



**ACT**  
Government

Environment and  
Sustainable Development

# Interim Review of the Plastic Shopping Bags Ban



NOVEMBER 2012









## Contents

Introduction .....	5
Terminology in this report .....	6
Consumer attitudes towards the Plastic Shopping Bags Ban .....	7
Complaints received through Canberra Connect .....	7
The impact of the Ban on plastic generation.....	8
Plastic shopping bags occurring as litter in the ACT .....	9
Retailer compliance .....	11
Unintended consequences .....	12
Impact on the plastic bags manufacturing industry .....	12
Which type of shopping bag is “best” .....	12
Conclusions .....	14
References .....	15
Appendix 1: Piazza Research (September 2012) <i>Survey of Consumer Attitudes to the ACT Plastic Bag Ban</i> . .....	16
Appendix 2: Rawtec (September 2012) <i>Review of impact on ACT litter of the plastic bag ban</i> .....	<b>Error!</b>

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*Cover page image: Mugga Lane Landfill prior the plastic bag ban. Courtesy of ACT NOWaste.*



## Introduction

The *Plastic Shopping Bags Ban Act 2010* (the Act) came into effect in the ACT on 1 November 2011 following a four-month transition period. The objective of the Act is to restrict the supply of single-use, lightweight plastic shopping bags in the Territory and encourage the up-take of re-usable shopping bags. The Act was implemented in combination with a comprehensive community and retailer engagement and education campaign to ensure a smooth transition to the plastic bags ban (the Ban) and ensure lasting behaviour change.

The Act specifically bans the supply of single-use shopping bags made of polyethylene with a thickness of less than 35 microns (a micron is 1,000<sup>th</sup> of a millimetre). These bags were primarily used by supermarkets, grocery stores and take-away food outlets. The Act does not ban the supply of biodegradable shopping bags, barrier bags used to separate fresh fruit, vegetables and meat products or bags that are an integral part of a product's packaging.

Section 9 of the Act requires that the Minister review the operation of the Act as soon as practical after the end of its second year of operation. However, in December 2011 the ACT Government committed to undertake an interim review of the ban to be conducted by November 2012. This report fulfils that commitment, providing an interim review of the Ban's effectiveness in:

- changing consumer behaviours and attitudes;
- reducing plastic generation from plastic bags and achieving a net reduction in plastic generation once substitution for heavier reusable bags and bin liners is considered; and
- reducing the presence of plastic bags in the ACT's litter stream.

This interim review also assesses:

- retailer compliance with the Act; and
- unintended consequences occurring as a result of the Ban.



## Terminology in this report

<p>i) <i>Compostable (or biodegradable) bags</i> are bags that meet the Australian Standard 4736-2006 criteria.</p>	
<p>ii) A plastic bag that constitutes an integral part of the packaging in which the goods are sealed prior to sale.</p>	
<p>iii) <i>Barrier bags</i> (tear-off-the-roll bags) for perishables such as fruit and vegetables and meat.</p>	
<p>iv) <i>Heavier style retail bags</i> (boutique bags) – the type generally branded and used by stores selling higher value goods, such as department stores, clothing and shoe outlets.</p>	
<p>v) <i>Reusable shopping bags</i> are designed for multiple use, such as reusable non-woven plastic (polypropylene) bags, that are strong and durable, and can hold more than a conventional single use shopping bag. These reusable bags usually have a sturdy removable base that is manufactured from a range of materials such as nylon, polyethylene or PVC.</p>	



## Consumer attitudes towards the Plastic Shopping Bags Ban

The ACT Government procured the services of Piazza Research to survey consumer attitudes towards the Ban and to determine if consumer behaviour has changed to reduce bag usage. Piazza Research conducted telephone interviews with 600 individuals identifying as primary shoppers over October 2012. The results have a statistical error margin of plus or minus 4.1 per cent for questions that cover all 600 respondents. The full report is at Appendix 1.

The survey results indicate that the Ban has changed consumer behaviour with 84 per cent of primary shoppers now taking re-usable bags always or most of the time when they go to the supermarket. Prior to the ban only 44 per cent of shoppers were using their own bags.

The majority of primary shoppers (58 per cent) supported the ACT Plastic Bag Ban, 33 per cent did not and 9 per cent were still unsure. While the majority of shoppers from every age group supported the ban, the responses by age suggest that the younger people are, the more likely they are to support the ban.

The research indicates that people who support the Ban do so due to concerns about the environment. On the other hand, people who object to the Ban felt that it wasn't effective in reducing the incidence of plastic bags in the waste stream, it was inconvenient or objected to having to purchase bin liners to replace the shopping bags they previously used.

When asked if they'd prefer to have the ban overturned 70 per cent of ACT primary grocery shoppers disagreed. Further, two-thirds (66 per cent) of shoppers indicated that they would like the ban to be implemented nationally.

Ninety four per cent of primary shoppers indicated that they would like all plastic bags to be biodegradable. However, the literature review conducted for this report suggests that the current generation of biodegradable bags have a larger environmental impact than conventional plastic bags as well as being considerably more expensive.

## Complaints received through Canberra Connect

Canberra Connect is the ACT Government's portal to government services. It operates a call centre that allows the Canberra community to connect to government services, make payments or bookings or lodge complaints regarding government functions and operations. The call centre receives around 29,000 calls a month on average.

Data attained from Canberra Connect indicated an increase in calls relating to the Plastic Bags Ban in October and November 2011 (27 and 26 calls respectively). This equates to less than 0.1 per cent of calls received by Canberra Connect in each of these months.

Following the implementation of the ban, Canberra Connect reported an average of 1.7 calls a month relating to the ban between December 2011 and September 2012.



## The impact of the Ban on plastic generation

With the assistance of major shopping retailers, this review analysed the effectiveness of the Ban in reducing plastic generation. Not all retailers provided data so this data can only be considered representative for those chains which responded. Store data on the sales and distribution of single-use plastic bags and its alternatives was collected for periods before and after the Ban came into effect on the 1 November 2011.

A sample of bags from each participating retailer were purchased and weighed to enable a comparison of the quantity of plastic being generated for supermarket shopping bags before and after the ban. The weights were compared with values obtained in other studies in Australia and the United Kingdom.

This data was used to estimate the general trends of plastic bag retail distribution within the ACT.

The categories of bags have been identified as: single-use plastic bags; boutique (reusable) shopping bags; reusable bags; and bin liners (see Terminology above).

It was anticipated that just prior to the Ban and in the months after its implementation there would be increased sales of reusable bags. It is possible that the current rates of reusable bag purchases are transitional and the final “steady state” sale rate will be lower as:

- households accumulate enough re-useable bags to meet their requirements; and
- consumer behaviour changes so that the act of taking one’s own reusable bags becomes more habitual and entrenched.

Conversely, the current rate of bin liner sales may still be depressed because ACT households could have stockpiled large quantities of single-use plastic bags to use as bin liners, and are therefore not yet purchasing bin liners.

The Nolan-ITU study (2002, p97) predicted that with a plastic bag ban, bin liner sales would increase by 70 per cent. The ACT data available to the Government indicated average monthly bin liner sales increased around 31 per cent, less than half of the predicted increase.

Similarly, the ACT data showed a statistically significant reduction in the number of bags being distributed of 41 per cent. The average of the available data implies that there was a decrease in the mass of plastic bag material to landfill of 31 per cent. However, the last data point (June 2012) predicts an increase of 10 per cent. The long term impact of the Ban on plastic generation and plastic to landfill will be more apparent at the time of the two year review.

Decrease in total units of plastic bags	41%
Decrease in total plastic material to landfill	31%
Increase in bin liner sales by	31%

*Table 1: Retail data on plastic bag and bin liner consumption in the ACT*



## Plastic shopping bags occurring as litter in the ACT

The ACT Government procured the services of Rawtec Pty Ltd to analyse the incidence of plastic shopping bags in the ACT's litter stream. The analyses uses data from 2007-08 to 2011-12 collected via the Keep Australia Beautiful (KAB) National Litter Index audits which are conducted across Australia each November and May. The full report by Rawtec is at Appendix 2.

The Rawtec analysis shows a reduction in plastic bag litter recorded in the May 2012 audit compared to November 2011 immediately following the ban's introduction. However, the litter data is highly variable making the result less certain. Furthermore, there appears to be a trend towards a reduction in the plastic shopping bag litter prior to the implementation of the ban, although this is not statistically significant (with a correlation of 0.02).

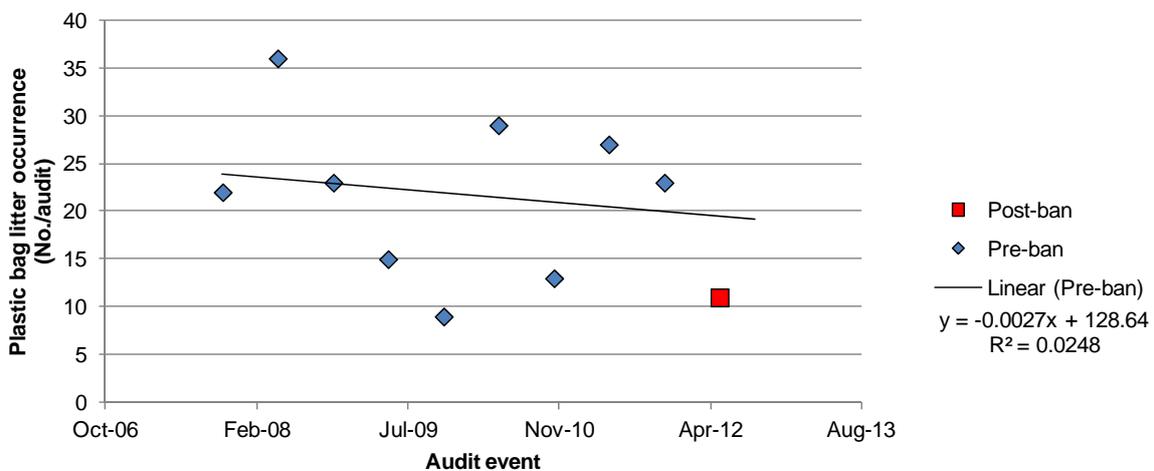


Figure 1- Incidence of plastic bag litter in the ACT 2007-08 to 2011-12

The Rawtec review concludes that there is insufficient data to determine whether the ban has had an impact on the number of plastic shopping bags in the ACT's litter stream. However, the two year review of the Ban may be able to draw more definitive conclusion as three more post-Ban data points will be available.

Two other Australian jurisdictions have also implemented a ban on plastic shopping bags. In May 2009 the South Australian Government's *Plastic Shopping Bags (Waste Avoidance) Act 2008* came into effect. The ACT's Act was closely modelled on this South Australian legislation.

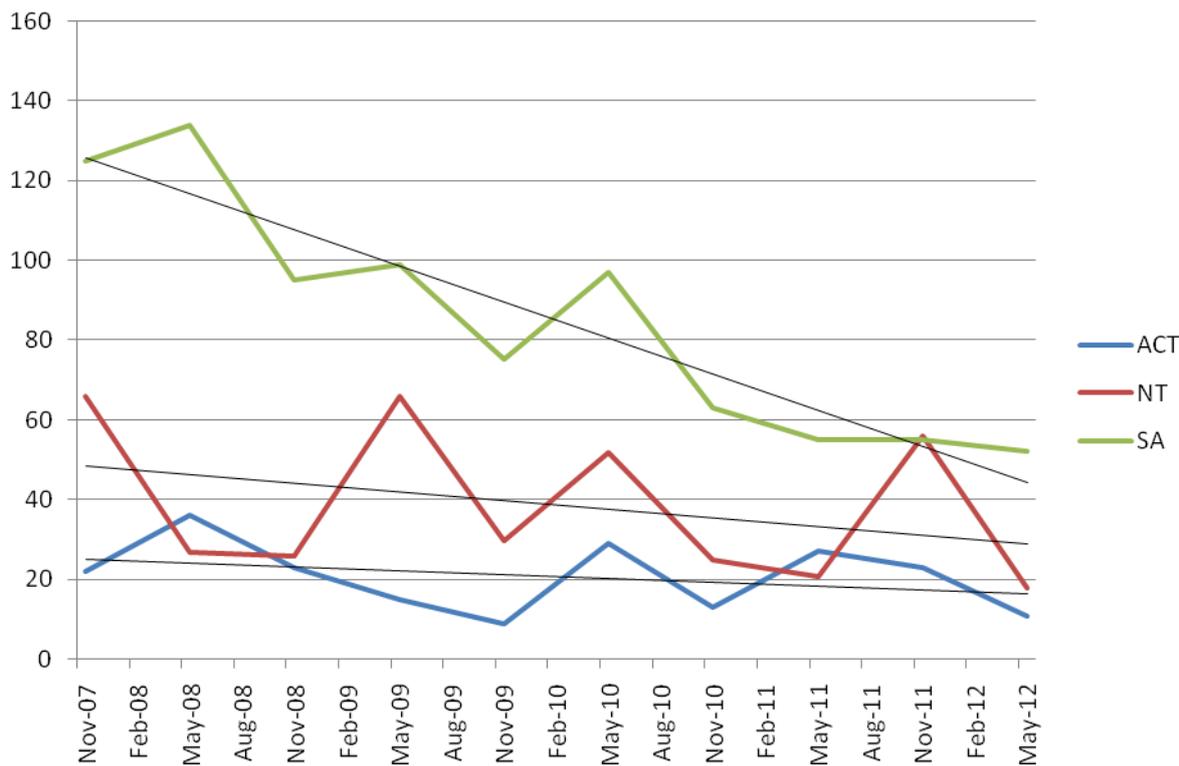


Figure 2- KAB audit data for the ACT, SA and NT 2007-08 to 2011-12

Figure 2 shows KAB data for the ACT, South Australia and the Northern Territory. The data shows a substantial reduction in plastic shopping bag litter in South Australia since the ban was introduced in May 2009.

The plastic shopping bag ban came into effect in the Northern Territory in September 2011 following a four month phase-out period. The new law in the Northern Territory also prohibits the sale or supply of lightweight, single use, non-biodegradable plastic bags. Since this time only two National Litter Index audits have been conducted. While a reduction in plastic shopping bag litter has been recorded in the most recent audit conducted in May 2012, this followed an increase recorded in the November 2011 audit. There is currently insufficient data to indicate if the introduction of the ban in the Northern Territory has reduced the incidence of plastic bag litter.



## Retailer compliance

Under Section 7 of the Act, a retailer commits an offence if the retailer supplies a plastic shopping bag to a customer to carry goods bought from the retailer. An offence against this section carries a maximum penalty of 50 penalty units.

The *Magistrates Court (Plastic Shopping Bags Ban Infringement Notices) Regulation 2010* establishes the penalty payable for an offence against the Act. The value of a penalty unit for an offence against this law is \$110 for an individual and \$385 for a corporation.

Prior to the Ban the Government established the Plastic Bag Advisory Group (PBAG) to enable a forum for dialogue between industry and Government on issues associated with the Ban.

The PBAG included business and retailer industry bodies, the major supermarkets, and representatives of the EPIC, Fyshwick and Woden farmers' markets. The group met twice leading up to the implementation on the Ban and once following the ban. The PBAG helped target the messages for retailers, made suggestions regarding signage to be used at supermarket checks outs and pamphlets for distribution to customers and well as helping to disseminate Government messages to their respective organisations or members.

Inspections for compliance with the Ban are carried out by the ACT Government Office of Regulatory Services, within the Justice and Community Safety Directorate. The ORS undertook 1,734 inspections in the period 1 July 2011 to 31 October 2011 prior to the commencement of the Ban to determine if retailers were preparing for the ban and to educate retailers with regards to their responsibilities.

Since the introduction of the Ban on 1 November 2011, and up to 22 August 2012, the ORS have undertaken 516 inspections. Of the retailers inspected since the introduction of the Ban there have been four breaches detected in contravention of S7 of the Act. Two businesses were given verbal warnings and two were given formal written warnings. No infringements have been issued.

It can be concluded that there has been a very high level of retailer compliance with the Act and that this has contributed to the Ban's relatively smooth implementation and high community acceptance levels.

**CREATE CHANGE: BYO BAGS**

ACT Government

The ACT Government will ban the supply of lightweight checkout style plastic shopping bags, starting on **1 November 2011**. Alternative shopping bags are available from this retail outlet.

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**CREATE CHANGE: BYO BAGS**

ACT Government

The ACT Government will ban the supply of lightweight checkout style plastic shopping bags, starting on **1 November 2011**. Alternative shopping bags are available from this retail outlet.

These notices must be prominently displayed so that it can be seen and read easily by a person near where plastic shopping bags are available.



## Unintended consequences

There may be a number of unintended consequences as a result of the Ban. The PBAG reported higher levels of theft of shopping baskets and shopping trolleys immediately following the introduction of the Ban. The next review will seek to determine if the high rate of theft has continued increased or return to pre-ban levels.

Another issue the major retailers reported was the need to further train staff in the use of the new bags, in dealing with aggravated customers in the first months of the ban and to reduce potential work place injuries from lifting reusable bags. This last issue arose because reusable bags are generally loaded with more groceries than single-use bags. The two year review will seek data regarding work place injury rates that may be associated with the Ban (eg checkout staff suffering strains to wrists, shoulders or backs).

The elderly and low income households were likely to be most affected by this ban as it was assumed they may be less able to afford plastic bag alternatives. Women were also likely to be disproportionately affected as around 71 per cent of food and grocery shopping is undertaken by women (Piazza, 2012). Targeted information to these groups formed a significant part of the education campaign. The impact of the ban on less privileged members of the ACT community has been addressed through a range of measures such as the provision of free reusable bags through the ACT Government Shopfronts and ACT libraries. The ACT Government in cooperation with other stakeholders distributed 13,700 free bags.

### Impact on the plastic bags manufacturing industry

Prior to introduction of the ban in the ACT, the Plastics and Chemicals Industries Association advised that there would be 13 companies across the nation that may be affected if a national phase-out occurred. There are two plastic bag manufacturers in Australia, both located in Victoria, with the vast majority of plastic bags being manufactured overseas and imported into Australia. No further information on impact of the ACT ban has been received from the manufacturing industry.

## Which type of shopping bag is “best”

One point of contention following the ban has been whether reusable bags have a lower environmental impact than the conventional single-use plastic bag. Other alternatives, particularly the biodegradable bag, the cotton bag, and the paper bag have been suggested.

In 2011 the UK Environment Agency released *Life cycle assessment of supermarket carrier bags: a review of the bags available in 2006* which reviewed the available UK and Australian studies as well as conducting its own assessment of the data. It found that the extraction and production of raw materials was the dominant contributor to environmental impact for all shopping bag types.

The Environmental Agency (2011) study found that the boutique plastic bags (available at Coles, Woolworths and Aldi for 15c as at October 2012) need to be reused 4 to 5 times (p61) to have a lower environmental impact than the single-use plastic bag - even if 40.3 per cent of the single use plastic bags were is reused as bin liners. Reusable bags needs to be used 11 to 14 times to similarly achieve a lower environmental impact.



The Environmental Agency study also found that degradable bags currently results in greater greenhouse gas emissions than single-use plastic bags (see Figure 3 below). Additionally, mixing degradable bags with conventional plastic bags in the waste stream makes it more difficult to separate and recycle these “film” plastics. However, the ACT is not presently recycling film plastics.

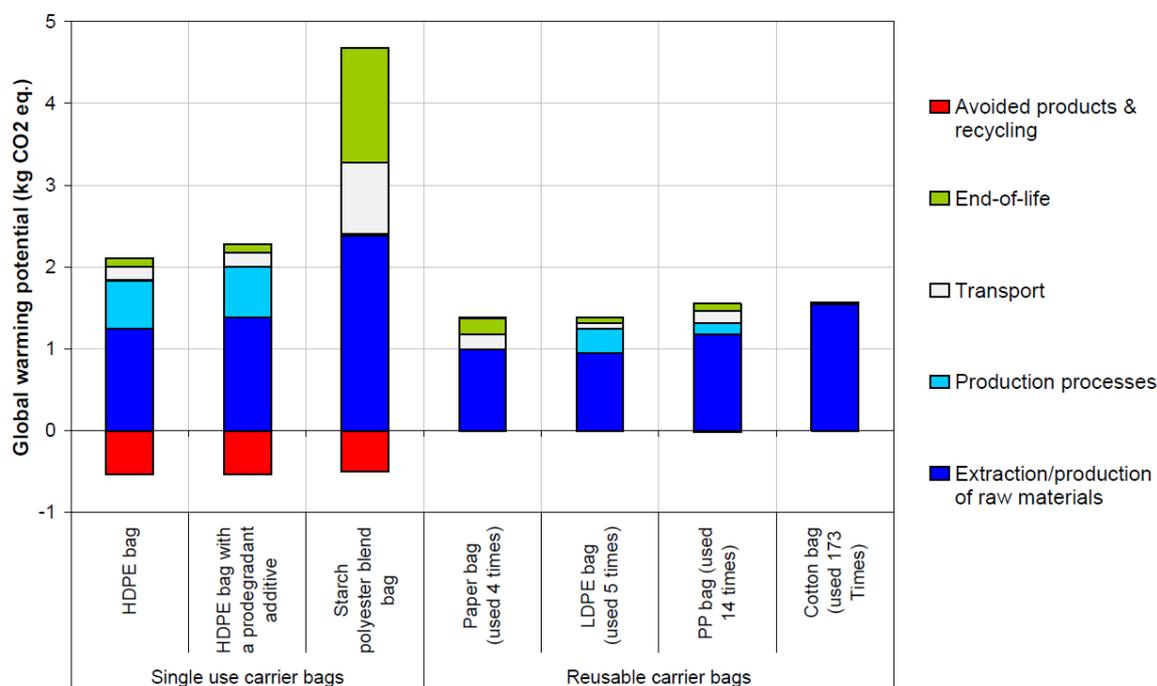


Figure 3: the global warming potential impacts of each type of carrier bag assuming each is reused to outperform a conventional HDPE bag with no reuse (reproduced from UK Environment Authority (2011) figure 5.2)

A study conducted by Nolan-ITU and RMIT in 2003 *The Impacts of Degradable Plastic Bags in Australia*, concluding that reusable bags give better overall environmental performance than single use bags, regardless of degradability. Therefore at the current state of technology, biodegradable bags are not presently the best alternative to the single-use plastic bag.

Indeed both the Environmental Agency (2011) and Nolan-ITU (2003) found that all bags made from natural materials had a higher environmental impact than plastic bags, largely associated with the upstream production and manufacture of raw materials. The Environment Agency study also found that the paper and cotton bags would need to be reused at least four and 173 times respectively to ensure that they have a lower environmental impact than the conventional single-use plastic bags. This is because the cotton carrier bag has an environmental impact more than ten times of any other carrier bag, while the paper bag takes more than four times as much energy to manufacture and 84 times more energy to recycle. Most paper bags are insufficiently robust to be reused four times.

It can be concluded that the types of bags adopted by the major retailers in the ACT have been appropriately selected as the options with least environmental impact. However, a lower impact will only be achieved in combination with consumer behaviour change. It is necessary that consumers reuse the bag alternatives to achieve an environmental benefit from the Ban.



## Conclusions

The plastic bag ban has been well received by ACT consumers, with a majority now taking reusable bag more frequently. Retailers have generally cooperated constructively with the Ban and have provided suitable shopping bag alternatives including the introduction of low-cost boutique bags.

The most recent literatures suggests that if boutique bags are reused 4 to 5 times and reusable bags 11 to 14 times then the overall environmental impact of shopping bags will be reduced.

From the data available, the Ban may have reduced the plastic bag material going to landfill in its first six months and decreased the number of bags distributed. However, it is still too early to make definitive statements in this regard.

There were less plastic bags in the May 2012 ACT litter audit, despite overall litter going up. While there is presently insufficient data to draw any conclusions for the ACT litter stream, nearly four years of South Australian experience with a similar ban has resulted in a significant reduction of plastic bags in their litter stream.



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Appendix 1: Piazza Research (September 2012) *Survey of Consumer Attitudes to the ACT Plastic Bag Ban.*

