environmentalists, suggesting the inherent contradiction in the company’s approaches to environmental CSR. He notes that “[w]ithout KAB’s help, the tobacco industry might well be forced to compensate communities for the cost of cigarette litter” (Lamb 2001, p. 4).

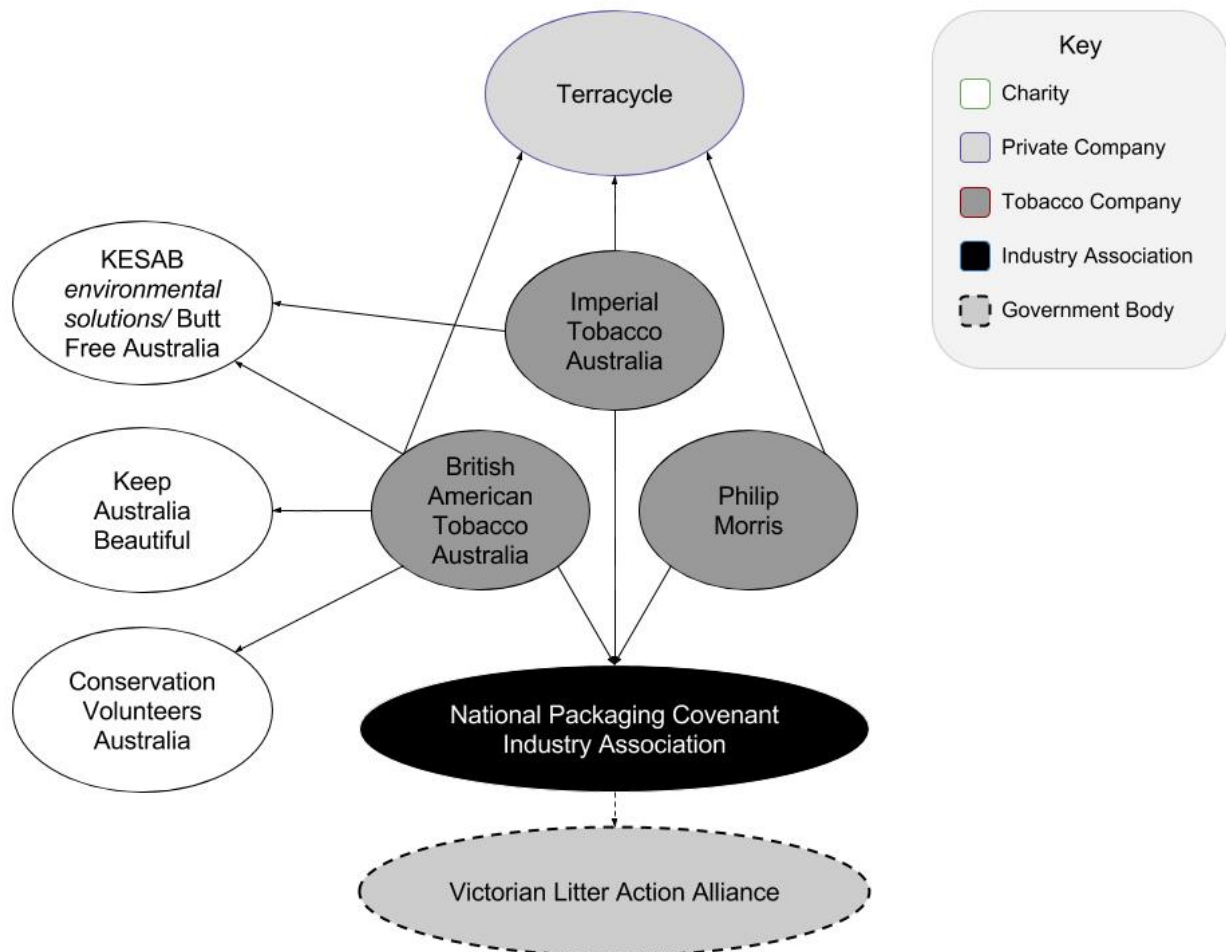
Among organisations that accept tobacco industry funding, there appears to be a genuine belief that these partnerships will have a positive environmental impact and are therefore ethically defensible. Before agreeing to partner with BAT, Earthwatch Europe (see Chapter 2) consulted with partners and scientists about the ethics of such a relationship, coming to the conclusion that “we may not like the tobacco company but we see there is a huge environmental benefit to getting any big company to improve its environmental performance”, adding that while “public health is important ...it is not the remit of this charity” (Barrington quoted in McDaniel and Malone 2012).

## **5.5 The Australian tobacco industry, CSR and environmental organisations**

The other perspective from which tobacco industry CSR needs to be understood is that of the environmental organisations that accept funding and other support from the tobacco industry. Of the eight environmental organisations contacted to request interviews related to this research, three agreed: KESAB *environmental solutions* (KESAB), which currently receives funding from both BATA and ITA; Keep Australia Beautiful (KAB), which has previously received funding; and the Victorian Litter Action Alliance, which has never taken direct funding.

When approached by the CEO of KESAB in 2002, BATA, PMI and ITA committed more than AUD 100,000 to a campaign which included a trial of ‘personal’ ashtrays, and encouraging building owners to provide butt bins (Hockley 2002). BATA has since emerged as the most engaged of the three companies in terms of pursuing links with environmental organisations. In 2003, BATA

established the Butt Littering Trust (the Trust), with start-up funding of AUD 2.8 million over four years (Chapman 2006). The Trust was also supported by KESAB, which was represented on the Board of the organisation and involved in setting organisational strategies (KESAB, Interview, 7 December 2015). The Trust's focus was on educational campaigns that highlighted the environmental impact of butt littering through social and behavioural research, awareness-raising initiatives, resource development, and on-the-ground projects that were summarised by its "Not a Good Look" catchphrase (Butt Free Australia 2016).



**Figure 5.1. Tobacco companies and environmental CSR relationships in Australia.**

Chapman (2006) notes that although BATA wholly funded the Trust, and company representatives served as board members, the Trust's chair was "adamant" that the company had no influence on strategy. A representative of KESAB who sat on the Trust's board takes a similar position, stating that "[w]hilst British American had someone on the Board, they certainly didn't dictate to how we ultimately set our strategies and what we did. We were very independent in that context" (KESAB, Interview, 7 December 2015).

In 2009, the Trust was rebranded, and renamed Butt Free Australia (BFA), which describes itself as a tobacco industry “product stewardship organisation”, but downplays the role of tobacco companies as the source of butt litter, and places no responsibility on them for clean-up (BFA 2016). BATA continued to provide the majority of funding, and remained the organisation’s key stakeholder, until it was acquired by KESAB in 2012 (BFA 2016). BATA’s 2012 submission to the national Standing Council on Environment and Water’s Packaging Impacts Consultation Regulation Impact Statement notes that their “direct financial contribution to the Trust and other butt litter reduction initiatives” had exceeded AUD 5 million since 2002 (BATA 2012, p. 2), although AUD 4.4 million of this had been expended by October 2008 (BATA 2008).

BATA company funding has continued, but at much reduced levels. In 2011, the company donated AUD 800,000 to BFA (BATA 2012a). In 2012, support was reduced by more than 90% (BATA 2013) to AUD 60,000 and this was further reduced in 2014 to AUD 45,000 earmarked for *Butt Free Day*, a one-day BFA event (BATA 2015). Funding reductions occurred against a backdrop of substantial profit growth. Between 2011 and 2013, BATA’s pre-tax profits increased by over 50 per cent from AUD 886 million to AUD 1407 million (Chenoweth 2014). Between 2011 and 2014 BATA’s funding for BFA/KESAB decreased by 94.4% (see Table 5.1).

Pragmatic implications have included the end of major anti-litter campaigns such as the “Not a Good Look” initiative as funding has become “absolutely minimal [...] the relationship simply is to deliver the butt free message. And that’s marginal because the funding just isn’t enough to carry it properly” (KESAB, Interview, 7 December 2015). Yet, there is little evidence that even the more ambitious campaigns had any real impact. In 2006, the New South Wales Environment Protection Authority (2006, p. 21) reported that “the activities and projects funded have not translated into widespread reduction of cigarette butt litter. *The impact of current activities funded by cigarette manufacturers has not delivered a reduction in butt littering*” (formatting added). Indeed, the largest volume of butt litter collected by Clean Up Australia in 2011 came a full eight years after the establishment of the Trust, indicating that the program had not become more effective over time. The reductions in funding and the overall failure of the BFA initiatives are indicative of a greater problem, in which tobacco industry CSR activities to reduce butt litter are proven to be ineffective, and indeed unmotivated to achieve their cited goals. This is significant for policy development, as it makes apparent that governmental and legislative responses are necessary to effectively manage the problem.

BATA has also had links to KAB, one of the most prominent environmental charities in the country. KAB has had a series of connections to the industry since at least the 1970s. In 1975, for example, PMI acknowledged support from the KAB Council for its “Municipal Government relations” work (PMI 1975, p. 96), while in 1979, PMI “helped establish and expand the programs of the Industry Group to support Keep Australia Beautiful” (PMI 1979, p. 13). During the 1990s, tobacco industry engagement with KAB included support by Rothmans of Pall Mall for research into butt littering in Sydney and Melbourne (McGregor Marketing 1998), and a 1999 PMI Strategy Group document advised that the company was working “in partnership with Keep Australia Beautiful National on a campaign designed to reduce butt litter” (PMI 1999, p. 198). KAB does not currently receive any industry funding (KAB, Interview, 23 February 2016), but as recently as 2012, a media release notes that it accepted an unspecified amount of funding from BATA for its 2011/12 Branded Litter Study (KAB 2012). While the NGO has engaged in some specific butt litter campaigns, including Butt Free Friday (KAB 2014), they tend to focus their activities on litter more broadly, including developing the annual National Litter Index, which is 50 per cent funded by all State and ACT Governments and 50 per cent by the APC (KAB 2016). Given the organisation’s history, however, it is arguably unsurprising that a representative of KAB conceded that the organisation would be willing to engage with tobacco companies in the future to help them to achieve their butt litter reduction objectives, such as facilitating conversations between cigarette manufacturers and local councils to develop litter reduction and prevention programs (KAB, Interview, 23 February 2016). The rationale for this willingness to work with the industry broadly aligns with that described by both KESAB and Earthwatch Europe, with a focus on their core aims (environmental protection and litter prevention) to the exclusion of any additional concerns (public health). Their desire to work collaboratively with tobacco companies – a representative of KAB describes their organisation as ‘not your placard waving, bash cigarette companies around the head organisation [...we would see] what we could do collectively to solve that [butt litter] problem’ (KAB, Interview, 23 February 2016) – is of concern, however, given the failures of collaborative, environmentally-focused CSR initiatives. That is not to say that these NGOs are unethical in their behaviours, rather that their views are perhaps naïve and unrealistically optimistic about the likelihood of driving environmental improvement, given the evidence to date.

Conservation Volunteers Australia (CVA) is another environmental group that has accepted BATA support. Details of the relationship are difficult to establish as CVA declined requests for an interview, and its website does not mention links to BATA, although it does list a number of other partner multi-national companies that have been criticised for their environmental practices including Exxon Mobil and Rio Tinto (CVA 2016). BATA, however, promotes the connection to



CVA as part of its Corporate Social Investment initiative, described as “an end in itself, rather than as a way to promote ourselves” (BATA undated). The company’s *Making a Difference* program, launched in 2003 as part of this social investment initiative, is focused on “enhanced community partnerships, environmental stewardship and employee involvement” (BATA undated). BATA has also described the relationship with CVA as ‘long-term’ in a 2008 submission to a Commonwealth Government Review into Australia’s tax and transfer system (BATA and Vecchiet 2008), and the partnership currently includes both financial and in-kind support. BATA employees are able to donate through the company’s Workplace Giving program, which allows BATA to match donations made by its employees, in addition to any separate corporate funding provided through the program. Currently, there is no information available on funding amounts. BATA staff has also been involved in CVA work days (e.g. a full day of weed-removal activities) arranged specifically for company employees (CVA 2014).

ITA has also established links to environmental organisations, although on a smaller scale. Interview findings indicate that ITA has supported KESAB since the 1990s (KESAB, Interview, 7 December 2015). As with BATA, however, ITA contributions have decreased in recent years. A total of AUD 25,000 was allocated to Butt Free Day in 2013 and 2014 (ITA 2014), down from AUD 30,000 in 2011/12 (ITA 2013) and from AUD 38,500 in 2010/11 (ITA 2012a). In contrast to BATA, ITA’s profits decreased between 2011 and 2013 (Chenoweth 2014) (Table 5.1), although it should be noted that this is unlikely to be the sole reason for the reduction in funding.

PMI also partnered with KESAB during the 1990s (KESAB, Interview, 7 December 2015), although their reports to the Australian Packaging Covenant between 2012 and 2015 indicate that they provided no funding to environmental charities between 2011 and 2014 (Philip Morris 2012, 2013, 2014, 2015).

**Table 5.1. Pre-tax profits of tobacco companies, and donations to Butt Free Australia/KESAB 2011-2013.**

	2011		2012		2013	
	Profit (\$m)	Donation to BFA/KESA B (\$)	Profit (\$m)	Donation to BFA/KESA B (\$)	Profit (\$m)	Donation to BFA/KESA B (\$)
<b>BATA*</b>	886	800,000	1,021	60,000	1,407	Unspecified
<b>ITA</b>	49	38,500	52	30,000	37	25,000
<b>PM</b>	538	0	613	0	747	0
<b>Total</b>	1,473	838,500	1,686	90,000	2,191	25,000

Sources: BATA 2012a; 2013; 2014; 2015; ITA 2012a; 2013; 2014; 2015; PM 2012; 2013; 2014; 2015; Euromonitor 2016a-c; Chenoweth 2014. \$ = AUD.

\*Note: Euromonitor data for BATA states that it is for 2012-2014. However, given that the numbers provided align with those provided for BATA for 2011-13 by Chenoweth (2014), and Euromonitor data is provided for 2011-2013 for both ITA and PMI, it has been assumed that there is an error in the dates listed in the Euromonitor data for BATA.

## 5.6 Related CSR environmental initiatives

### 5.6.1 Recycling

In 2012, ITA, BATA, and PMI formed the Tobacco Industry Product Stewardship initiative, which supported a short-lived CSR initiative with Terracycle, (an international, for-profit upcycling and recycling company) between March 2014 and December 2015 (PMI 2015). The latter's Cigarette Waste Brigade involved a partnership with Clean Up Australia and Australia Post and was based on small payments for butt litter returned to Terracycle via post, which was recycled into new items such as ash trays and rubbish bins. Senders were allocated 200 Terracycle points (AUD 2.00) per kilogram of cigarette waste which could be redeemed for a payment of AUD 0.01 per point to the charity of their choice (Terracycle 2015). By September 2015, 18 months after its inception, the program had resulted in collection and return of 9,109,985 butts (Terracycle 2015). Despite returns, and Terracycle's CEO's assertion that "[tobacco litter] is a key concern for the tobacco industry and being able to bring a solution is...very important to them" (Jones 2014), funding for the initiative was withdrawn by all three cigarette manufacturers in December 2015, for reasons that have not been explained (at time of writing, funding for the Canadian Terracycle version of the program was still in place).

Ending the program may have been a pragmatic decision based on its limited impact. Although Clean Up Australia indicated a significant rise in the number of butts collected during their annual clean-up that may be attributed to the initiative (Clean Up Australia 2014), the roughly 5 million butts collected annually during the two years of the program's operation, accounted for approximately .075% of the 7 billion discarded annually in Australia.

### ***5.6.2 National Packaging Covenant Industry Association (NPCIA)***

The Australian National Packaging Covenant Industry Association (NPCIA) that represents signatories to the Australian Packaging Covenant (described in Chapter 4) presents another potential opportunity for tobacco industry input into waste policy. The NPCIA represents more than 800 signatories to the Australian Packaging Covenant (APC) including raw material suppliers, packaging manufacturers, wholesalers, retailers, recovery and recycling services, and brand owners, including BATA, ITA and PM (NPCIA 2013), and describes its focus as the development of a system through which users of packaging materials and participants in the supply chain can voluntarily demonstrate leadership in:

- sustainable packaging design;
- recovery and recycling of used packaging materials resulting in reduced waste and litter;
- the engagement of all participants in the supply chain in the sustainable use of packaging materials.

Under the terms of membership, BATA, PMI and ITA have submitted action plans and annual progress reports to the APC which provide information on the industry's position on butt litter. PMI, for example, emphasised in its 2010 Action Plan and in each of its annual reports that it does "not classify cigarette butts as part of the packaging of tobacco products" (PMI 2010, p. 15). Generally, the action plans and annual reports highlight the need for education and disposal infrastructure; and promote CSR activities such as support for KESAB and other organisations.

Financial support from industry associations such as the NPCIA has the potential to influence the work of environmental organisations. KAB, which does not currently receive funding from the tobacco industry, accepts financial contributions from the NPCIA (KAB 2016), and is a signatory organisation (APC 2016), while its affiliate KESAB noted its successful initiatives undertaken with the tobacco industry and the NPCIA in a 2015 submission (KESAB 2015). Both organisations place responsibility for litter with consumers, rather than industry, and suggest that local and state governments provide funding for disposal infrastructure.

The Victorian Litter Action Alliance (VLAA) also has links to the NPCIA. The peak body for litter management in Victoria, the VLAA is coordinated by Sustainability Victoria, a state government statutory authority that delivers programs on waste management and resource efficiency. It incorporates members from industry, community sectors and local government, and its management structure includes eight funding partners who are all members of the VLAA Reference Group,

which contributes to the development and delivery of the organisation's Business Plan, and promotes its resources to other relevant stakeholders (VLAA 2014).

The Reference Group works collaboratively for the benefit of all parties, and is described as more of a "community of practice" than a lobby group (VLAA, Interview, 19 February 2016) that does not express forceful views on litter issues. While the VLAA has never been directly approached by the tobacco industry (VLAA, Interview, 19 February 2016), nor received funding from it, the NPCIA is one of eight funding members, and thus a member of the Reference Group. The apparent potential for NPCIA member organisations to impact on the VLAA's activities may arguably contribute to its effective silence on potentially controversial issues. The VLAA's involvement with butt litter to date has been a campaign in 2007-2008, undertaken in partnership with BFA (VLAA 2014a), and a '*Litter Prevention Kit: Cigarette Butts*' which includes a series of recommendations on clean-up techniques including provision of additional bins, public education and litter law enforcement, none of which run contrary to the tobacco industry's position (VLAA 2013).

## **5.7 Discussion**

The interviews conducted for this research, in conjunction with findings from tobacco industry documents and reports to the NPCIA, suggest that tobacco industry efforts to establish links with environmental organisations in Australia reflect the situation in other countries. While these relationships have been largely ineffective at mitigating the butt litter problem, both tobacco companies and environmental organisations have had clear reasons for their respective involvement.

For cigarette manufacturers, working with environmental organisations provides opportunities to improve their image on environmental, political and social issues and to counter criticism of their activities. BATA's start-up of the Butt Littering Trust coincided with rapidly developing tobacco control initiatives, both internationally and domestically. The World Health Assembly adopted the Framework Convention on Tobacco Control (FCTC), the first global treaty negotiated under the auspices of the WHO, in May 2003 (World Health Organization 2005). The FCTC came into force in 2005 as a legally-binding, evidence-based treaty that acknowledges the importance of both supply and demand reduction strategies in reducing global smoking rates. It also recognises the environmental impacts of tobacco production and consumption, and FCTC Article 18 *Protection of the environment and health of persons* is relevant to problems created by butt litter (Novotny et al. 2015).

In Australia, increasing restrictions on smoking in public, tobacco advertising and promotion, and other regulation at national, and state and territory levels, combined with effective mass media campaigns such as the Commonwealth Government's *Every cigarette is doing you damage* initiative resulted in a decline in smoking rates from 23.5% in May 1997 to 20.4% in November 2000 (Carroll, Cotter and Purcell 2011). In 2011, the year of BATA's largest donations to Butt Free Australia, the tobacco industry was challenging implementation of plain cigarette packaging legislation (Australian Government Attorney-General's Department undated). A representative of KESAB acknowledged in interview that funding received from BATA was never likely to have been sustainable, and that it "could well have been an approach that was adopted to defray other issues such as [...] plain packaging. *They were investing in trying to influence things* [formatting added]" (KESAB, Interview, 7 December 2015).

Despite Tesler and Malone's (2008) finding that "tobacco industry funding comes with a cost, helping to sustain the industry's legitimacy and furthering its business of selling lethal products" (p. 2128), KESAB and other Australian environmental organisations remain optimistic about working with tobacco companies in butt clean-up programs. This includes organisations such as KAB that are not currently receiving funding from the industry, but would be willing to accept financial support. Both KAB and KESAB stated that their all-encompassing focus is on litter prevention and their overwhelming attitude was that the public health risks of smoking are an entirely separate issue in no way relevant to their primary goal of decreasing butt litter. This logic allows them to accept industry funding with minimal ethical concerns related to broader considerations of smoking and health concerns. As noted above, these organisations are clearly of the opinion that their partnerships with the tobacco industry can have a positive impact on the environment. Yet the potential benefits for the tobacco industry in being able to portray themselves as socially responsible organisations, and attempting to influence policy should not go ignored, particularly when the evidence to date shows little reduction in butt litter from industry-funded initiatives. As such, it would be advisable for these NGOs to be encouraged to cut ties with the tobacco industry.

The limited impacts of the Butt Littering Trust and Butt Free Australia, and of programs run by environmental organisations receiving industry funding are, arguably, unsurprising, given their focus on consumer responsibility and education, behavioural change, and corporate image enhancement. Campaigns promoting the importance of butt bins, personal ashtrays and other waste receptacles, for example, are based on costs being passed to consumers, local councils, businesses, or property managers. Funding cuts by industry to environmental groups in recent years, described above, suggest that tobacco companies may be rethinking the role of KESAB and other

organisations in corporate butt litter strategies. Yet, KESAB felt that helping to mitigate butt litter with financial support from BATA remained important, and was described by a representative as “a space where we should be because that’s what our objectives are all about. We’re about environmental sustainability and waste management and litter is part of pollution” (KESAB, Interview, 7 December 2015). Further, KESAB portrayed itself as taking on an important role in butt litter prevention, because government is “diametrically opposed to the tobacco industry” and not able to take part in the “brave experiment” of working with the tobacco industry to reduce butt litter (KESAB, Interview, 7 December 2015).

While initiatives developed in collaboration between environmental NGOs and the tobacco industry have shown no significant benefits, there may still be a role for these NGOs in reducing butt litter going forward. Although effective policy and management approaches will need to be driven by government, organisations such as KAB and KESAB are well-known and well-respected and have a background in ‘seeking to change smokers’ behaviour to dispose of their litter properly’ (KESAB, Interview, 7 December 2015). As such, they may have a place in assisting with social change and encouraging consumer cooperation with new initiatives implemented by government.

## **Chapter 6: Proposals for Regulation**

### **6.1 Introduction**

Australia has enacted comprehensive tobacco control legislation but there has been limited policy response to butt litter. Responses by all three levels of government, and environmental organisations, are detailed in Chapters 4 and 5. This chapter looks at possible future responses to butt litter by first assessing the existing literature on relevant policy discussions in the United States. It then considers how these policy discussions may be applicable to Australia, taking into account the potential reaction of the tobacco industry.

### **6.2 Policy response: previous attempts and recommendations**

Novotny and Zhao's (1999) proposals for improved enforcement of existing litter laws, additional taxes on cigarettes allocated for environmental clean-up, provision of disposal facilities outside worksites and public buildings, and improved biodegradability of filters were among the first recommendations aimed at a comprehensive response to butt litter. Subsequent analysis of internal industry documents which revealed tobacco company strategies to evade responsibility, has resulted in a more explicit focus on cigarette manufacturers in discussions about responding to the situation, with suggested approaches including litigation, legislation and producer responsibility initiatives.

Witkowski's (2014) assessment of possible legal remedies in the US concludes that governments could utilise public nuisance law, which rests on the premise of the right to not be subjected to annoyance or inconvenience that interferes with common public rights. In this case, the public right is to be free of unsightly accumulations of discarded cigarette butts, and of inappropriately disposed of toxic materials. Other suggested approaches include the use of state hazardous waste law, and product liability law based on the negligent design of cigarette filters, and the failure of tobacco companies to warn smokers of associated environmental risks (Witkowski 2014).

Freiberg (2014) argues for pre-emptive legislation, rather than litigation, citing bills introduced in California in 2014 to ban the sale or distribution of any cigarette containing a single-use filter, and in Maryland in 2013 to prohibit non-biodegradable cigarette filters. While both were defeated, these bills raised the profile of the issue and may represent a future way forward. Freiberg also raises the potential of more specific proposals, in particular a ban on all products containing bisphenol-A (BPA), including cigarette filters and a range of other consumer products, or application of existing restrictions on products containing pesticide and harmful chemical residue. He notes that a number

of states have passed laws similar in intent, such as Maine which has restricted the use of *Ethylenebis* (dithiocarbamate) pesticides which are probable carcinogens (Freiberg 2014).

Discussion of regulation has increasingly focused on Product Stewardship (PS) and Extended Producer Responsibility (EPR). PS initiatives typically include the consumer and retailer as parties subject to regulation. EPR, as described by Lindhqvist (2000), explicitly puts the onus of waste management of products on the manufacturer.

Barnes' (2011) review of EPR regulation in the US found that 32 states had enacted laws covering consumer products, including automobile parts, mobile phones, mercury thermostats, paint, and pesticide containers, that could serve as models for legislation on cigarette waste. However, existing EPR regulation varies, so that while disposal of new car batteries and tyres are the responsibility of the retailer, most other waste is the responsibility of the consumer. He also notes that enactment of effective EPR regulation requiring cigarette manufacturers to implement solutions for collection, transportation and safe disposal of discarded cigarette butts would remove the economic and administrative burden from state and local government.

The important point of difference between the two approaches is that EPR holds the producer solely responsible for the lifecycle of a product, while PS also considers the consumer and the retailer as active participants in the regulation. Curtis et al. (2014) have recommended regulation that combines aspects of EPR, PS, the Polluter Pays Principle and the Precautionary Principle. Specific measures would include bans on single-use filters, product labelling, litigation against the tobacco industry, and waste and litter fees. Like Barnes (2011), the authors point to the precedent that makes manufacturers responsible for post-consumer disposal of products such as batteries. This multifaceted approach would mitigate the environmental effects of tobacco product waste by sharing responsibility for waste across the lifecycle of the product and shifting the economic costs of clean-up and waste management to the producers (Curtis et al. 2014, p. 7).

A *Model Tobacco Waste Act* drafted by Curtis et al. (2016) is based on principles of EPR and PS, and its core provisions are drawn from the first paint stewardship programme established in the US in 2010 (Curtis et al. 2016). The objective of the model act is to “require producers of tobacco products to develop, finance and implement programs to collect, transport and safely dispose of post-consumer tobacco waste [...], in order to reduce, prevent and mitigate the environmental impacts of the disposal of that waste in the jurisdiction” (Curtis et al. 2016).

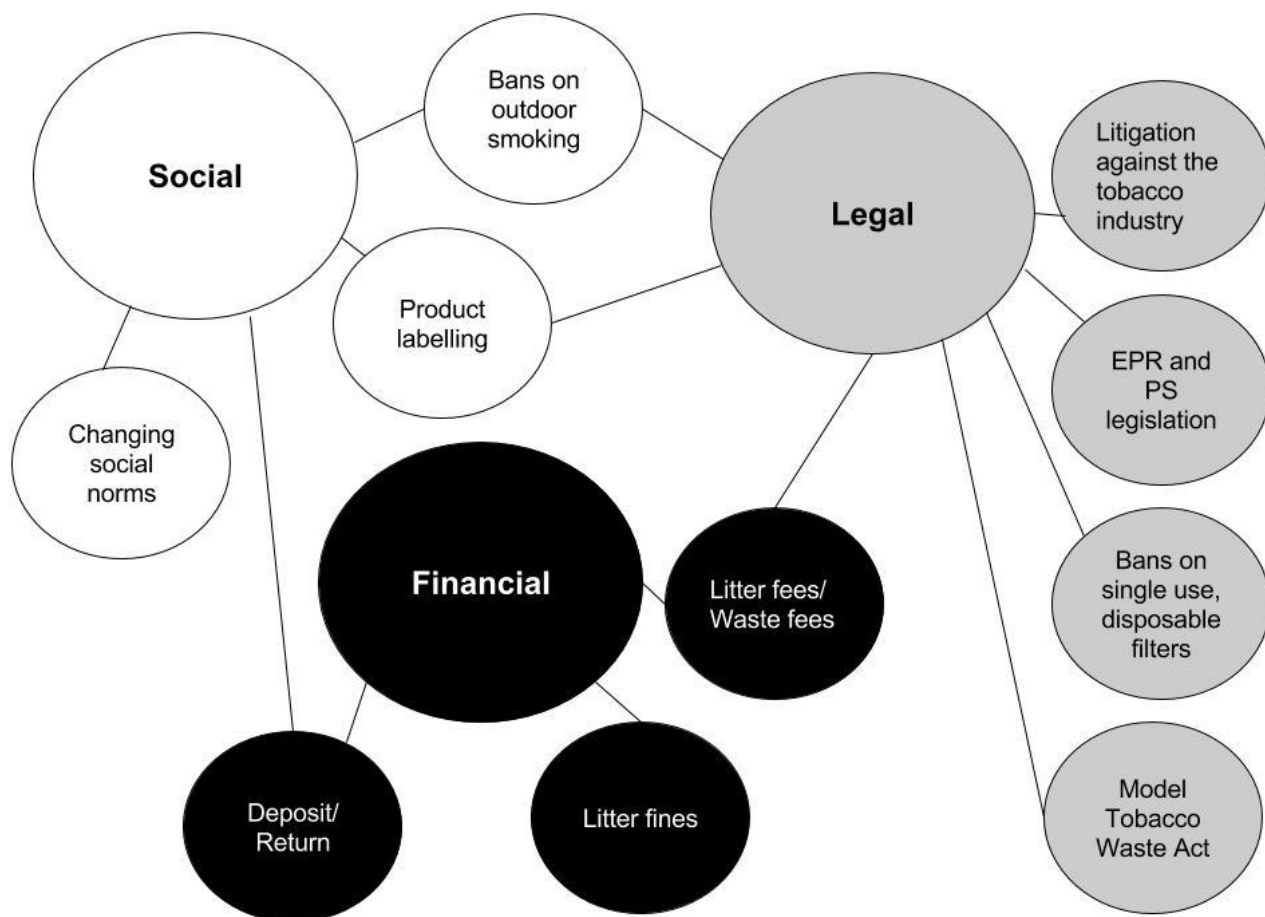


At the international policy level, the scale of butt littering has led to a growing awareness of associated problems among parties to the WHO's Framework Convention on Tobacco Control (FCTC) (Javadian et al. 2015). Novotny et al. (2015) have recommended that relevant Articles of the FCTC, particularly, Article 18 *Protection of the environment and health of persons*, be brought to bear. The underlying tenet of the FCTC, to challenge the tobacco industry and its vested interests, they argue, can be used to support: prohibition of single-use filters; litigation and economic interventions aimed at recovery of costs of industry misconduct and environmental damages; and to "innovate, improve and enforce new and existing environmental regulations and agreements" that apply to all stages of tobacco production and post-consumption waste (Novotny et al. 2015).

How the industry might respond to meaningful regulation can perhaps be gauged by its reaction to San Francisco's imposition of a waste clean-up levy fee of USD 0.20 per cigarette pack sold in the city. Freiberg (2014) describes the industry's unsuccessful legal challenge to the regulation on the grounds that it represented an unauthorised tax, and its subsequent (and more successful) significant financial support of California's Proposition 26, a state initiative aimed at limiting the ability of local jurisdictions to adopt similar measures (Ballotpedia 2010). Philip Morris, for instance, contributed USD 1.75 million to "Stop Hidden Taxes", a 'front group' funded by alcohol, tobacco, oil and business interests to support the passage of the proposition.

### **6.3 Recommendations for Australia**

Curtis et al.'s (2014) *Extended Producer Responsibility and Product Stewardship for Tobacco Product Waste* argues that environmental approaches such as EPR, PS and the Polluter Pays Principle could be used to manage butt litter, and suggests ten possible interventions. These, combined with sections of the *Model Tobacco Waste Act* drafted by Curtis et al. (2016), create a comprehensive framework for discussion of potential response to butt litter in Australia that focuses on three broad themes: social, legal, and financial approaches (see Figure 6.1).



**Figure 6.1. Interaction of proposed approaches to cigarette litter management.**

### ***6.3.1 Extended Producer Responsibility and Product Stewardship***

There are existing precedents for EPR and PS approaches to litter management in Australia. EPR was first introduced in NSW in 2001, and applied to televisions, computers, paints and batteries, and in 2007, a NSW EPA EPR Priority Statement nominated 17 additional types of waste for industry action, including cigarette butts (NSW Department of Environment, Climate Change and Water [NSW DECCW] 2010). While some of these items had EPR strategies put in place, such as agricultural chemicals and used oils and lubricants, others such as cigarette butts were not addressed (NSW DECCW 2010). The focus in NSW has since shifted towards supporting the development of national product stewardship schemes, such as the *Commonwealth Product Stewardship Act 2011* (NSW EPA 2015) and the *Product Stewardship Regulation 2012* (Australian Government Department of the Environment and Energy [DEE] undated). To date, however, cigarette butts continue to be excluded from products covered (DEE 2013; 2014; 2015; 2016).

The tobacco industry in Australia has also attempted to pre-empt the imposition of EPR levies. BATA's 2008 submission to the Commonwealth Government's Review of "Australia's Future Tax System", argued that "it is not necessary to hypothecate taxes to address [...] environmental

challenges of the 21<sup>st</sup> Century such as Extended Producer Responsibility (EPR) levies to pay for litter management. We support a holistic approach [...] which involves the tax and transfer system but also encompasses increased communication between the relevant stakeholders, education, legislation and regulation” (BATA and Vecchiet 2008, p. 6).

### ***6.3.2 Bans of single use, disposable filters***

There is no evidence that banning traditional, single use cigarette filters has been discussed in Australia at government or NGO level. Options could include the banning of all filters (although this would likely be strongly challenged by the tobacco industry, primarily on the grounds that it would prove a barrier to entry for new smokers), or introducing reusable filters. Given the approximately AUD 50 million cost for defending plain packaging legislation against a case brought by PMI (Martin 2015), in addition to the costs of implementing such legislation in the first place, the Australian Government may well be reluctant to enter another legal battle with the tobacco industry so soon.

Even aside from a likely industry backlash, while a representative of KESAB *environmental solutions* seemed unaware of reusable filters, he expressed reservations about such an option, arguing that ultimately, “reusable filters will end up in the litter stream, won’t they?” (KESAB, Interview, 7 December 2015).

Finally, international evidence to date also suggests that such an approach could even have limited political support, given the failure of bills prohibiting single-use and non-biodegradable filters in the US (Freiberg 2014).

### ***6.3.3 Bans on outdoor smoking***

Smoking has been banned in all indoor public spaces in Australia including licensed venues in all states and territories for almost ten years. Bans have subsequently been extended to outdoor areas where food is served and consumed, including in licensed venues in all states and territories, except for Victoria which is due to implement similar legislation in August 2017 (Victorian Department of Health and Human Services 2016). Smoking is also banned in most states at many outdoor venues including patrolled beaches, transport waiting areas, public pools and at sporting events. An unintentional result of extensive smoke-free legislation has been its contribution to butt litter outside indoor venues which, arguably, highlights the need for further bans on outdoor smoking. Such an approach may, however, lead to some level of public backlash. While smoking has been increasingly denormalised in Australia and there is little sympathy for smokers (Chapman and

Freeman 2008, p. 28), the perception of a legal product being banned in all public places may seem contradictory and unreasonable to some observers.

#### **6.3.4 Product labelling**

Consumer goods in Australia that have disposable packaging often display messaging or logos that promote appropriate disposal. These include the “Tidy-man” (see Figure 6.2) and the Mobius Loop (see Figure 6.3) (Planet Ark 2014). Such messages are not required under the Tobacco Plain Packaging Regulations 2011 (Australian Government 2011) which require plain cigarette packaging. This omission was referenced in ITA’s submission to the *House Standing Committee on Health and Ageing regarding the Inquiry into Plain Tobacco Packaging* which notes that “the Department of Health Consultation Paper indicated that the tidy man symbol would not be able to be used on its packaging” and argues “How can the Australia [sic] Government continually seek to criticize tobacco companies for irresponsible littering of cigarette butts whilst removing our anti-littering message to our consumers?” (ITA 2011, p. 18). Both ITA and BATA reiterated concerns about the removal of the Tidy-man in their 2012 submissions to the Standing Council on Environment and Water on the Packaging Impacts Consultation Regulation Impact Statement (PICRIS) (BATA 2012; ITA 2012).



**Figure 6.2. Tidy-man logo**



**Figure 6.3. Mobius Loop**

Curtis et al. (2015) suggest that, in addition to appropriate disposal directions, labelling could also be used to advise consumers that filters are non-biodegradable and toxic to the environment. Adding a requirement for litter awareness notices on cigarette packs would be relatively straightforward, although it might be argued that they could detract from the prominence of public health messaging on packs sold in the country.

#### **6.3.5 Litigation against the tobacco industry**

Litigation against the tobacco industry, suggested by Freiberg (2014) and Witkowski (2014), rests on the idea that the industry should be held legally, and thus financially, responsible for the environmental costs of butt litter and associated clean-up efforts. Curtis et al. (2014) argue that the

accumulating evidence for the toxicity of butt litter means that “the tobacco industry may be considered a toxic waste generator, and thus they may be liable for the costs of safe clean-up, take-back, or disposal of their products” (p. 156). Given that litigation against the industry has been limited in Australia (Scollo and Winstanley 2016), legal action to prove industry liability for litter clean-up seems unlikely.

#### **6.3.6 Litter fees and waste fees**

In the framework described by Curtis et al. (2014), waste fees and litter fees are considered separately, however, it is possible to consider them as complementary approaches. Both fee types are implemented at the point of sale, and the primary difference lies in the method of disposal. That is, waste fees would be applied to ensure that toxic waste material that has been properly disposed of by the consumer is managed appropriately, whereas litter fees would be applied to fund clean-up costs associated with material that has been improperly discarded.

Litter deposits are another potential solution. The tobacco industry’s challenge to San Francisco’s butt clean-up deposit, however, suggests that it would likely oppose similar initiatives, and BATA’s submission to the Commonwealth Government tax review mentioned above, notes that “BATA does not believe that a litter levy on tobacco products is an appropriate measure to address cigarette butt litter. Any EPR levy would be passed on to the consumer” (BATA and Vecchiet 2008, p. 14). Data to date shows that such price increases associated with litter fees are unlikely to have a significant impact on the amount of butt litter in the environment. While increases in taxes and cigarette prices have played a significant role in the reduction of the number of smokers in Australia (Scollo and Winstanley 2016), there is no strong or consistent correlation between the number of smokers and the volume of butt litter collected (see Figure 4.2).

Waste fees have been implemented at the national level in Australia. Advanced Disposal Fees (also known as Advanced Recycling Fees) that are used to support proper disposal of products have been applied in programs that cover agricultural and veterinary chemicals and containers, mobile phones, used oil and refrigerants, and newsprint (Martin Stewardship and Management Strategies Pty Ltd 2011). They have also been considered as an option for the management of all packaging materials (Former Standing Council on Environment and Water 2012), but to date there has been no suggestion of using such fees to manage cigarette butt waste.

#### **6.3.7 Deposit/return**

Currently there are only two deposit/return initiatives operating in Australia, and both apply to beverage containers. South Australia’s has been in place since 1977, despite significant opposition

by soft drink manufacturers there and in other jurisdictions. A 2003 investigation found that following South Australia's enactment of container deposit legislation, the threat of a similar scheme being adopted in NSW caused the beverage industry to fund the high-profile 'Do The Right Thing' anti-littering advertising campaign on the condition that NSW not introduce container deposit laws (Four Corners 2003).

The success of the South Australian program is based on overwhelming public support, which has resulted in a current return rate of over 76% of bottles purchased (EPA South Australia 2016). In 2011, a similar initiative based on the South Australian model was introduced in the Northern Territory (EPA South Australia 2016). At the time of writing, container deposit schemes are being adopted all around Australia, with NSW agreeing in May to adopt a scheme to commence in July 2017 (Needham 2016), and both Queensland and Western Australia announcing schemes to commence in 2018 (Queensland Government 2016; Government of Western Australia 2016; Clean Up Australia 2016).

While greater adoption of these schemes is positive, transferring public support for deposit/return initiatives on bottles to similar schemes to deal with butt litter would be challenging for three main reasons. First, it is likely that tobacco companies would follow the example of the beverage industry and challenge such an initiative for reasons of cost and opposition to assuming greater responsibility for butt litter. Second, there would be additional challenges around butt collection due to the unique nature of butt litter and its offensiveness to smokers and non-smokers alike (Smith and Novotny 2011), making it unlikely that smokers would be willing to carry butts on their person until they visited a return facility. Finally, Curtis et al. (2014) note that the toxicity of individual butts means that large volumes of cigarette waste would require careful handling, although guidelines are already in place for transportation of dangerous materials (Australian Government Department of Infrastructure and Regional Development 2016).

#### ***6.3.8 Fines for littering***

Provisions for littering fines exist in all states and territories of Australia, but do not take into account the potential environmental impact of butt litter. In NSW, for example, the fine for littering "small items, such as bottle tops and cigarette butts" is AUD 80, "general littering" results in a AUD 250 fine, and the fine for littering "in dangerous circumstances", such as a syringe or a lit cigarette is AUD 450 for individuals (NSW EPA 2016). Similarly, in Western Australia, where the fine is the same for all types of individual litter (other than litter that creates a public risk), butt litter is categorised separately (Keep Australia Beautiful WA 2016), which may give the impression that

it is a different, lesser offence. Given that litter laws are often difficult to enforce, given the often spontaneous nature of littering and the need for an enforcement officer to be present at the time or for a member of the public to fill out a cumbersome report (for example, NSW EPA 2017), individual litter fines are unlikely to be a particularly effective mechanism for reducing butt litter.

Fines could potentially be increased for individuals, but Curtis et al. (2014) argue for levying litter fines against cigarette companies, based on the quantity of brand-specific cigarette waste found at clean-ups. Branded litter studies have previously been undertaken in Australia by Keep Australia Beautiful (KAB) (KAB 2012; Former Standing Council on Environment and Water 2008), although not in the last four years, and methods used for these studies could be adapted to develop a new evidence base for levying of fines. With that said, any fines would likely be passed on to the consumer, and as discussed above in 6.3.6, the increased cost of smoking and subsequent reduction in the number of smokers has not led to a significant decrease in butt litter. As such, this does not suggest itself as a particularly effective response.

#### ***6.3.9 Changing social norms***

As smoking rates have declined over the last 30 years, social norms around smoking have shifted significantly in Australia (Chapman and Freeman 2007; Hammond et al. 2006). Similarly, littering has become increasingly unacceptable based on aesthetic concerns. Yet the quantity of butt litter remains a significant environmental issue. This is potentially due to the perception that butts are ‘small’ litter, which, as mentioned above, is reinforced in NSW by proportionally small fines. Reinforcing these changing social norms that discourage littering behaviour may be work that is well-suited to those NGOs currently working with the tobacco industry, given their background in encouraging smokers to change their behaviour (KESAB, Interview, 7 December 2015).

### **6.4 Applying waste mitigation strategies in Australia**

Few of these approaches have been applied anywhere in the world, making measurement and comparison difficult. Lack of evidence would be a significant hindrance in making the case to policy makers for meaningful regulation. Industry opposition to legislation can also be reasonably expected and would be a further challenge. For example, the tobacco industry’s response to plain packaging laws in Australia in 2011 included a constitutional challenge in the High Court of Australia, complaints to the World Trade Organization (WTO 2016), and Philip Morris Asia’s unsuccessful challenge under the 1993 Australia - Hong Kong bilateral investment treaty (Australian Government Attorney-General’s Department undated).

There are opportunities in Australia that may not exist elsewhere. Australia has among the world's strictest tobacco control laws in place and, as noted above, smoking is banned in a large number of public spaces. Denormalisation of smoking has also been a long-standing, integral part of public health policy at both State and Commonwealth levels, and public attitudes have paralleled such policy, with smokers protesting "that they are made to feel like social "lepers"" (Chapman and Freeman 2008, p. 28). That smokers have "almost universal regret about having commenced smoking", and believe that "smoke free [is] normative" (Chapman and Freeman 2008, p. 26) provides important context when considering the introduction of butt litter legislation. In this environment, new campaigns and legislation to manage butt litter could reasonably be perceived by the public as a logical next step in addressing the harms of cigarettes.

## 6.5 Options in the Australian setting

The Model Tobacco Waste Act developed by Curtis et al. (2016) has its basis in EPR and PS legislation, and shifts a substantial portion of responsibility for the butt litter problem upstream, from the consumer to the producer. It provides a valuable and viable framework for discussions around future Australian policy, particularly the Guiding Principles of Section 3(a) Tobacco Waste Care (Curtis et al. 2016, see Supplement p.2):

- (1) All tobacco producers with products sold in the [jurisdiction] shall participate in, and be responsible for, developing, implementing and financing the Tobacco Waste Act Program, an organization/program established at the national or subnational level, which addresses the total life cycle environmental impacts of tobacco products, with a special emphasis on post-consumer, end-of-life product waste management;*
- (2) They should have the flexibility to meet their responsibilities by offering their own plan or participating in a plan with others, subject to governmental oversight;*
- (3) Tobacco product retailers shall also participate in Tobacco Waste Act, and they shall only sell covered tobacco products from tobacco producers in compliance with Tobacco Waste Act requirements;*
- (4) Tobacco product consumers are responsible for using return collections systems set up and paid for by tobacco producer/s or their agents, as managed under the Tobacco Waste Act; and*
- (5) Tobacco product producers and retailers shall educate the public about the Tobacco Waste Act Program.*

National level legislation would be preferable. As the NSW EPA notes in describing its support for a national framework for product stewardship, "many products are sold in national markets and are problematic in all jurisdictions. [...] Management at a national level can provide consistent action to achieve the product stewardship goals" (NSW EPA 2015). Jurisdictional authority around the actions required by such an Act would need to be determined - for example, monitoring of the



environmental impacts of the Act may be undertaken by State Environment Protection Authorities, while waste collection services and enforcement of consumer cooperation with the Act may be managed by local councils. While the Act would need to be implemented and enforced by government agencies, NGOs may also have a role to play in driving social and behavioural change, encouraging consumer acceptance of changes.

## **6.6 Discussion**

Without the introduction of EPR/PS legislation such as the Model Tobacco Waste Act, the options for effectively managing cigarette butt litter in Australia are limited. Further public education on the environmental and health hazards of cigarette butts could be introduced through media campaigns, and an amendment to the Plain Packaging Act 2011 that requires cigarette packs to carry warnings about the non-biodegradability and toxicity of butt litter and a reminder to dispose of butts appropriately could be made. However, the best way forward in Australia would be a nationally applied EPR/PS legislation.

It is likely that the tobacco industry would challenge the introduction of a Tobacco Waste Act. It is also very likely that the majority of costs would be passed on to the consumer, however, increased costs are an important factor in reducing the number of smokers (Curtis et al. 2016), and could result in a public health benefit. A full understanding of whether the annual tax increases that commenced in 2013 have had a significant impact on the number of smokers is not yet available (the next Australian Institute of Health and Welfare National Household Drug Survey results will not be released until 2017).

Given the environmental benefits of a Tobacco Waste Act, along with potential public health benefits, this is an option that the Commonwealth Government should look at implementing as an integrated strategy across all levels of government.

## Chapter 7: Conclusion

This analysis of the impacts of, and responses to, cigarette butt litter in Australia contributes to the growing literature in the field in four ways. It considers the scale of the butt litter problem and its relationship to smoking rates and reviews responses of key actors, including the government and NGOs. It then analyses efforts by the tobacco industry to distance itself from responsibility for butt litter, and to influence policy through CSR strategies, by funding environmental NGOs and establishing BATA's organisation, Butt Free Australia. Finally, it makes recommendations for effective responses to the problem.

Chapters 1 and 2 provide the context for the research, by identifying tobacco-related issues in Australia and assessing existing literature on butt litter, its environmental impacts, and attempts to manage the issue. Generally, the butt litter situation in Australia, and the responses of the tobacco industry reflect the experience described by academic research from other countries. A key finding is that despite an almost 50% reduction in the number of daily smokers between 1991 and 2013 (AIHW 2014), butt litter continues to pose a potentially significant environmental risk. This has implications for future research as it indicates that alone, further gradual reductions in the number of smokers are unlikely to have a significant impact on the environmental issue of butt litter. It is acknowledged, however, that a sudden large scale reduction in the number of smokers would have a more dramatic impact on the problem as well as significant public health benefits.

Responses to the butt litter issue in Australia have included education and awareness campaigns by government, NGOs and the tobacco industry; voluntary industry association membership; provision of waste receptacles; incentives for butt litter collection; and enforcement strategies such as fines for littering. As described in previous chapters, these responses have all so far failed to halt the problem. Local governments have made attempts to address butt litter directly, but at state and Commonwealth levels, responses have largely been on an ad hoc basis as part of larger environmental strategies. This, in part, reflects Australia's federal system of government, which leads to complexities around jurisdictional responsibility. While litter is generally managed at a local and state level, waste management is in the remit of both state and Commonwealth governments. For example, the NSW EPA has stated that they are not undertaking further work on the development of an EPR strategy, as this would be better managed at a national level to achieve product stewardship goals (NSW EPA 2015). At state level, cigarette butts are not frequently described as items of particular environmental concern, with most state Environment Protection

Authorities applying similar fines to butt litter as to other, less toxic litter. At the Commonwealth level, tobacco initiatives are primarily focused on tobacco control measures to reduce the smoking rate and improve public health outcomes. The Commonwealth also has no responsibility for litter control, and their initiatives on waste management have been focused on more prominent and well known pollutants, such as batteries and refrigerants (DEE 2013).

The responses of environmental NGOs have shown a similar focus on litter more broadly, although most acknowledge the significant quantity of butt litter collected during clean-up activities (e.g., Clean Up Australia Rubbish Reports and KAB's National Litter Indexes). Those organisations that have focused on butt litter have primarily been those that currently have, or have previously had, partnerships with the tobacco industry, such as KESAB and KAB, and indeed, the BATA-established Butt Free Australia.

Analysis of these partnerships and tobacco industry CSR strategies is a key focus of this thesis. Interviews with environmental organisation representatives found a willingness to work with the tobacco industry to combat litter. This reinforces McDaniel and Malone's (2012) findings from their analysis of BAT's relationship with Earthwatch Europe, that some organisations are willing to accept what Palazzo and Richter (2005) describe as "dirty money", i.e., funding from the tobacco industry, in order to achieve their environmental aims. This research also exposes the extensive history and political motivations of tobacco industry CSR strategies in Australia. A review of tobacco industry documents found evidence of a relationship between PMI and KAB as early as 1975 (PMI 1975). Such relationships have been used to the advantage of the tobacco industry, sometimes with the awareness of environmental NGOs – for example, in an interview with a representative of KESAB, he acknowledged that "could well have been an approach that was adopted to defray other issues such as [...] plain packaging. They were investing in trying to influence things" (KESAB, Interview, 7 December 2015). This is indicative of a single-minded focus within some NGOs – to achieve a reduction in litter, in spite of the ethical risks involved, and in spite of the limited evidence of the efficacy of programs funded by the tobacco industry.

Considering that 7 billion butts are littered in the Australian environment each year (Scollo and Winstanley 2015), there is a clear need for further, and more effective action. Reframing cigarette butt litter as waste, rather than litter (Smith and McDaniel 2011), is a key first step, as it will shift the focus of responsibility to the tobacco companies and make a nationally coordinated response more likely. The most comprehensive framework for butt waste management that has been developed to date is the Model Tobacco Waste Act (Curtis et al. 2016), which appropriately

engages all policy actors, requiring the participation of manufacturers, retailers, consumers and government agencies across the life cycle. Most importantly, it ultimately holds the tobacco industry responsible for the appropriate final disposal of the toxic waste generated by their product. As such, this thesis suggests that the Model Tobacco Waste Act would provide a clear and achievable strategy for managing the butt litter problem in Australia going forward.

Previous research into tobacco industry responses to potentially effective strategies in other countries, along with the findings of this thesis, does suggest the likelihood of obstructive responses to such butt litter initiatives in Australia. The willingness of some NGOs interviewed for this research to continue working with the tobacco industry, in spite of an awareness that these relationships may be used in an attempt to manipulate and prevent unfavourable policies, should be of concern. In attempting to develop and implement butt waste management legislation, policy makers will need to be aware of not only blatant challenges from the tobacco industry (such as legal action), but also more insidious approaches to deflect attention from the problem and influence public opinion through CSR activities.

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## Appendices

### Appendix A: Interview questions for semi-structured interviews

<b>Organisations that receive TI funding</b>	When did you begin your partnership with BATA/PM/IT?
	Does your organisation have an official stance on tobacco/tobacco litter as an environmental hazard or issue?
	Can you describe the relationship that your organisation has with this tobacco company, e.g. financial donations, company-organised volunteer days etc? Does the company or its employees support a specific project rather than the organisation as a whole? What kind of discussions would usually take place when a corporation offers to form a partnership with your organisation? Was this any different with <insert tobacco company>, i.e. was the decision to partner with <insert tobacco company> controversial for your organisation?
	Do you feel that there is a conflict between the mission of your organisation and the commercial goals of <tobacco company>, or with the product that they sell?
	What benefits do you feel that <tobacco company> might draw from its relationship with your organisation? Do you think that all corporations that partner with your organisation would receive the same benefits?
<b>Specific to KESAB environmental solutions</b>	Your annual reports continually list cigarette butts as the highest proportion of litter collected in annual clean ups. Do you think that your relationship with BATA and IT has had a positive impact on these figures?
	Would KESAB be supportive of the adoption of reusable filters?
<b>Organisations that have not received TI funding</b>	Have tobacco companies ever approached your organisation to suggest a partnership or sponsorship?
	Does your organisation have a specific policy on tobacco industry money, or a broader statement of acceptable sources of income?
	Has your organisation ever received any money or in kind benefits from the tobacco industry?
	Does your organisation have a position on cigarette butt litter?
	What do you think would be the motivation for charities that do receive money to engage with the tobacco industry? What do you think would be the primary benefit?
	What do you think would be the primary motivation for the tobacco industry? What benefits do you think it could have for them?

## Appendix B: Summary of responses to interview questions

	<b>Keep Australia Beautiful</b>	<b>KESAB <i>environmental solutions</i></b>	<b>Victorian Litter Action Alliance</b>
<b>Received tobacco industry (TI) funding (at any point)</b>	Y	Y	N
<b>When did the relationship with the TI commence?</b>	Unsure	1990s with PM. Development of Butt Littering Trust with BATA in 2002.	N/A
<b>Can you describe your relationship with the TI?</b>	Not current	Funding based.	N/A
<b>What kind of discussions would usually take place when a corporation offers to form a partnership with your organisation? Was this any different for the TI?</b>	Unsure.	It was a controversial issue, but overall it was agreed that litter reduction was the key priority and this would outweigh concerns.	N/A
<b>Do you feel that there is a conflict between the mission of your organisation and the commercial goals of the TI, or with the product that they sell?</b>	No.	KESAB's mission is entirely focused on litter prevention and clean-up, public health is the remit of other organisations. They are discrete issues.	N/A
<b>What benefits do you feel that the TI might draw from its relationship with your organisation?</b>	N/A	Minimal benefits. A reduction in butt litter may reflect well on their consumers.	N/A
<b>Do you think your relationship with the TI has had a positive impact on butt litter?</b>	N/A	Yes, campaigns have achieved a reduction in butt litter.	N/A
<b>Have tobacco companies ever approached your organisation to suggest a partnership or sponsorship?</b>	N/A	N/A	Not directly. They are indirectly engaged through the NPCIA, which is a member of VLAA. All tobacco companies operating in Australia are NPCIA members.
<b>Does your organisation have a</b>	N/A	N/A	Each offer of sponsorship or

<b>specific policy on TI money, or a broader statement of acceptable sources of income?</b>			partnership is assessed on its individual merits.
<b>Has your organisation ever received any money or in kind benefits from the TI?</b>	N/A	N/A	No, however, the NPCIA is a funding partner of VLAA and all tobacco companies are members of the NPCIA
<b>Does your organisation have a position on butt litter?</b>	N/A	N/A	Not really. Made up 14 different organisations that represent very different interests.
<b>What do you think would be the primary motivation for charities that receive money to engage with the TI? What do you think would be the primary benefit?</b>	N/A	N/A	Not willing to comment.
<b>What do you think would be the primary motivation for the TI? What benefits do you think it could have for them?</b>	N/A	N/A	Not willing to comment.

## Appendix C: Requests for Interview

*Approach for organisations that currently receive funding:*

Dear <Organisation Name>,

I am writing to request your assistance in a study of policy response to cigarette butt litter in Australia; key actors and responses. The purpose of the study is to determine the scale of the butt litter problem in Australia, and to analyse policy response of government, non-governmental organisations and the tobacco industry. Analysis of tobacco companies operating in Australia will focus on corporate social responsibility (CSR) initiatives, in particular their relationships with environmental charities.

The study is being conducted by Dr Ross MacKenzie and Lucinda Wallbank. It is a component of a research project being conducted by Lucinda to meet the requirements of her Master of Research, under the supervision of Assoc Prof Paul Beggs of the Department of Environmental Sciences ([paul.beggs@mq.edu.au](mailto:paul.beggs@mq.edu.au), 9850 8399) and Dr Ross MacKenzie of the Department of Psychology ([ross.mackenzie@mq.edu.au](mailto:ross.mackenzie@mq.edu.au), 9850 6393).

If you decide to participate, we would ask you to provide the names and staff email contacts of two relevant staff members who we would then email, inviting them to participate in the project by responding to questions regarding your organisation's relationship with tobacco companies. We will make it clear that participation is voluntary and that their manager/supervisor (i.e., you) would not be informed of their decision to participate.

The interviews will take approximately 30-40 minutes and will be conducted by telephone. With the staff member's permission, we would like to make recordings of the interviews, which will be stored securely. If staff choose to respond via email, their answers will be saved offline and stored securely. There are no risks associated with participating in the study.

If you or someone in your organisation is willing and able to participate in the study, I would be very grateful. I am happy to answer any questions you might have, and you can reach me at: [lucinda.wallbank@students.mq.edu.au](mailto:lucinda.wallbank@students.mq.edu.au) or on 0435 040 955.

I look forward to hearing from you.

Kind regards,

Lucinda Wallbank  
Higher Degree Research Student  
Department of Environmental Sciences  
Macquarie University

*Approach for organisations that do not currently receive funding:*

Dear Victorian Litter Action Alliance,

I am writing to request your assistance in a study of policy response to cigarette butt litter in Australia; key actors and responses. The purpose of the study is to determine the scale of the butt litter problem in Australia, and to analyse policy response of government, non-governmental organisations and the tobacco industry. Analysis of tobacco companies operating in Australia will focus on corporate social responsibility (CSR) initiatives, in particular their relationships with environmental charities/organisations.

The study is being conducted by Dr Ross MacKenzie and Lucinda Wallbank. It is a component of a research project being conducted by Lucinda to meet the requirements of her Master of Research, under the supervision of Assoc Prof Paul Beggs of the Department of Environmental Sciences ([paul.beggs@mq.edu.au](mailto:paul.beggs@mq.edu.au), 9850 8399) and Dr Ross MacKenzie of the Department of Psychology ([ross.mackenzie@mq.edu.au](mailto:ross.mackenzie@mq.edu.au), 9850 6393).

If you decide to participate, we would ask you to provide the names and staff email contacts of two relevant staff members who we would then email, inviting them to participate in the project by responding to questions regarding your organisation's relationship and/or position on working with tobacco companies. We will make it clear that participation is voluntary and that their manager/supervisor (i.e., you) would not be informed of their decision to participate.

The interviews will take approximately 30-40 minutes and will be conducted by telephone. With the staff member's permission, we would like to make recordings of the interviews, which will be stored securely. If staff choose to respond via email, their answers will be saved offline and stored securely. There are no risks associated with participating in the study.

If you or someone in your organisation is willing and able to participate in the study, I would be very grateful. I am happy to answer any questions you might have, and you can reach me at: [lucinda.wallbank@students.mq.edu.au](mailto:lucinda.wallbank@students.mq.edu.au) or on 0435 040 955.

I look forward to hearing from you.

Kind regards,

Lucinda Wallbank  
Higher Degree Research Student  
Department of Environmental Sciences  
Macquarie University



# Appendix D: Environmental impacts of tobacco product waste: International and Australian policy responses, *Ambio*, November 2016

Ambio  
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## REVIEW

## Environmental impacts of tobacco product waste: International and Australian policy responses

Lucinda A. Wallbank, Ross MacKenzie , Paul J. Beggs

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**Abstract** The health risks of tobacco consumption are well established, but there is less awareness of the global environmental impacts of smoking. The by-products of the 6.3 trillion cigarettes smoked annually are filters (butts) that contain benzene, nicotine, cadmium, and dozens of other chemicals. It is estimated that between one- and two-thirds of all filters are discarded on roads, pavements, and green spaces. Butt litter as an environmental and public health hazard is a relatively new field of study, but recent research and findings have clear global implications. While this article focuses specifically on the situation in Australia, where cigarette butts are consistently the most littered item identified in national clean-up campaigns, the material reviewed has clear international environmental implications. The article first reviews existing literature on filter composition and toxicology, clean-up costs, regulatory response, and key policy actors. It then describes the scale of the butt litter problem in Australia using existing data, and analyses potential remedies at both the domestic and international levels.

**Keywords** Cigarette butt litter · Environmental organisations · Policy response · Tobacco industry · Toxicology

### INTRODUCTION

The health risks of tobacco consumption are well established. It kills an estimated 6 million people every year, a figure that will rise to 8 million by 2030, and will result in more than one billion deaths this century (Mathers and Loncar 2006; Jha 2009).

There is markedly less awareness of the environmental impacts of smoking, and research in this area has been

largely focused on second-hand smoke exposure, responsible for an estimated 600 000 deaths among non-smokers (Öberg et al. 2010). More broadly, there has been limited research into the environmental implications of the cigarette lifecycle: cultivation and curing, production, consumption, and post-consumption disposal (Novotny et al. 2015). Increasing concerns regarding deforestation, use of pesticides and chemical fertilisers, the impacts of cigarette manufacturing and distribution, and disposal of tobacco product waste, however, have led to a growing interest among researchers whose work has clear international implications.

Tobacco product waste has until recently received the least attention, yet post-consumption rubbish produced by the approximately 6.3 *trillion* cigarettes smoked globally every year includes some 300 billion cigarette packs that produce an estimated 1 800 000 tonnes of waste paper, cellophane, foil and glue; and trillions of cigarette butts that are littered on roadways, pavements, and in parks and other green spaces (Novotny et al. 2009, 2015).

Discussion of potential environmental impacts of discarded cigarette butts has, in some cases, met with scepticism or simple reductionism that focuses too narrowly on a single aspect of current research (Chapman 2016). The reality, however, is that of the roughly 6 trillion cigarettes consumed annually, 75% of butts (4.5 trillion) are littered, equating to between 750 000 000 and one billion kilograms of non-biodegradable, cellulose acetate filters that are infused with benzene, nicotine, cadmium, and dozens of other chemicals drawn from the cigarette (Proctor 2012; Novotny and Slaughter 2014).

Why smokers litter is an ongoing question for government, environmental non-government organisations (NGOs), and cigarette manufacturers in all countries. Surveys of United States (US) smokers in 2012 found that

74.1% had discarded cigarette butts at least once, and over half admitted to dropping them on the ground, or down a sewer or drain within the previous month (Rath et al. 2012). These findings are in line with data from the United Kingdom and other US studies (Rath et al. 2012), but the rationale for this behaviour is less clear. Cigarette butts are more likely to be littered than most other items due, most obviously, to personal burn risk, but also because smokers do not know what else to do with them, and to a distinction made by smokers between perceived acceptability of littering butts compared with other rubbish (Smith and Novotny 2011). Tobacco industry analysis of smokers' attitudes revealed that smokers disliked cigarette butts whether in ashtrays or discarded, and were unenthusiastic about eco-friendly cigarettes, anti-litter campaigns, and portable or permanent ashtrays, leading industry analysts to the conclusion that the "complex psychology of butt littering made difficult identifying any message that might change the behaviour" (Smith and Novotny 2011).

Discarded cigarette butts, until recently perceived primarily as an aesthetic concern, have been recently reframed as an economic and environmental issue (Novotny and Zhao 1999; Novotny et al. 2009). Recent related research has included analysis of filter composition, toxicology, and leachates; related costs of clean-up in urban settings, and of fires; as well as potential regulatory response and the strategies of key policy actors. While most research to date has been carried out in the US, much of it in California, discourse around related environmental impacts has relevance for all countries, reflected in an increasing awareness among parties to the World Health Organization's (WHO) Framework Convention on Tobacco Control (FCTC) (Javadian et al. 2015).

For Australian researchers, concerns regarding ocean and coastline ecology, significant forest fire threat, cost of clean-up, and the role of policy actors in discussions around responsibility for the issue of cigarette butt disposal raised in research conducted in California is clearly relevant. While the smoking rate among Australian adults has dropped to a historic low of 14.7% (Australian Bureau of Statistics 2015), the approximately 2.6 million remaining smokers consume some 20 billion cigarettes per year and discard some 7 billion butts into the environment (Scollo and Winstanley 2015), which has consistently made them the most littered item in the country over the past fifteen years (Clean Up Australia 2015).

This paper argues that the potential impacts of discarded cigarette butts in Australia have yet to be adequately assessed, and that related research conducted elsewhere provides useful guidelines. It first highlights the key issues through a review of the literature on related environmental and economic costs, regulatory proposals and key actors, and assesses existing research and data sources relevant to

analysis of the situation in Australia. It then analyses potential legal and policy options that may provide direction for future response to the environmental impacts of butt litter, both in Australia and internationally.

## DISCUSSION

### Health claims, environmental impacts, and policy

Cigarette filters are a mid-twentieth century innovation, originally created to keep loose tobacco out of smokers' mouths (Smith and Novotny 2011). In 1950, less than 1% of cigarettes sold in the US were filtered, but subsequent publication of epidemiological studies that linked smoking to lung cancer led the tobacco industry to rethink cigarette design and to add filters (Warner 2002). Associated promotion focused on the capacity of filters to capture dangerous components of inhaled smoke without compromising flavour, and led to an enormous shift in smoking behaviour. Overwhelmingly positive public response meant that by 1960, 51% of all cigarettes sold in the US were filtered, rising to 99% by 2005 (United States Department of Health and Human Services 2010).

However successfully tobacco companies have convinced consumers that they are now protected from dangerous chemicals in cigarettes, filters have no health benefits. Early results obtained from machine-based testing suggested reduced tar and nicotine inhalation, but mechanical measurement differs markedly from how smokers consume cigarettes. Ventilation holes in filters allow smoke to escape before entering testing machines, but these holes are covered by smokers' fingers, and it has also been demonstrated that smokers inhale more deeply to compensate for filtration (Kozlowski and O'Connor 2002).

Filters are not only a health deception perpetrated by the tobacco industry, they have been associated with *increased* risk, given that the misplaced sense of security associated with smoking filtered cigarettes has almost certainly reduced health concerns, resulting in increased smoker initiation, and postponed quit attempts (Stratton et al. 2001; Warner 2002). Filtered cigarettes also produce elevated levels of more-addictive free-base nicotine, and deeper inhalation by smokers has resulted in a shift in cancer diagnoses in which squamous cell carcinomas replaced by more aggressive adenocarcinoma as the most common form of lung cancer in much of the world (Brooks et al. 2005; Ito et al. 2011).

### Environmental concerns

Discarded cigarette filters contain residue from chemicals used in tobacco cultivation and cigarette production,

including pesticides, herbicides, insecticides, fungicides, rodenticides, arsenic, nicotine, polycyclic aromatic hydrocarbons, and heavy metals (Moerman and Potts 2011; Slaughter et al. 2011). Cellulose acetate filters are photodegradable but not biodegradable, meaning the source material eventually becomes diluted in water and soil (Novotny et al. 2009). A 2009 study found that discarded filters eluted nicotine; arsenic; heavy metals including lead, copper, chromium and cadmium; and polycyclic aromatic hydrocarbons (PAHs) (Moriwaki et al. 2009). Arsenic, cadmium, and lead are included on the WHO's list of 10 chemicals of major public health concern (WHO 2016), while PAHs are carcinogenic, mutagenic, and teratogenic and the US Environmental Protection Agency (EPA) has designated 16 PAHs as priority pollutants (US EPA 2016). These findings were confirmed by Moerman and Potts (2011) who described cigarette litter as a point source for metal contamination, including aluminium, barium, cadmium, chromium, copper, iron, lead, manganese, nickel, strontium, titanium, and zinc.

The environmental health impact of chemicals leached into soil and water from cigarette butts is still to be quantified. However, the volume of filters discarded into the environment (e.g. Ocean Conservancy 2015), and identification of residual wastes from medicines, pesticides, and plastic microbeads used in cosmetics in water sources suggests that filter leachates may affect the quality of drinking water, constitute an environmental contaminant, and result in bioaccumulation in the food chain that could pose a human health hazard (Novotny et al. 2015).

Register's (2000) analysis of the freshwater daphnid (water flea), *Daphnia magna*, was the first in-depth analysis of the toxicological impacts of cigarette butt waste. Daphnids placed in a test solution of cigarette butts in distilled, deionised water, using the US EPA's 1996 standardised aquatic invertebrate acute toxicity test, revealed a "biohazard to the water flea at concentrations of more than 0.125 butts per litre, or about one butt per two gallons [7.57 L] of water" (Register 2000). While acknowledging that the precise level of real-world exposure of *Daphnia magna* to cigarette butt leachates was yet to be determined, Register argued that the results nonetheless "reveal relevant patterns" of exposure. Subsequent analysis has included studies of *Vibrio fischeri* (a gram-negative bacterium found in marine environments) and *Ceriodaphnia cf. dubia* (a freshwater flea) by Micevska et al. (2006), which found varying levels of sensitivity to cigarette butt leachates between the two organisms, that nicotine and ethylphenol were the primary toxicological compounds, and that different cigarette brands created different levels of toxicity.

Studies of larger species have returned similar results. Slaughter et al. (2011) compared the impacts of leachates

from unsmoked cigarette filters containing no tobacco, smoked cigarette filters containing no tobacco, and smoked cigarette butts consisting of smoked filters and tobacco, on marine topsmelt (*Atherinops affinis*) and freshwater fathead minnow (*Pimephales promelas*). Like Register, Slaughter and colleagues used a US EPA standard acute bioassay, and found that all three types of cigarette waste were acutely toxic to marine and freshwater fish, that remnant tobacco contributes to "a degree of toxicity above that which was conferred by the smoked filter alone", and that smoking increased the toxicity of cigarette filters (Slaughter et al. 2011).

More recently, researchers in Taiwan reported that embryos of medaka (also known as the Japanese rice fish, *Oryzias latipes*) exposed to low concentrations of leachates from unignited tobacco and filters showed elevated heart rates and accelerated development, while high concentrations resulted in lowered heart rate, suppressed development, and increased mortality (Lee and Lee 2015). Research conducted into the impact of filter leachates on tide pool snails in Australia found a 100% mortality rate among all species subjected to leachate concentration from five cigarette butts per litre soaked for 2 h, after eight days. Lower concentrations led to species-specific differences in mortality (Booth et al. 2015). Roder Green et al. (2014) measured toxicological impacts of cigarette butt leachate in urban water supplies in Berlin and found that each discarded cigarette butt has the potential to "release nicotine in concentrations higher than the threshold value of hazardous and toxic waste defined by the European Union", thus posing a significant threat to urban waterways.

### Economic costs

While a comprehensive analysis of the costs of tobacco product waste clean-up has not been done, estimates and small-scale studies point to a significant investment that is borne, for the most part, by municipal-level governments. Litter clean-up in the US costs USD 11 billion annually (Keep America Beautiful 2010), and cigarette butts comprise an estimated 25–50% of all litter items collected (Healton et al. 2011). Analysis of the direct cost of butt litter clean-up in San Francisco by Schneider et al. (2011), based on street sweeping and sewage treatment plant filtration systems costs, found the total 'recoverable' annual cost of butt litter across the city to be approximately USD 6.5 million.

Further economic cost, and significant loss of life, is caused by residential and wild fires. While the number of home structure fires caused by smoking in the US has dropped significantly in the past 35 years (Hall Jr. 2013), it remains the third most common cause of residential fire resulting in fatality. In 2014, smoking-related fires

accounted for 325 deaths and 775 injuries at an estimated cost of slightly less than USD 230 million (US Fire Administration 2016).

### Response and policy actors

The tobacco industry has been concerned for more than three decades that aesthetic and environmental concerns related to cigarette butt litter could contribute to the growing social unacceptability of smoking, advocacy action by tobacco control and environmental organisations, and regulation that holds cigarette manufacturers responsible for litter disposal (Smith and Novotny 2011). Just as it has refused to accept responsibility for smoking-related diseases, tobacco industry response to butt litter has been to shift responsibility for cigarette disposal onto smokers.

The release of the previously confidential tobacco industry documents, the result of litigation in the US since 1998, has provided valuable insights into a range of industry activities (MacKenzie and Holden 2016). The more than 88 000 000 pages in 14 618 911 documents publicly available online as of August 2016 (University of California, San Francisco. Library 2016) reveal what has been described as “the dishonest and starkly cynical nature” of transnational tobacco companies (Blanke 2002). The documents are remarkably diverse in content and format, and include industry discussions on growing environmental concerns about discarded butts among consumers and policymakers (Novotny et al. 2009).

Analysis of the documents by Smith and McDaniel (2011) demonstrates that the strategies of leading cigarette manufacturers have been to prevent butt litter becoming part of discussion around social acceptability of smoking; to avoid regulation; and to “ensure that cigarette manufacturers were not held practically or financially responsible for cigarette litter”. The industry has also recognised, however, that shifting responsibility wholly onto smokers runs the risk of alienating customers, while ignoring the problem would imply indifference, which could have negative public relations impacts. Efforts to create an image of industry concern have included smoker education, installation of street disposal bins, supplying personal ashtrays, and developing alliances with and providing financial support to environmental organisations including Keep America Beautiful.

Research into anti-litter partnerships between Keep America Beautiful, other environmental groups, and leading manufacturers British American Tobacco (BAT), Philip Morris (PM), and RJ Reynolds (RJR) reveals that they generated media coverage that focused on industry-preferred solutions such as volunteer clean-up campaigns and installation of street ashtrays. It was also found that reports mentioning Keep America Beautiful’s participation were

more often positive in their reporting of the tobacco industry, despite partnership initiatives achieving no significant change in levels of discarded cigarette butts (Smith and McDaniel 2011). Similar alliances have been established in other countries. The United Kingdom Tobacco Manufacturers Association, which represents BAT, Gallaher, and Imperial Tobacco, has established close links with Keep Britain Tidy (Rath et al. 2012), while Keep America Beautiful has affiliates in the Bahamas, Bermuda, Canada, South Africa, and Australia that have, or previously had, links with the tobacco industry (Smith and McDaniel 2011).

Potential implications for environmental organisations of such associations and benefits for the tobacco industry are examined in McDaniel and Malone’s (2012) analysis of BAT’s partnership with the United Kingdom-based Earthwatch Europe, a conservation science NGO. Their findings indicate that BAT joined Earthwatch’s Corporate Environmental Responsibility Group in 1990 and in 1998 approached the organisation with a proposal to establish a more formal relationship. Following internal discussions of the ethical implications of working with a leading cigarette manufacturer, Earthwatch accepted BAT’s proposal based on “a narrow view of its own overall organizational mission” (McDaniel and Malone 2012), and delayed making the arrangement public to protect its reputation.

Earthwatch did, however, promote the partnership with policymakers and within the NGO community in return for approximately £100 000 annually in financial support from BAT between 1999 and 2010. The alliance, the authors argue, demonstrates the ability of tobacco companies to use NGOs, including those involved in seemingly unrelated areas of advocacy, to advance tobacco industry interests (McDaniel and Malone 2012). This appears to remain the case despite BAT’s financial support of Earthwatch later being made public (Earthwatch 2016).

The company’s ability to subsequently expand its links to conservancy organisations is demonstrated by the British American Tobacco Biodiversity Partnership (2011) which, as well as the Earthwatch Institute, included Fauna & Flora International and the Tropical Biology Association during its operation from 2001 to 2015. Beyond corporate promotion (British American Tobacco Biodiversity Partnership 2011), the partnership also generated positive coverage in a leading United Kingdom daily newspaper that portrayed BAT as “the only international company to have assessed biodiversity risks across all operations and so built a strategy to tackle key issues worldwide” (Beavis 2011).

Such alliances are important examples of broader tobacco industry corporate social responsibility strategies. Given rates of mortality and morbidity caused by smoking, the concept of socially responsible cigarette manufacturers

is considered by many as inherently contradictory (WHO Tobacco Free Initiative 2003; McDaniel and Malone 2012). Palazzo and Richter (2005), however, distinguish between *transformational* corporate social responsibility, in which a corporation “demonstrates that it is willing to transcend self-interest for the sake of the common good”, and a *transactional* approach in which corporations publicise their compliance with legal and moral obligations, and make claims of fair and consistent behaviour. This second approach, they argue, remains available to the tobacco industry, but as Fooks and Gilmore (2013) have shown in their analysis of BAT, corporate social responsibility initiatives can be used effectively to counteract criticism, and to influence the tobacco control agenda by pre-empting legislation.

### Proposals for regulation and policy

In 1999, Novotny and Zhao proposed a series of measures to deal with butt waste: improved enforcement of existing litter laws; additional taxes on tobacco products to be used for environmental clean-up of production and consumption waste; provision of disposal facilities outside worksites and public buildings; and improved biodegradability of filters (Novotny and Zhao 1999). Subsequent analysis of tobacco industry strategies revealed by the release of the industry documents has resulted in potential remedies that more explicitly place the onus for dealing with cigarette waste onto cigarette manufacturers. Smith and McDaniel (2011), for example, argue that the issue of discarded cigarette butts should be reframed as one of *waste* versus *litter*. Litter, they argue, makes the problem one of disposal; waste, conversely, redirects the focus of responsibility to the producer.

Witkowski’s (2014) assessment of possible legal remedies in the US concludes that governments could utilise public nuisance law, which rests on the premise of the right to not be subjected to annoyance or inconvenience that interferes with common public rights. In this case, the public right is to be free of unsightly accumulations of discarded cigarette butts, and of inappropriately disposed toxic materials. Other suggested approaches include the use of state-level hazardous waste law, and product liability law based on the negligent design of cigarette filters and the failure of tobacco companies to warn smokers of associated environmental risks (Witkowski 2014).

Freiberg (2014) argues for pre-emptive legislation, rather than litigation, citing bills introduced in California in 2014 to ban the sale or distribution of any cigarette containing a single-use filter (California State Assembly Democratic Caucus 2014), and in Maryland in 2013 to prohibit non-biodegradable cigarette filters. While both were defeated, these bills raised the profile of the issue and

may represent a future way forward. Freiberg also raises the potential of more specific proposals, in particular a ban on all products containing the chemical bisphenol-A (BPA), including cigarette filters and a range of other consumer products, or application of existing restrictions on products containing pesticide and harmful chemical residue. He notes that a number of states have passed laws similar in intent, such as Maine which has restricted the use of *Ethylenebis* (dithiocarbamate) pesticides which are probable carcinogens (Freiberg 2014).

Increasingly, discussion of regulation has focused on ‘Product Stewardship’ and ‘Extended Producer Responsibility’ (EPR). Product Stewardship initiatives typically include the consumer and retailer as parties subject to regulation. EPR, described by Lindhqvist (2000) as a “protection strategy to reach an environmental objective of a decreased total environmental impact from a product, by making the producer of the product responsible for the entire life cycle of the product, and especially for the take-back, recycling and final disposal of the product”, explicitly puts the onus of waste management of products on the manufacturer.

Barnes’ (2011) review of EPR regulation in the US found that 32 states had enacted laws covering consumer products including automobile parts, mobile phones, mercury thermostats, paint, and pesticide containers that could serve as models for legislation on cigarette waste. However, existing EPR regulation varies, so that while disposal of new car batteries and tyres are the responsibility of the retailer, most other waste is the responsibility of the consumer. He also notes that enactment of effective EPR regulation requiring cigarette manufacturers to implement solutions for collection, transportation, and safe disposal of discarded cigarette butts would remove the economic and administrative burden from state and local government.

Curtis et al. (2014) recommended regulation that combines aspects of EPR, Product Stewardship, the Polluter Pays Principle, and the Precautionary Principle. Specific measures would include bans on single-use filters, product labelling, litigation against the tobacco industry, and waste and litter fees. Following Barnes (2011), the authors cite the precedent making retailers responsible for post-consumer disposal of car tyres and batteries. This multifaceted approach would “prevent, reduce and mitigate [tobacco product waste’s] environmental effects” by sharing responsibility for waste across the lifecycle of the product and shifting the economic costs of clean-up to the producers of the toxic product, in this case the tobacco companies (Curtis et al. 2014).

At the international policy level, the scale of butt littering has led to a growing awareness of associated problems among parties to the WHO’s Framework Convention on Tobacco Control (FCTC) (Javadian et al. 2015).



Novotny et al. (2015) have recommended that relevant Articles of the FCTC, particularly Article 18 *Protection of the environment and health of persons*, be brought to bear. The underlying tenet of the FCTC, to challenge the tobacco industry and its vested interests, they argue, can be used to support prohibition of single-use filters; litigation and economic interventions aimed at recovery of costs of industry misconduct and environmental damages; and to “innovate, improve and enforce new and existing environmental regulations and agreements” that apply to all stages of tobacco production and post-consumption waste (Novotny et al. 2015).

While significant regulation is yet to be enacted, potential industry response can be gauged by its reaction to San Francisco’s imposition of a waste clean-up levy fee of US \$0.20 per pack on cigarettes sold in the city. Freiberg (2014) describes the tobacco industry’s unsuccessful legal challenge to the regulation on the grounds that it represented an unauthorised tax, and by its significant financial support of California’s Proposition 26, a state initiative aimed at limiting the ability of local jurisdictions to adopt similar measures (Ballotpedia 2010). Philip Morris, for instance, contributed USD 1.75 million to “Stop Hidden Taxes”, a ‘front group’ funded by alcohol, tobacco, oil, and business interests to support the passage of Proposition 26.

### Australia

Despite declining smoking rates, 20 billion cigarettes are consumed annually in Australia, resulting in an estimated 7 billion cigarette butts being discarded into the environment (Scollo and Winstanley 2015). Cigarette butts were the most frequently identified litter item in 2014–2015, at 22 butts per 1000 m<sup>2</sup> (Keep Australia Beautiful 2015). Street cleaners in Sydney, the country’s largest city, collect a reported 15 000 cigarette butts each day, or nearly 5.5 million annually (City of Sydney 2016), while a litter clean-up covering just 200 metres of St Kilda Beach in Melbourne recovered 5000 butts, 25 per metre of beach (BeachPatrol 2016). Smoking is also the leading cause of fire deaths in Australia, with 7% of all bushfires caused by discarded cigarette butts and matches (Australian Bureau of Statistics 2006) despite a 2010 regulation that requires all cigarettes sold to incorporate reduced fire risk design features (Australian Competition and Consumer Commission 2016).

Policy response has been limited. The background paper to the *Threat abatement plan for the impacts of marine debris on vertebrate marine life* (Australian Government, Department of the Environment, Water, Heritage and the Arts 2009) is one of few government plans that address litter in terms of its potential environmental harms. It includes cigarette butts among its list of harmful marine

debris but regulation is currently focused on a much broader definition of litter, and particularly plastics. At the state level, New South Wales’ *Waste Avoidance and Resource Recovery Act 2001* provides for EPR schemes similar to those already discussed. The NSW EPA forms a part of a coordinated effort across other Australian jurisdictions to develop national product stewardship requirements (New South Wales, Environment Protection Authority 2015). If successfully implemented, a national EPR scheme may constitute an effective regulatory response, if it meaningfully holds cigarette manufacturers responsible for the entire lifecycle of their products. Current policy, however, continues to focus on disposal infrastructure and smoker education.

Previous research indicates that tobacco industry efforts to influence the policy debate around litter and responsibility, described above, have extended to Australia (Smith and McDaniel 2011), and preliminary analysis of annual reports, submissions, and websites of Australian tobacco companies and environmental organisations provide further evidence of these links. One particularly explicit example is the Butt Littering Trust, established by British American Tobacco Australia (BATA) in 2003. Chapman’s (2006) analysis of the Trust found that it focused on education campaigns, and that BATA start-up funding was AUD 2.8 million over four years.

BATA remains a key funder of the organisation (renamed Butt Free Australia in 2009–2010), although it was acquired by Keep South Australia Beautiful (KESAB) *environmental solutions* in January 2012 (Butt Free Australia 2016). The company’s 2012 submission to the national Standing Council on Environment and Water’s Packaging Impacts Consultation Regulation Impact Statement notes that BATA’s “direct financial contribution to the Trust and other butt litter reduction initiatives” had exceeded AUD 5 million since 2002 (BATA 2012).

Other, ongoing partnerships and sponsorships between the Australian tobacco industry and KESAB are listed in other recent submissions and reports (BATA 2012; KESAB 2015a, b). The effectiveness of these programmes was questioned by the New South Wales’ Department of Environment and Conservation as early as 2006, in a report on extended producer responsibility which noted that the “impact of current activities funded by cigarette manufacturers has not delivered a reduction in butt littering” (New South Wales, Department of Environment and Conservation 2006).

Another potential research resource is the Australian Packaging Covenant, a voluntary agreement between government and industry launched in 1999 to find solutions to minimise the environmental impacts of packaging waste through improved design and production processes and increased re-use and recycling of used packaging

(Australian Packaging Covenant 2011). BATA, Imperial Tobacco Australia, and Philip Morris Limited are among the more than 900 signatories to the agreement, and have submitted action plans and annual progress reports that highlight the need for education, butt disposal infrastructure and industry donations to KESAB (BATA 2015; Imperial Tobacco Australia 2015). Reporting to the Australian Packaging Covenant also affords the industry corporate social responsibility opportunities. Philip Morris Limited, for example, emphasises that it does “not classify cigarette butts as part of the packaging of tobacco products” (Philip Morris Limited 2010).

The company has, however, used its annual reports to the Covenant to draw attention to its formation, with competitor companies, of the Tobacco Industry Product Stewardship initiative that in 2014 funded cigarette butt recycling projects with the Australia branch of the international recycling organisation Terracycle (Philip Morris Limited 2015). Echoing schemes in other countries, Australians were invited to send collected butts using post-paid labels to Terracycle, which donated two cents (per kilogram of butts) to the school or charity of the donor’s choice (Australian Manufacturing 2014; Terracycle 2014). When industry funding was withdrawn without public explanation in December 2015, the 10.5 million butts that had been collected over the two years of the programme (Clean Up Australia 2016) represented an inconsequential proportion of the estimated 7 billion discarded into the environment annually.

The lesson arising from such associations between environmental groups and the tobacco industry for the tobacco control community and other advocacy groups, according to Smith and McDaniel (2011), is to pursue alliances with groups founded on the key environmental principles ‘reduce, reuse, recycle’. A useful practical starting point for researchers and advocates is the California Department of Public Health’s *Tobacco Product Waste Reduction Toolkit* (Novotny 2013) which provides useful information on establishing partnerships, as well as related science, methods for estimating clean-up costs, developing policy response, and mounting advocacy campaigns.

## CONCLUSION

Although evidence exists in Australia that highlights the potential impacts of discarded cigarette butts, there is a need for further research similar to that carried out elsewhere, particularly into toxicology, environmental impacts on extensive and biodiverse coastlines and wildlife, and the policy process.

Environmental organisations are the seemingly natural partners for the tobacco control community in pursuing

such research initiatives, but evidence of relationships of some environmental groups with the tobacco industry makes identifying potential allies a complicated undertaking. Research into possible policy response will need to include the role of the tobacco industry. Analysis described above points to some of the resources that could be used in such research including tobacco industry documents, submissions to government agencies, annual reports and publicity released by cigarette manufacturers, and similar material produced by environmental groups. These resources constitute a potentially valuable source of information on tobacco industry strategies to direct policy discussions towards largely ineffective disposal infrastructure, public education programmes, and well-publicised clean-up events, often in conjunction with environmental NGOs.

Australia has a relatively small population and a low national smoking prevalence, yet approximately 7 billion cigarette butts are discarded into the environment every year. This not only suggests the scale and potential impacts of butt litter in countries with larger populations and much higher smoking rates, but also highlights the obvious international applications of the research directions outlined above.

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#### AUTHOR BIOGRAPHIES

**Lucinda A. Wallbank** is pursuing her Masters degree at Macquarie University in Sydney, Australia. Her research interests include the tobacco industry, food security and health, and the impacts of climate change on health.

*Address:* Department of Environmental Sciences, Faculty of Science and Engineering, Macquarie University, Sydney, NSW 2109, Australia.

e-mail: lucinda.wallbank@mq.edu.au

**Ross MacKenzie** (✉) is a Lecturer in Health Studies at Macquarie University in Sydney, Australia. His research areas include the tobacco industry, global health governance, and environmental health.

*Address:* Department of Psychology, Faculty of Human Sciences, Macquarie University, Sydney, NSW 2109, Australia.

e-mail: ross.mackenzie@mq.edu.au

**Paul J. Beggs** is an Associate Professor at Macquarie University in Sydney, Australia. His research interests include environmental health, impacts of climate change on human health, and allergens and allergic diseases

*Address:* Department of Environmental Sciences, Faculty of Science and Engineering, Macquarie University, Sydney, NSW 2109, Australia.

e-mail: paul.beggs@mq.edu.au

## Appendix E: Ethics Approval



LUCINDA WALLBANK <lucinda.wallbank@students.mq.edu.au>

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### RE: HS Ethics Application - Approved (5201500598)(Con/Met)

5 messages

**Fhs Ethics** <fhs.ethics@mq.edu.au> To: Dr Ross MacKenzie  
<ross.mackenzie@mq.edu.au> Cc: Associate Professor Paul Beggs  
<paul.beggs@mq.edu.au>, Ms Lucinda Amy Wallbank  
<lucinda.wallbank@students.mq.edu.au>

Dear Dr MacKenzie,

Re: "Policy response to cigarette butt litter in Australia; key actors and responses"(5201500598)

Thank you very much for your response. Your response has addressed the issues raised by the Faculty of Human Sciences Human Research Ethics Sub-Committee and approval has been granted, effective 12th October 2015. This email constitutes ethical approval only.

This research meets the requirements of the National Statement on Ethical Conduct in Human Research (2007). The National Statement is available at the following web site:

[http://www.nhmrc.gov.au/\\_files\\_nhmrc/publications/attachments/e72.pdf](http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/e72.pdf). The following personnel are authorised to conduct this research:

Associate Professor Paul Beggs Dr Ross MacKenzie Ms Lucinda Amy Wallbank

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).
2. Approval will be for a period of five (5) years subject to the provision of annual reports.

Progress Report 1 Due: 12th October 2016 Progress Report 2 Due: 12th October 2017 Progress Report 3 Due: 12th October 2018 Progress Report 4 Due: 12th October 2019 Final Report Due: 12th October 2020

NB. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:

[http://www.research.mq.edu.au/current\\_research\\_staff/human\\_research\\_ethics/application\\_resources](http://www.research.mq.edu.au/current_research_staff/human_research_ethics/application_resources)

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Sub-Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

Mon, Oct 12, 2015 at 1:57 PM

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4. All amendments to the project must be reviewed and approved by the Sub-Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

[http://www.research.mq.edu.au/current\\_research\\_staff/human\\_research\\_ethics/managing\\_approved\\_research\\_projects](http://www.research.mq.edu.au/current_research_staff/human_research_ethics/managing_approved_research_projects)

5. Please notify the Sub-Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

<http://www.mq.edu.au/policy>

[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics/policy](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/policy)

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of approval to an external organisation as

evidence that you have approval, please do not hesitate to contact the Ethics Secretariat at the address below.

Please retain a copy of this email as this is your official notification of ethics approval.

Yours sincerely,

Dr Anthony Miller, Chair, Faculty of Human Sciences, Human Research Ethics  
Sub-Committee ----- Faculty of Human  
Sciences - Ethics Research Office, Level 3, Research HUB, Building C5C  
Macquarie University, NSW 2109

Ph: +61 2 9850 4197 Email: [fhs.ethics@mq.edu.au](mailto:fhs.ethics@mq.edu.au)  
<http://www.research.mq.edu.au/>

## Appendix F: Ethics Amendment



**MACQUARIE**  
University

**LUCINDA WALLBANK** <lucinda.wallbank@students.mq.edu.au>

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## Re: HS Ethics - Amendment 1 Approved (5201500598)

2 messages

**Kay Bowes-Tseng** <kay.bowes-tseng@mq.edu.au> Fri, Dec 4, 2015 at 11:32 AM  
To: Ross MacKenzie <ross.mackenzie@mq.edu.au> Cc: LUCINDA WALLBANK  
<lucinda.wallbank@students.mq.edu.au>, Paul Beggs <paul.beggs@mq.edu.au>,  
FHS Ethics <fhs.ethics@mq.edu.au>

Dear Ross, Thank you again for your amendment request. I am writing to let you know  
that the amendment has been reviewed and approved. All the best with your  
research. Kind regards, Kay Bowes-Tseng

On 30 November 2015 at 09:37, Ross MacKenzie <ross.mackenzie@mq.edu.au>  
wrote: Hello Kay,

Please find our amendment request attached. We are requesting approval to  
extend our research to include two new organisations using the same protocols,  
questions, and forms approved in our original application.

Thank you, Ross

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**Dr Ross MacKenzie**

Department of Psychology Macquarie University Sydney Australia T 9850 6393 | M 0449932747 E  
ross.mackenzie@mq.edu.au W <http://tinyurl.com/nbmvgq8> Skype ross.mackenzie15 Twitter RJM10

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expressed in this message are those of the individual sender, and are not necessarily the views of Macquarie  
University.

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**Kay Bowes-Tseng**

Faculty Ethics Officer, Faculty of Human Sciences

**Research Office** | Level 3, C5C Building Macquarie University, NSW 2109, Australia

**T:** +61 2 9850 4197 | <http://www.research.mq.edu.au/>

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