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Northern Territory Plastic Bags Ban Review

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Executive Summary

Overview

The Northern Territory (NT) Government banned single-use plastic bags less than 35 microns thick, effective as of 1 September 2011. Northern Territory shopper observations and surveys, retail observations, and stakeholder interviews were conducted to provide an overview of the effectiveness of the NT Plastic Bags Ban (the Ban). In total 294 shoppers were included in the research. Over four supermarkets, one shopping centre, 17 retail stores were observed and four key stakeholders were interviewed. Additional analysis of litter surveys, and bin liner and kitchen tidy bag purchases were also conducted.

Shopper responses suggest that their behaviour has changed as a result of the Ban, with shoppers stating that they brought their own bags more often since the introduction of the Ban, while purchasing more bin liners and kitchen tidy bags. Shoppers stated that they were supportive of the Ban, and that it was good for the environment, not that inconvenient, and helped to reduce the litter in the environment. Litter surveys suggest that litter levels may have decreased since the introduction of the Ban.

Key stakeholders claimed that there were minimal challenges in implementing the Ban and that the introduction of the Ban went smoothly. They believe that the retailer education campaign and resources provided were very effective. The introduction of the Ban appeared to be successful to both key stakeholders and shoppers.

It is recommended that education of shoppers be undertaken to encourage greater reuse of shopping bags before an expansion of the Ban is considered. Further education around reuse of shopping bags may be considered useful to help reduce overall plastic consumption in the NT, even if an expansion of the Ban is not considered.

A high-level analysis conducted on overall plastic bag use suggests that a reduction of approximately 10.3 million plastic bags has occurred as a result of the Ban. Given the diversity of bag types that are now available of varying thickness, this high-level analysis may not necessarily indicate a reduction in overall plastic usage.

This analysis does not provide an indication of a reduction to landfill. This may or may not have occurred although this cannot be confirmed with the available data. A more in-depth analysis would be required to determine this.

Key Findings

Shopper Behaviour

The key findings from the NT shopper observations and surveys indicate that a change in consumer behaviour may have resulted since the introduction of the Ban, particularly in in-store bag use:

- 46% of respondents brought at least one bag from home with them to the store;
- 38% of respondents received at least one bag from the store;

- On average shoppers claim to bring their bags with them to the store only 5.5 times out of 10 trips since the introduction of the Ban;
- Before the introduction of the Ban, shoppers claimed to only have brought their own bags to the store 1.7 trips out of 10.

Shopping bag reuse behaviour showed some room for improvements, while disposal behaviour was relatively positive:

- Only 23% of respondents claim to reuse thick HDPE or LDPE plastic bags for the minimum required time. For these bags to be better for the environment than the single-use plastic bags they are replacing, they are designed to be used approximately ten times (James & Grant, 2006);
- More than half of the people surveyed (52%) reused their thick HDPE or LDPE bags less than this;
- 83% of shoppers dispose of their shopping bags using the general waste bin, which is the most appropriate disposal point.

Shopper Attitudes

Customer surveys undertaken suggest that support for the Ban increased since its introduction. Indications of change are compounded by the absence of pre-Ban data, as pre-Ban attitudes were recorded post-Ban. Key indications are:

- Support for the ban is high post-Ban at an average level of support of 7.3 out of 10, with 39% of shoppers rating their support level 10 out of 10;
- Survey respondents suggest that support levels have improved from a pre-Ban average support level of 6.4 out of 10.

Respondents were generally not inconvenienced by the Ban, rating it only 2.2 out of 10 on average for inconvenience, with 48% of respondents rating the Ban ‘not at all inconvenient’ (‘0’ out of 10).

Public Awareness Campaign

Six in 10 shoppers (61%) were aware of the Ban’s public awareness campaign conducted before the introduction of the Ban, which may be low due to the transient population of the Northern Territory (ABC News, 2011).

Shopper Perceived Benefits and Detriments of the Ban

Shoppers listed more benefits of the Ban to the community than detriments:

- 37% of respondents stated that the Ban is ‘better for the environment’;
- 34% of shoppers stated that the Ban had led to a reduction in litter;
- 19% of shoppers claimed that the Ban has led to a reduction in landfill;
- 18% of shoppers stated that the Ban had led to an increased cost of shopping;
- 8% of shoppers specifically stated that a detriment of the Ban was the inconvenience associated with it.

Retailer Perceived Effectiveness of the Ban & Supply of Banned Bags

The retailer observations determined that approximately three quarters of retailers (76%) still offer at least one type of shopping bag for free to their customers, but none are supplying the banned single-use plastic bags.

Stakeholder interviews determined that the implementation of the Ban went smoothly, with less challenges than expected, and no pressing ongoing challenges as a result of the Ban. Challenges that were faced included:

- Re-educating the transient NT population;
- Managing minimal resources to enforce the Ban;
- Managing leftover banned single-use plastic bag stock;
- The training of staff;
- Managing the supply and demand of the new reusable shopping bags; and
- Tears in thick HDPE and LDPE bags experienced by customers.

Bin Liner, Kitchen Tidy Bag, and Shopping Bag Sales

Bin liner and kitchen tidy bag purchases have increased since the introduction of the Ban:

- An estimated 160,000 bin liner and kitchen tidy bag units were purchased on average annually before the Ban (September 2009 to August 2011);
- An estimated 443,000 bin liner and kitchen tidy bag units were purchased on average annually since the introduction of the Ban (September 2011 to February 2014).

The total plastic bags (single-use plastic bags, reusable shopping bags, bin liners and kitchen tidy bags) are estimated to have reduced by 10.3 million per annum since the introduction of the ban. Given the diversity of bag types of varying thickness that are available, this high-level analysis may not necessarily indicate a reduction in overall plastic usage. Shopping Bag Litter

The analysis of the Keep Australia Beautiful (KAB) litter collection data indicated a slight decrease in the overall shopping bags in the litter streams, including a reduction in the banned plastic bags in the NT litter stream. The litter of heavy plastic bags appears to have remained relatively stable since the introduction of the ban. It is expected that the decrease in shopping bag litter will become more evident when additional data sets, post-Ban, are available and analysed.

Recommendations

If additional environmental benefits of the ban are sought, it is recommended that ongoing education of the NT shopper population be considered. An expansion of the Ban to include thicker plastic bags is not recommended at this stage

Ongoing Education

Over half of the people surveyed (52%) reused their thick HDPE or LDPE bags less than ten times. An ongoing education campaign may be beneficial to educate NT shoppers on the number of times for reuse of each type of reusable shopping bag to achieve increased environmental benefit. This campaign would work to remind shoppers to bring their bags with them more often to the shop.

Expansion of the Ban

Expanding the Ban to include thick plastic bags may lead to decreased environmental outcomes rather than an improvement in environmental outcomes. This is due to shoppers only remembering to bring their bags with them to the shops roughly half of the time, and the low reuse behaviour of some types of reusable shopping bags. A preferable alternative to banning thick plastic bags is to try and encourage use of biodegradable shopping bags and shopping bags made from renewable materials.

Contents

List of Tables

List of Figures

1 Introduction

1.1 Background

The Northern Territory (NT) Government banned single-use plastic bags less than 35 microns thick on 1 September 2011 as part of the *Environment Protection (Beverage Containers and Plastic Bags) Act 2011* (the Act). As required by the Act, a review of the NT Plastic Bags Ban (the Ban) was to be conducted two years after its introduction. Rawtec were appointed by the Minister for Lands, Planning and Environment to conduct this review.

1.2 Objectives

The key objectives addressed in the review of the Ban include:

- In-store shopper research conducted to:
    - Measure the change in consumer shopping bag behaviour since the introduction of the Ban;
    - Measure the change in consumer attitudes towards the Ban, before and after its introduction;
    - Measure the awareness levels of the Ban's public information campaign, prior to the introduction of the Ban;
    - Identify whether consumers are inconvenienced by the Ban;
    - Identify consumer perceived benefits of the Ban;
    - Evaluate consumer use of reusable shopping bags;
    - Measure consumer support for the Ban;
    - Measure consumer support for expanding the Ban;
    - Identify the plastic bag recycling/disposal behaviours of consumers; and
    - Evaluate the level of retailer compliance with the Ban.
- Research conducted with stakeholders to:
    - Measure the overall perceived effectiveness of the Ban from a retailers perspective;
    - Identify the perceived effectiveness of the Ban's public information campaign during the implementation of the Ban;
    - Identify issues and challenges surrounding the implementation of the Ban; and
    - Obtain store data on the sale and distribution of plastic bags, barrier bags and bin liners, prior to and following the introduction of the Ban.
- Additional data collection and analysis conducted to assess:
    - Changes in the litter rates of lightweight and heavy plastic bags prior to and after the introduction of the Ban; and
    - Changes in bin liner use before and after the Ban.

1.3 Scope of Work

The scope of work undertaken by Rawtec is outlined below:

- **Start-up Meeting;**
  - Inception and project planning meeting (phone); and
  - Inception and project planning meeting (before observations/surveys).

- **Stage One - Observations and Surveys;**
  - Develop consumer observation checklist;
  - Develop consumer interview questionnaire;
  - Creation of observation/interview tools;
  - Conduct observations/interviews;
  - Conduct retailer observations; and
  - Prepare in-store assessment feedback.

- **Stage Two - Retailer Interviews;**
  - Develop retailer questionnaire;
  - Arrange stakeholder interviews; and
  - Conduct interviews with stakeholders.

- **Stage Three - Collation of External Reports/Data;**
  - Source external reports; and
  - Organise and report on preliminary assessment.

- **Stage Four – Reporting;**
  - Write draft report (including data analysis);
  - Prepare final report; and
  - Phone meeting to go over findings.

Refer to Section 2 for a more detailed methodology of the shopper observations and surveys, Section 4 for the retailer observation methodology, Section 5 for stakeholder interview methodology and Section 6 and 7 for analysis methods of bin liner and kitchen tidy bag data, and litter data.

PART A – Shopper Behaviour & Perceptions

2 Shopper Observations & Surveys

In-store observations and surveys were conducted with NT shoppers during February 2014 to evaluate the effectiveness of the Ban. 294 respondents were observed and/or interviewed across four NT supermarkets and one NT shopping centre. Refer to Appendix 1 for a more detailed overview of the respondents included in the observations and interviews.

Statistical analysis was not part of the scope of this study. This report provides an overarching, high-level review of the behaviours, perceptions and impacts as a result of the Ban. If required, a future project could determine the statistical significance of the survey results.

Supermarket Observations & Survey

To ensure the sample of 236 supermarket shoppers were representative, three supermarkets across a number of Darwin locations and one in regional NT were included, and respondents were selected randomly. A range of supermarket chains were included in the supermarket stores selected.

The behaviours of selected supermarket shoppers were observed and they were asked to voluntarily participate in the shopper survey (see Appendix 4 for observation checklist and questionnaire). 236 observations of shoppers were made and 168 interviews were conducted across the 4 supermarkets. A high response rate of 71% was achieved, which suggests that the sample is representative of the broader NT population. Refer to Appendix 1 for an overview of the demographics of the respondent sample.

Observations were conducted in supermarkets to reduce the impact of biases including social desirability and recall error on the results incurred from other methodologies on the low involvement behaviour of shopping bag use. This increases the reliability of the results in comparison to other methods of collecting behavioural data.

Shopping Centre Survey

Two locations within a large Darwin shopping centre were used to randomly select respondents to participate in the survey. A sample size of 58 shoppers was achieved with a response rate of approximately 50%. To ensure a wide range of shoppers were included in the sample, who had shopped at a large range of stores, the two survey locations were positioned at exits to the centre. Refer to Appendix 1 for an overview of the demographics of the respondent sample, and Appendix 5 for a copy of the survey used.

Due to the nature of the shopping centre, no observations of shoppers were conducted without conducting a respondent survey. Please note that shopping bag use behaviour of shopping centre respondents were partial observations, which were assisted by respondents who agreed to participate in the survey.

3 Results

The supermarket and shopping centre survey results are compared together where possible to provide an overview of behaviours and attitudes from both shopping environments. Section 3.1 to 3.4 outline the observation and survey results in detail.

3.1 Shopping Bag Behaviours

To determine whether shoppers had brought their bags from home or if they were acquired (paid for, or received for free) from the store, supermarket shoppers were observed, and shopping centre respondents were observed with respondent assistance. 46% of respondents brought at least one shopping bag from home (see Table 1 and the more detailed version, Table 11 in Appendix 3). Supermarket respondents were more likely to have brought their own bag from home (47%) than shopping centre respondents (41%). One third of respondents (38%) acquired at least one bag from the store. The proportion of supermarket shoppers who acquired at least one bag from the store (38%) was practically no different to the proportion of shopping centre shoppers who acquired at least one bag from the store (40%).

Of all of the respondents that brought a bag from home, 4% also acquired at least one bag from the store, with shopping centre respondents more likely to acquire a bag from the store as well as bringing a bag from home (2% supermarket, 10% shopping centre).

Table 1: Shopping bag use behaviour for supermarket and shopping centre shoppers

Bag Usage	Supermarket* (n=236)	Shopping Centre* (n=58)	Total* (n=294)
Brought at least one bag from home	47%	41%	46%
Acquired at least one bag from the store	38%	40%	38%
Did not use any bags	17%	29%	20%

**Multiple response question, totals sum to more than 100%. Some shoppers brought a bag from home and acquired a bag from the store.*

The size of the shop may influence whether shoppers bring their own bag with them to the store or not. Supermarket shoppers conducting a big shop, or going through one of the big checkouts were more likely to bring their bags with them from home, with 53% of big checkout shoppers bringing at least one bag with them from home, while only 39% of express or self-service checkout shoppers brought their own bags with them from home. Express and self-service checkout shoppers are more likely to be convenience shoppers who may not have planned to go to the shops.

The size of the shop did not alter the likelihood of the shopper acquiring a bag from the supermarket. Shoppers through the big checkouts were just as likely to acquire at least one bag from the store as shoppers going through the express or self-serve checkouts (37% of big checkout shoppers acquired a bag, compared to 38% of express and self-serve checkout shoppers). Express and self-serve checkout shoppers were more likely to not have a bag at all (26%), with only 10% of shoppers through big checkouts not using a bag at all.

Bags which are not banned include several different types of bags. Refer to Appendix 2 for a description of the most commonly found shopping bag types. Some of these bags are more popular than others, which was identified in the research through observations on the type of bag(s) brought from home, or acquired from the store.

The most popular type of shopping bag brought from home were green bags, with 40% of shoppers, who brought at least one bag from home, bringing one or more green bags (see Table 2 and Table 12 in Appendix 3). This was followed by LDPE bags, with 39% of shoppers who brought at least one bag from home bringing one or more LDPE bags. The third most popular type of bag was cooler bags, with 27% of shoppers who brought a bag from home bringing at least one cooler bag.

Of the shoppers that acquired a bag from the store, the majority of shoppers (87%) obtained at least one LDPE bag (see Table 2 and Table 13 in Appendix 3). LDPE bags were more common in supermarkets (91%) than in the shopping centre (39%). In comparison other bag types were not as commonly obtained from stores, with the next most common bag type obtained from the store being green bags (5%), ‘other bags’ (5%), thick HDPE (4%) and paper bags (4%). The most common bag acquired from the store by both supermarket and shopping centre shoppers was the thick LDPE bag. This indicates that when a shopper acquires a bag from a store, they are most likely to acquire a thick LDPE bag.

Table 2: Shopping bag types brought from home (by those who brought at least one bag from home) and acquired at the store (by those who acquired at least one bag from the store)

Bag Type	Brought from Home* (n=135)	Acquired at Store* (n=112)
LDPE Bag	39%	87%
Green Bag	40%	5%
Cooler Bag	27%	2%
Other bag	19%	5%
Nylon Bag	10%	-
Thick HDPE	6%	4%
Paper Bag	1%	4%
Calico Bag	2%	-

**Multiple choice question, totals sum to more than 100%. Shoppers brought and/or acquired more than one bag type.*

Of the shoppers who acquired a bag from the supermarket, the average number of bags they acquired was 6.4 bags (see Table 3). This mean was much lower for shopping centre shoppers who acquired a bag from the store at an average of only 1.1 bags. The most common number of bags (mode) acquired from both the supermarket and shopping centre was one bag. This mode was not changed by the type of checkout that customers were served on at the supermarket (big checkout, express checkout or self-serve checkout).

Of the shopping centre respondents who obtained a bag from the store (n=23), only 52% of them paid for a bag. On average these bags cost $1.02, ranging from $0.15 up to $8.00. The most expensive shopping bag purchased from the store was a strong plastic bag with sturdy handles.

Table 3: Number of bags obtained from both supermarkets and shopping centre, mean, mode and range

Number of bags from store	Supermarket	Shopping Centre
Mode	1 bag	1 bag
Mean	6.4 bags	1.1 bags
Range	1-10 bags	1-2 bags

The 168 supermarket shoppers and 58 shopping mall shoppers that participated in the interview were asked how many trips out of 10 they take their own bags with them post-Ban to the supermarket or to the shopping centre. The results indicate that on average shoppers take their own bags with them more often to the supermarket (5.9 trips out of 10) than to the shopping centre (4.3 trips out of 10) (see Table 14 and Table 15 in Appendix 3). On average post-Ban, shoppers claim to take their bags with them to the store more than half the time (5.5 trips out of 10), which increased from 1.8 trips out of 10, pre-Ban. This is slightly higher than the observed number of shoppers from both the supermarket and shopping centre who did take their bags with them to the store (47% of supermarket shoppers took their own bags, 41% of shopping centre respondents took their own bags) (see Table 1).

Half of the respondents (49%) claim to take their bags with them to the store post-Ban on eight or more trips out of 10 (see Table 11 in Appendix 3). One third of respondents (33%) claim to never take their own bags or only take them one trip out of 10. The results indicate that there are shoppers who try to always take their own bags with them to the store and shoppers that almost never take their own bags. The shoppers who were observed without bags from home were not always the shoppers who claimed to rarely take their own bags to the store and some were those who claimed to almost always take their own bags.

Respondents were asked how many trips out of 10 they took their own bags with them to the store pre-Ban. On average, shoppers only took their own bags with them to the shop 1.7 trips out of 10, which was slightly higher for supermarket shoppers (1.8 trips/10) (see Table 14 in Appendix 3). This average may have increased significantly since the introduction of the Ban.

The results indicate that before the Ban was introduced, the majority of respondents claimed that they never took their own bags with them to the store (68%), while less than one in 10 (9%) took their own bags with them to the store most of the time (8-10 trips/10) (see Table 15 in Appendix 3). It is evident that the Ban may have helped increase the number of shoppers that bring their own bags with them to both the supermarket and the shopping centre.

Respondents were asked about their reuse of thick HDPE bags and LDPE bags. They were asked how many times on average they reused the bags before they disposed of them. For these bags to be better for the environment than the single-use plastic bags they are replacing, they are designed to be used approximately 10 times (James & Grant, 2006). As some responses were given in periods of time, rather than number of uses it is assumed that over the given period of time the bag is used once a week.

One quarter of respondents (24%) were unsure of how many times they generally reuse thick HDPE bags and/or LDPE bags before they dispose of them (see Table 4 and more detailed Table 16 in Appendix 3). 14% of respondents use the bags only once before they dispose of them (0-1 times) – this was commonly the original use from the store and then possibly reuse as a bin liner. Half of the respondents (52%) claim to reuse thick HDPE bags and LDPE bags less than the required 10 times. The high level of uncertainty as well as the low reuse of these bags suggests that education may be required to try and encourage further reuse behaviour. Only one quarter of respondents (24%) claim to reuse thick HDPE and LDPE bags for at least the minimum required number of reuse times (9-11 times or more).

Table 4: How many times respondents claimed to reuse thick HDPE and LDPE bags before disposal

Reuse Number of Thick HDPE and LDPE Bags	Supermarket (n=168)	Shopping Centre (n=58)	Total (n=226)
0-1 times	15%	12%	14%
2-3 times	15%	21%	17%
4-5 times	14%	12%	14%
6-8 times	7%	9%	7%
9-11 times	6%	14%	8%
12-20 times	9%	7%	8%
17-30 times	4%	3%	4%
>30 times	2%	7%	4%
Unsure	27%	16%	24%
Total	**100%**	**100%**	**100%**

Respondents were asked about their shopping bag disposal behaviour. The majority of respondents (83%) claimed that they disposed of their shopping bags in their household general waste bin once they had finished using them for shopping (see Table 17 in Appendix 3). This included using their old shopping bags as bin liners. Less than one in 10 respondents (8%) disposed of their shopping bags in their household recycling bin. These respondents appeared to understand that their shopping bags could be recycled, but were unaware that they could not be recycled through their household recycling bins. Only 1% of respondents claimed to use shopping bag recycling bins which are supplied at some shopping centres and supermarkets. In the NT these shopping bag recycling bins are uncommon, which is a partial contributor to the low number of respondents using this method of disposal.

3.2 Support for the Ban

Support for the Ban was measured by asking respondents how supportive of the Ban they were before, and after its introduction, where ‘10’ indicated extremely supportive and ‘0’ indicated extremely unsupportive of the Ban. Indications of change are compounded by the absence of pre-Ban data as pre-Ban attitudes were recorded post-Ban.

The support level identified was higher post-Ban, with the average level of support increasing to 7.3 out of 10 (see Table 5). This indicates a positive shift of support may have occurred since the introduction of the Ban, two years ago.

Table 5: Consumer level of support, post-Ban and pre-Ban, out of 10

Support for the Ban	Support Pre-Ban (n=226)	Support Post-Ban (n=226)
0 out of 10 -extremely unsupportive	8%	6%
1 out of 10	1%	1%
2 out of 10	4%	2%
3 out of 10	5%	5%
4 out of 10	1%	2%
5 out of 10 - neither supportive nor unsupportive	22%	16%
6 out of 10	6%	4%
7 out of 10	7%	6%
8 out of 10	12%	11%
9 out of 10	5%	8%
10 out of 10 - extremely supportive	25%	39%
Unsure/ N/A	4%	1%
Total	**100%**	**100%**
Average	**6.4 /10**	**7.3 /10**

There was not a notable difference between reported levels of support pre and post-Ban for those rating their support between zero and four, and between six and nine. There was a notable difference in reporting in those that rated their support five out of 10 pre-Ban (22% pre-Ban to 16% post-Ban). It would appear that the biggest difference in reporting of support pre-Ban to post-Ban occurred for 10 out of 10 (extremely supportive) (25% pre-Ban to 39% post-Ban).

3.3 Public Awareness Campaign

A public awareness campaign was conducted to make the public aware that the Ban was being introduced. Respondents were asked whether they recalled this public awareness campaign. Six in 10 respondents (61%) were aware of the Ban's public awareness campaign and were aware of the Ban before it was introduced (see Table 20 in Appendix 3). An additional 6% of respondents were unsure if they had seen or heard of the campaign.

Some of the respondents that were not aware of the pre-Ban public awareness campaign claimed to have moved to the NT since September 2011 and were not aware of the Ban before they had moved. Some other respondents that did not recall the pre-Ban public awareness campaign claimed to live "out-bush" or to work away. It was evident that the pre-Ban public awareness campaign did not reach the whole NT population before the Ban was introduced.

3.4 Perceived Benefits and Detriments of the Ban

To determine the level of inconvenience that the Ban causes shoppers, respondents were asked to identify how inconvenienced they are by the Ban, with '0' indicating 'not at all inconvenienced' and '10' indicating 'extremely inconvenienced' (see Table 21 in Appendix 3). On average, consumers were only slightly inconvenienced at 2.2 out of 10. Approximately half of the respondents (48%) were not at all inconvenienced (zero out of 10) and less than one in 10 respondents (9%) were more than somewhat inconvenienced (six out of 10 or higher). These results indicate that the Ban does not incur a high level of inconvenience to shoppers.

Respondents were asked the unprompted question as to what benefits or detriments they believe the Ban had brought to the community. This was a multiple choice question and respondents often provided more than one response. The most commonly mentioned benefits were that the Ban is better for the environment (37%), the reduction in litter since the Ban (34%), the reduction in waste to landfill (19%), and the reduction in the impact on waterways (14%) (see Table 22 in Appendix 3). The most commonly mentioned detriment was the additional cost of shopping (18%), followed by the inconvenience of the Ban (8%). Almost one in 10 respondents (8%) claimed that there had been no benefits or detriments to the community caused by the introduction of the Ban.

The number of people claiming the Ban is inconvenient (8%, see Table 22 in Appendix 3) was similar to the number of respondents who scored the level of inconvenience for the Ban higher than five out of 10 (9%) (see Table 21 in Appendix 3). These were not always the same respondents yet it is evident that just below one in 10 in the broader population believes that the Ban is inconvenient.

One in three respondents claimed that they believe the Ban had helped reduce the litter in the environment (34%, see Table 22 in Appendix 3) There were still some respondents (4%) who believed that the Ban had not had an impact on litter or had actually increased the amount of litter evident. Half (51%) of the respondents from the regional supermarket claimed that they had noticed a reduction in litter since the introduction of the Ban. This proportion of respondents was lower for the metropolitan supermarket locations (with 37%, 30% and 18% of respondents claiming that they had noticed a reduction in litter) and the shopping centre location (31% of respondents believed to have seen a reduction in litter).

The additional cost of shopping was the most commonly mentioned detriment of the Ban (see Table 22 in Appendix 3). This was mentioned by approximately one in five respondents from all locations. The age of the shopper appeared to have an increased impact on the additional cost of shopping being mentioned as a detriment of the Ban. For example, one in three of the respondents aged above 66 years old (n=9) mentioned that the additional cost of shopping was a detriment of the Ban, in comparison to 14% from the 26-35 year old age group, 14% from the 56-65 year old age group, 19% from the 36-45 year old age group, 22% from the 16-25 year old age group, and 25% from the 46-55 year old age group (see Table 8 in Appendix 1 for the number of respondents in each age group).

PART B – Retailer and Stakeholder Findings

4 Retailer Observations

Observations of retail stores were conducted within the NT metropolitan area to identify what types of bags the stores had on offer to their customers, and if any stores were still supplying the banned single-use plastic bags. A range of retail stores were included in the observations including at least one clothes store, supermarket, department store, discount store, liquor store, pharmacy, jeweller, butcher, bookshop, take away store, gift shop, home-wares store, handbag store and shoe store.17 stores were observed from three different shopping precincts in the NT metropolitan region. Refer to Appendix 6 for an example of the retailer observation checklist.

Table 23 in Appendix 3 outlines the number of stores that had each bag type on offer to customers, and the number of stores that charged each price range for the bags. None of the observed retailers had on offer the banned thin HDPE plastic bags. This suggests that the majority (or potentially all) of retailers within the NT are abiding by the Act which banned single-use plastic bags less than 35 microns thick.

The most popular type of bags on offer from all retailers were the thick HDPE bags (offered by seven stores), thick LDPE bags (offered by seven stores) and green bags (offered by seven stores) (see Table 23 in Appendix 3). Approximately three quarters of the retail stores observed (76%) offered at least one bag type for free to customers. This was most commonly the thick HDPE bags (offered for free by six stores), thick LDPE bags (offered for free by four stores) or paper bags (offered for free by four stores).

The ‘other’ types of bags available included nylon bags (offered by three stores), woven plastic bags (offered by one store), biodegradable plastic bags (offered by two stores), cardboard boxes with shoestring attached (offered by one store), and hessian bags (offered by one store).

The cost of bags to customers ranged from free to $7.99, with the most expensive bag on offer being a large green bag. This is slightly cheaper than the highest price a respondent shopper paid for a reusable shopping bag ($8.00, see Section 3.1).Generally, stores that charged for bags charged $0.10 to $0.20 for thick LDPE bags, $0.99 to $1.00 for green bags and $2.49 to $2.50 for cooler bags.

The thickness of each bag was not measured during this study and would require further investigation to confirm that all bags were thicker than the Act’s requirements. Biodegradable bags were also not tested as part of this study, and would once again, require further investigation if their biodegradability were to be tested. From these observations alone, retailers appeared to be abiding by the Act and these additional investigations should not be required.

5 Stakeholder Interviews

Four key stakeholders in the Ban were interviewed over the phone to determine how effective they believe the retailer education campaign was, what challenges they faced during the implementation of the Ban, any ongoing challenges related to the Ban, and how they believe the community adapted to the Ban (see Appendix 7 for a full list of questions). These four stakeholders included the key personnel from the governing body, two major supermarket chains, and an additional associated Government Department. An overview of the responses from these stakeholders are provided in Section 5.1 to 5.4.

Additional stakeholders involved in the Ban's working group were also contacted. The retailers involved with these stakeholder groups had already removed plastic bags from their stores prior to the introduction of the ban (some as early as 1992), and were unable to comment on the impact of the Ban on their retailers or their local community. The majority of these retailers were from regional areas that had moved to providing free paper bags to customers. This was evident in a 2006 Clean Up the World survey, which indicated that 100% of surveyed remote stores had banned plastic bags.

5.1 Retailer Education Campaign & Resources

All of the stakeholders interviewed stated that the level of effectiveness of the retailer education campaign provided for the implementation of the Ban was eight out of 10 (see Table 24 in Appendix 3). This is considered highly effective. Stakeholder comments included that:

- Retailers were asking for more packs to be sent out, due to their effectiveness;
- The packs were modelled on those provided for the South Australian Plastic Bag Ban, which made it easier; and
- The additional signage was great, as sticking the signs on checkouts meant that retail staff members didn't have to 'sell' the Ban to customers.

The stakeholders were asked about how effective they believed the retailer resources provided with the retailer education campaign were on an 11 point scale (see Table 25 in Appendix 3). Three out of four stakeholders gave a response of eight out of 10 and one stated the resources were at a level of nine out of 10 effectiveness (see Table 25 in Appendix 3). This provided an average of 8.25 out of 10, which indicates that the resources provided with the retailer education campaign were considered highly effective by all stakeholder groups.

Stakeholders commenting on the resources and retailer education campaign mentioned the wide-reaching community education campaign and stated that it was good they could blame the Government for the Ban. Another stakeholder commented that there were some wrinkles in the resources for retailers at the beginning of the implementation phase of the Ban, but these were thinned out quickly. Another mentioned that the leaflets available to customers were helpful.

5.2 Challenges Surrounding the Ban

Stakeholders were asked whether there were any challenges surrounding the implementation of the Ban. There were no clearly recurring challenges that each stakeholder faced. Some of the challenges stakeholders claimed to have faced with the implementation include:

- The transient population – needing to re-educate customers consistently due to the high proportion of tourists and the moving population within the NT;
- Ensuring staff and stores were ready for the Ban;
- Managing minimal resources to ensure the Ban was implemented and enforced;
- Communications between head offices interstate and stores/stakeholders in NT;
- Managing the leftover stock of banned plastic bags (particularly for smaller retailers);
- Supply and demand of cheap shopping bags to stores was an issue for one retailer at first who absorbed some costs by providing expensive bags for cheaper if the cheap bags ran out; and
- Tears in bags caused some tension between customers and staff, as well as unhygienic bags.

Sourcing acceptable bags to supply to customers was mentioned as a challenge for some retailers as most of the biodegradable bags available did not meet Australian Standards. Most retailers needed to move to thicker plastic bags.

How the stakeholders managed these challenges and mitigated potential challenges included:

- Managing communications with retailers at the ground level;
  - Holding workshops with retailers throughout the NT; and
  - Visiting stores to ensure the implementation process was being followed;
- Ensuring staff were appropriately trained, e.g. having a specified staff member training others in how to manage the Ban, how to communicate with customers and how to 'sell' the Ban (this conversation could have been particularly hard for young employees), and ensuring they were aware of potential complications of the Ban;
  - Ensuring staff knew to escalate any issues to senior staff members;
- Providing customers with free bags if required to replace existing bags (at the beginning), and ensuring customers were aware of the minimum requirements for their reusable bags (cleanliness and state of bags);
- Ensuring point of sale signage were in place in retail stores;
  - Making sure this point of sale material was prominent on checkouts; and
  - Ensuring all retailers received education packs;
- Discussions at the working groups ensured that retailers were heard and that there was alignment with the retailers and NT Government messages;
- Ensuring customers were aware of the sustainable nature of the Ban – it was partially a status symbol for the NT, and it was the socially acceptable thing to do, so making sure this was communicated helped – it also helped to educate customers about the Ban;

- The widespread marketing/awareness campaign helped to reach customers and retailers that could not be reached otherwise – these helped to refresh and remind customers in the beginning;
    - Fact sheets provided were considered important to some of the small retailers in particular; and
    - Social media helped carry the message to help community expectations to change;
- The lessons learnt from the implementation of the South Australian Plastic Bag Ban were helpful to those who had been involved – these lessons helped others find their feet; and
- Discussions with NT Government bodies helped retailers alleviate some potential challenges.

Being able to apportion responsibility to the NT Government for the introduction of the Ban was named as helpful to manage the implementation of the Ban by two of the stakeholders. The extensive lead time was mentioned by one stakeholder as helping to reduce challenges. One stakeholder specifically mentioned that they expected more challenges than occurred during the Ban's implementation.

Two stakeholders stated that they had experienced no ongoing challenges in relation to the Ban. Some of the ongoing challenges listed by the other stakeholders, along with how some of these challenges are potentially mitigated were mentioned:

- Training and retraining staff on procedures related to the Ban is an ongoing challenge;
- Customers still need to be educated on why the Ban is in place (reminding them along with the transient population) – extending the media campaign might help this;
- Ensuring 15 cent bags are available so that customers have a cheap option if they don't have a bag – this is considered to be important for customer relation;
- Well defined operational routines were named as one thing existing within the organisation that made implementation of the Ban easy and ongoing management of the Ban easier;
- Enforcement of the Ban has been an ongoing issue, particularly being able to actively visit retail stores through the NT; and
- Evaluation of the increase or decrease of volumes of plastic to landfill. .

There are no pressing ongoing issues as a result of the Ban. It is important that customers are still made aware that the Ban is in-place, particularly for the transient population of the NT. Being able to provide customers with a cheap option for shopping bags at the store appears to be an important issue which only became apparent when customers did not have access to a cheap alternative.

5.3 Community Adaption to the Ban

The stakeholders were asked how they believe the community adapted to the Ban and the responses from all four were positive:

- "The community responded effectively";
- "Customers were well informed";
- "The implementation went remarkably well"; and
- "The Ban was well implemented in the NT".

All stakeholders mentioned that the implementation went very well and helped with the smooth introduction of the Ban. A number of the stakeholders were surprised, stating that they were anticipating issues:

- "The introduction and community reaction went more smoothly than expected";
- "There have only been three complaints since we started";
- "There were not a lot of customer complaints… there was not a lot of noise from the NT so therefore I think it went really well";
- "Customers were well informed, it could have gone a lot worse"; and
- "We were surprised nothing happened".

A couple of issues within the community were mentioned by the stakeholders:

- People didn't like to spend money on the bags; and
- Cashiers said that people grumbled about the Ban, but that they got used to it.

The stakeholders referenced their experiences with the South Australia Plastic Bag Ban, the good dialogue about the Ban in the media messages, and the NT Government taking on retailer concerns, when discussing how well the implementation of the Ban went:

- "The Government listened [to the retailers concerns] even if they didn't understand why it was a concern"; and
- "The Government used the timeline consistent with what was proven to be expected and it worked".

From the stakeholders' perspective, it was believed that the community responded well to the Ban.

5.4 Additional Comments

During the interviews, a number of the stakeholders made additional comments in relation to the Ban. These included:

- The Ban was seen as the socially acceptable thing to do;
- It is unclear as to whether the customers still feel like they're getting value for money;
- We would not push for the Ban ourselves. We are happy to comply with legislation and the customers don't seem to mind doing it, but does it really lead to a reduction in plastic?;
- The Ban should lead to a real reduction in polymer going into the environment, however it is unclear if this is a real change or just a perceived change;
- It's evident that the heavier plastic bags still end up in the environment;
- It is unclear how many of the heavier plastic bags have ended up in the rubbish (rather than being reused) or ended up in the environment as they last longer than the banned single-use plastic bags; and
- The Ban went much better than some other examples. For example, one area banned plastic bags and promoted their plastic bag ban to the community, but then revoked their plastic bag ban just before it was to be implemented. This caused backlash from the customers as the revocation of their plastic bag ban was not communicated to the community.

PART C – Bin Liners & Kitchen Tidy Bags

6 Bin Liner, Kitchen Tidy Bag, and Shopping Bag Sales

An underlying concern of any plastic bag ban is the increase in bin liner and kitchen tidy bag sales. A high proportion of the population were known to use the banned single-use plastic bags as bin liners and for other purposes around the home. The replacement bags, which are considered reusable bags (see list of shopping bags in Appendix 2) are often not suitable for the range of uses that the single-use plastic bags were. Removing the supply of the single-use plastic bags suggests that an increase in sales of replacement plastic, such as bin liners and kitchen tidy bags, would occur. Data has been collected from the key industry stakeholders that supplied the single-use plastic bags, as well as the NT Government to determine whether this increase in other items has occurred since the introduction of the Ban.

6.1 Sales Pre-Ban and Post-Ban

An overview of the analysis of NT supply data for the banned single-use plastic bags, sales data for the total reusable shopping bags sold and the sales data for bin liners and kitchen tidy bags is detailed in Table 6. The data outlined in this table is calculated based on the available data provided by industry and covers the period from September 2009 to August 2011 (pre-Ban) and September 2011 to February 2014 (post-Ban). Full data-sets were not available for all categories for all periods from industry sources. For the periods where data was not available for a relevant retailer, figures provided by the other retailer for the period were extrapolated, weighted for the estimated proportion of the market that the missing retailer comprised within the given category. This best estimate enabled Table 6 to provide an overview of the estimated sales for each category for the selected time periods.

Table 6: Estimated per annum average NT sale/unit figures for banned single-use plastic bags, reusable bags, and bin liners and kitchen tidy bags from before and after the Ban

	Pre- Ban	Post-Ban
Banned Single-Use Plastic Bags	31,502,000	0
Reusable Shopping Bags	256,000	7,298,000
Bin Liners and Kitchen Tidy Bags	8,000,000	22,150,000
TOTAL	**39,758,000**	**29,448,000**

**Source:* *Available data from retailers in the NT*

These calculations identified that before the Ban was introduced in September 2011, on average approximately 31.5 million single-use plastic bags were given away per annum at major supermarkets in the NT (see Table 6). Since the Ban, these bags were no longer supplied to customers by supermarkets and were replaced with reusable bags.

Before the Ban was introduced, reusable shopping bags sales averaged approximately 256,000 per annum, which increased to an estimated average of 7.3 million per annum after the introduction of the Ban (see Table 6). This is an increase in the number of reusable shopping bags by approximately 28-fold since the introduction of the Ban.

An increase in the sales of bin liners and kitchen tidy bags is evident since the introduction of the Ban. Retailers provided data on ‘unit’ sales. The unit comprises from three to 75 individual bin liners or kitchen tidy bags. The median (50) was utilised to calculate the actual bag numbers. Retailers advised that 160 000 bin liners and kitchen tidy bag units were purchased per annum before the Ban was introduced. 443 000 bin liner and kitchen tidy bag units were purchased per annum after the introduction of the Ban.

Table 6 indicates that the number of plastic bags used in the Northern Territory has reduced by approximately 10.3 million since the introduction of the Ban. It must be acknowledged that some reusable shopping bags may be up to five times thicker than the banned single-use plastic bag. The reusable shopping bags are designed to be reused multiple times (e.g. 10 to 104 times, depending of the type of shopping bag) so it would be expected that the number of reusable shopping bags purchased in the Northern Territory may plateau or reduce over time.

This analysis does not provide an indication of a reduction to landfill. This may or may not have occurred although this cannot be confirmed with the available data. A more in-depth analysis would be required to determine this.

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PART D – Litter Analysis

7 Lightweight & Heavy Plastic Bags Litter Analysis

Data from the Keep Australia Beautiful (KAB) Annual Litter Index were analysed to determine the change in litter of plastic bags before and after the Ban. This data are collected by KAB bi-annually within the Northern Territory. The data collation involves the collection of litter, which is documented, from the same 72 specified sites within the NT. The single-use plastic bags (lightweight plastic bags) and some reusable shopping bags (heavy weight plastic bags) are two of the litter items documented (KAB 2013a, 2013b, 2012, 2011, 2010, 2009, 2008).

Single-use plastic bags are described by Keep Australia Beautiful as ‘lightweight plastic shopping bags’ (KAB, 2013a). Reusable shopping bags (thick HPDE and LDPE plastic bags) are thicker than light plastic bags and are described by Keep Australia Beautiful as ‘heavier glossy, typically branded, carry bags’ (KAB, 2013a).

Analysing the results from the biannual NT litter collection allows a comparison of the plastic bag litter evident within the NT before and after the Ban. Table 7 indicates the total number of plastic bags per 1,000m^2 of surveyed land, as well as a breakdown of the heavy and lightweight plastic bag items collected across the Territory from all 72 sites, from November 2007 to May 2013. The results are presented for every 6 months before and after the introduction of the Ban within this time period.

Table 7: Heavy, lightweight and total plastic bag litter items collected before and after the Ban

Collection	Heavy Plastic Bags (# litter items)	Lightweight Plastic Bags (# litter items)	Total Plastic Bags (# litter items)
Pre-Ban			
November 2007	1	66	67
May 2008	6	27	33
November 2008	6	26	32
May 2009	6	66	72
November 2009	3	30	33
May 2010	4	52	56
November 2010	1	25	26
May 2011	2	21	23
November 2011*	4	56	60
Average	*4*	*41*	*45*
Post-Ban			
May 2012	4	18	22
May 2013	3	16	19
Average without outlier	*4*	*17*	*21*

**November 2011 data better represents pre Ban, as it includes found months of pre Ban data.*

Source: Keep Australia Beautiful National Litter Index Annual Results Tabulations, 2007/08, 2008/09, 2009/10, 20010/11, 2011/12, and 2013/13.

Table 7 indicates that there has been a notable decrease in the average number of plastic bags littered pre and post-Ban. An average of 45 plastic bags were found in the litter survey before the introduction of the Ban. This was made up of an average of four heavy plastic bags and 41 lightweight plastic bags. Post-Ban, the total average littered plastic bags reduced by 53% to 21 bags. Despite the increase in the usage of heavy plastic bags (see Table 6), the number found in the litter stream has not increased (four). A possible explanation for this may be the reuse of such bags as indicated in Table 4.

An outlier appears in the data for November 2012. This outlier may have been the result of a tipped over rubbish bin or an illegal dumping. It has not been included in Table 7 as it may have an impact on the validity of the results. With this outlier included there is still a reduction of 20% in littered plastic bags post ban. Heavy plastic bags contain more plastic and, as the name suggests, are heavier than light plastic bags and take longer to break down in the environment when they are littered. The litter from heavy plastic bags within the environment may have an adverse impact on the environment, if an increase in this litter occurs in future analyses. It is possible that a further reduction in lightweight plastic bags will occur over time as they are no longer freely available from stores. Providing that an increase in heavy plastic bags litter does not equal the level of pre-Ban lightweight plastic bag litter, the change in litter as a result of the Ban should be environmentally beneficial.

It is recommended that a full statistical analysis of plastic bag litter be conducted in two to three years' time once additional data points are available for the KAB data and statistically significant conclusions can be assessed.

Figure 1 indicates that here has been a notable decrease in all areas where plastic bag litter was collected pre and post-Ban. This figure excludes the outlier data from November 2012, which indicated a notable increase in plastic bags post-Ban in highway areas.

This result is reflective of the level of perceived litter (see Section 3.4). When respondents from the shopping surveys were asked unprompted about the benefits of the Ban, 34% of them named the evident reduction of litter in the environment (see Section 3.4).

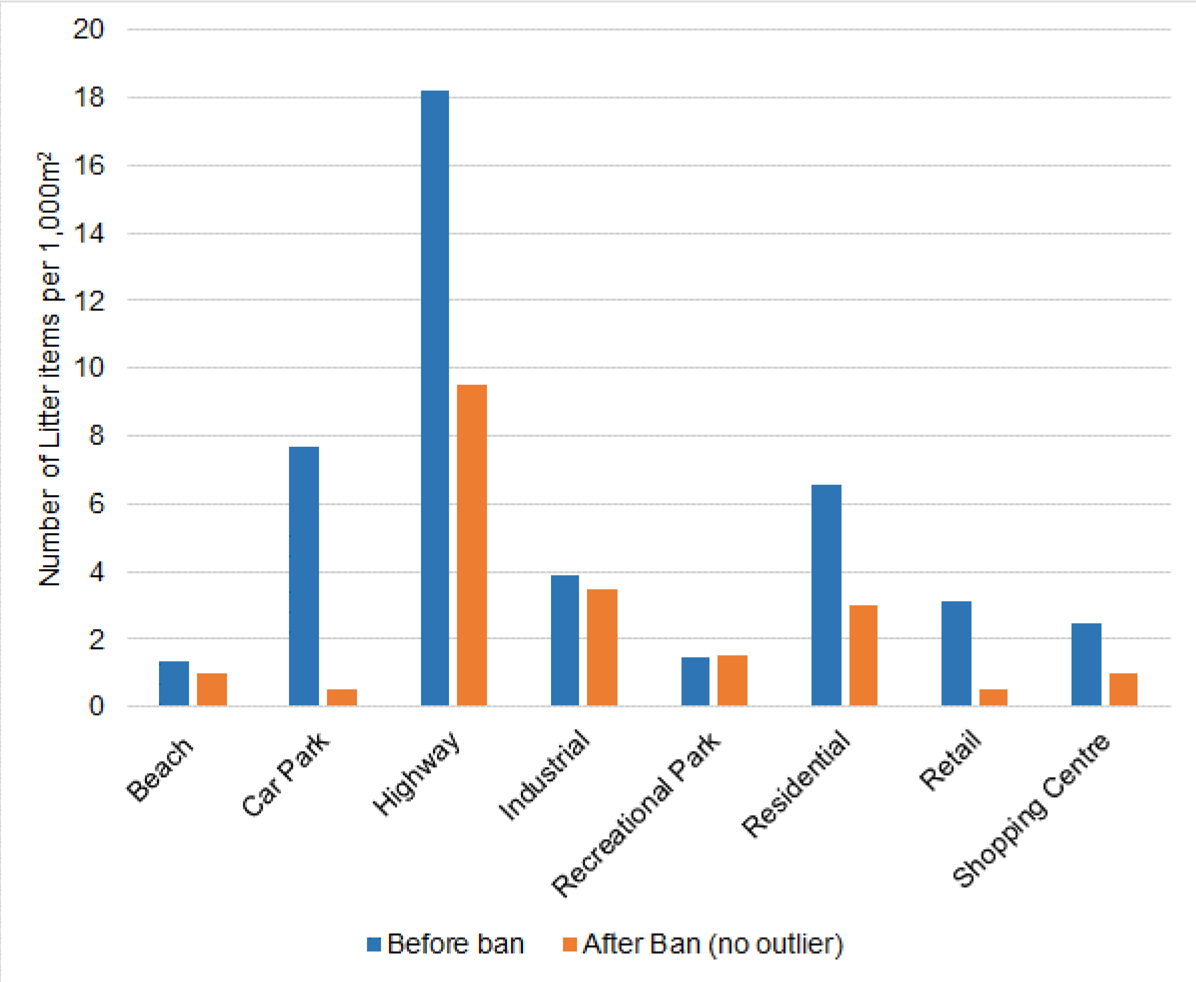

Figure 1: Average number of plastic bag litter items collected before and after the Ban, by collection location type

**Figure 1 does not include the outlier of November 2012.*

KEY FINDINGS AND RECOMMENDATIONS

8 Key Findings and Recommendations

8.1 Shopper Behaviour Change

The results from the shopper observations and surveys found that a change in shopper behaviour occurred as a result of the introduction of the Ban. Before the introduction of the Ban, shoppers claimed to bring their own bags with them to the store only 1.7 trips out of 10, on average. Since the introduction of the Ban, shoppers claim to now bring their own bags with them to the store 5.5 trips out of 10 on average. This claimed behaviour appeared to align generally with the observed behaviours, with approximately 46% of shoppers observed to bring at least one bag with them from home to the store and 38% of shoppers receiving at least one bag from the store.

8.2 Public Awareness Campaign

The NT public awareness campaign for the Ban before and during its introduction was an element of the Ban that helped ensure its smooth implementation. This public awareness campaign had reached six in 10 shoppers, with an awareness level of 61% of shoppers. This is high awareness levels compared to standard advertising campaigns. One third of the population (34%) claimed to not have heard of this campaign previously. An even higher level of awareness may have been achieved if the NT population were less transient (ABC News, 2011). The NT's population includes a high number of tourists, new residents from interstate and overseas, and a high number of residents who work away, whom may have not had a chance to see the public awareness campaign as they were not in the NT (or did not have easy access to media channels) while it was in the media. Shoppers from these populations were generally noted as not having heard or seen the campaign.

8.3 Ongoing Education

The behavioural change results indicate that only half of NT shoppers remember to bring a bag with them to the store from home (46%) and more than one third (38%) are still buying bags from the store. There is room for improvement to try and increase the proportion of the NT population that do remember to bring their own bag to the store, and to reduce the number of shoppers that purchase bags from the store.

The results suggest that there is room for additional education on the number of times each reusable shopping bag should be used before disposal. The results from the survey indicate that almost half of the population surveyed (45%) use thick HDPE and LDPE bags less than five times before they dispose of them. These bags are designed to be used approximately 10 times before disposal to ensure they are better for the environment than the single-use plastic bags they are replacing (James & Grant, 2006).

The majority of shoppers appear to be disposing of these bags using the best available method (general waste bin, 83%). An opportunity exists for shopping bag recycling bins to be located in shopping centres and supermarkets for use by shoppers as these are not currently widely available.

At present, awareness of the Ban does not appear to be an issue, with the transient population adjusting reasonably easily to the Ban with the assistance of the cheap, reusable shopping bag options. Ongoing use of point of sale signs that inform shoppers of the Ban, may be considered helpful in reducing potential unpleasant communications between the transient population and retail staff.

An education campaign may be required to educate NT shoppers on the required number of times for reuse of each type of reusable shopping bag. This campaign would work to remind shoppers to bring their bags with them more often to the shop (to try and increase the average of only 5.5 times out of 10 trips). It would work towards making the transient population of NT aware that the Ban is in place.

Further education could be used to reduce the number of reusable shopping bags purchased and the number of bin liner and kitchen tidy bags purchased, which would help to further reduce the amount of plastic used within the NT.

8.4 Ongoing Support for the Ban and Shopper Perceptions

Surveys suggest that support for the Ban may have increased slightly from before the Ban was introduced. Indications of change are compounded by the absence of pre-Ban data as pre-Ban attitudes were recorded post-Ban. The results indicate that before the Ban was introduced, NT shoppers may have had a positive, but low level of support for the Ban at an average level of 6.4 out of 10. Since the introduction of the Ban, the average level of support for the Ban was reported to be 7.3 out of 10, which is a medium to high level of support overall.

The majority of shoppers reported that they were not inconvenienced by the Ban (average of 2.2 out of 10). Only 3% of the shoppers claimed to be extremely inconvenienced by the Ban compared to half of the shoppers (48%) claiming to be not at all inconvenienced by the Ban.

Perceptions of the impact of the Ban on the community were mostly positive, with many benefits of the Ban named by shoppers. These benefits included that the Ban is better for the environment (37% of shoppers mentioned this benefit), the reduction in litter (34%), the reduction in waste to landfill (19%) and reducing the impact on marine life (14%). A few detriments that the Ban had brought to the NT community were mentioned including the additional cost of shopping (18% of shoppers).

8.5 Retailers & Stakeholder Perspective

Retailer observations conducted in Darwin indicated that retailers were abiding by the Act and not supplying shoppers with single-use plastic bags less than 35 microns thick. Policing of the Ban may not be a high priority issue for the NT Government to be concerned about.

Stakeholder interviews conducted, including two major retailers, determined that the implementation of the Ban went smoothly, that the community reacted better than expected to the Ban, and that minimal challenges were faced. The stakeholders spoke highly of the retailer education campaign and resources provided by the NT Government, rating these eight out of 10 and 8.25 out of 10, on average. They also spoke positively of the working groups between industry and NT Government, and being able to ‘blame the Government’ for the Ban, enabling retailers to remove some potentially unpleasant situations for their staff members.

A few challenges were faced during the implementation of the Ban, including retailers ensuring staff were well trained for the implementation, ensuring communications about the Ban were heard at retail ground level as well as in the interstate head offices, managing leftover stock of the banned bags, and balancing supply and demand requirements for the new reusable shopping bags. These issues were generally well managed or were worked out quickly. Ongoing challenges mentioned included the transient population of the NT and ensuring retail staff avoid unpleasant communications with these customers as a result of the Ban, training and retraining staff on procedures related to the Ban, ensuring cheap reusable bag alternatives are available to customers, enforcement of the Ban, and determining whether the Ban has brought actual environmental benefits such as a reduction in landfill. Through education, ongoing training of staff and further research into the environmental impacts of the Ban, the majority of these ongoing issues can be easily managed.

8.6 Bin Liners and Kitchen Tidy Bags

The supply of single-use plastic bags has reduced from approximately 31.5 million bags per year provided in the NT alone to none since the introduction of the Ban. A clear increase in the purchase of bin liners and kitchen tidy bags has eventuated as a result of the Ban. Within the NT, the unit sales of bin liners and kitchen tidy bags increased from 160,000 units per annum to 443,000 units per annum since the introduction of the Ban. This is almost a three-fold increase in unit purchases, of which three to 75 plastic bags are supplied per unit purchase. An additional 7 million reusable shopping bags have been purchased per annum since the introduction of the Ban, in comparison to sales before the introduction of the Ban.

An environmental evaluation on the weight of the overall consumption of plastic, or plastic to landfill, has not been undertaken, thus the direct environmental impact or benefit of the Ban is uncertain. The indirect environmental benefits should be noted including the additional prompt for shoppers to consider reuse behaviours in a context wider than the Ban.

8.7 Litter

Detailed litter analysis determined that a notable decrease in litter is beginning to occur in the litter stream, which is aligned with the introduction of the Ban, particularly in the litter of lightweight plastic bags (banned plastic bags).The littering of heavy plastic bags appears to have remained stable. Future analysis with additional data sets is required to determine the full effect of the Ban on shopping bag litter.

Analysis of additional future data of the litter stream is expected to show a continued decrease in the lightweight plastic bags in the litter stream, and for the heavy plastic bags in the litter stream to reach a plateau at a number less than that of the lightweight plastic bags litter before the Ban. Overall litter numbers of bags is expected to decrease. The overall weight of the litter may not reduce. .A perceived decrease in litter as a result of the Ban was evident through the results of the shopper surveys, with 34% claiming to have noticed a reduction in litter, including 51% of shoppers from regional NT.

8.8 Expansion of the Ban

Expanding the Ban to include thick HDPE and LDPE plastic bags is a controversial issue. The idea behind banning thicker plastic bags as well as the single-use plastic bags would be to try and further increase reuse behaviour (as there are no cheap and minimal free bags available), and to try and reduce litter further., Due to only half of the NT population bringing their own bags with them to the store, since the introduction of the Ban, it is unclear if a further increase in the cost associated with forgetting to bring bags to the store would be enough to encourage reuse behaviour.

If the expansion of the Ban is introduced, the number of uses required per reusable shopping bag will increase overall (due to the use of thicker bags).It is not clear if this will align with an increase in reuse behaviour of shoppers, or if shoppers will continue to use them too few times before disposal.

A preferable alternative to banning all plastic bags is to try and encourage use of biodegradable shopping bags and shopping bags made from renewable materials. For example, if retail stores provided biodegradable bags to shoppers that did not remember to bring their own bags with them (for a small fee), even if these bags are only used once, the environmental impact would be less than if a thick plastic bag was only used once. Increasing the use of such bag types may require the NT Government to identify suppliers of these products which abide by Australian Standards and are a comparable price to the other shopping bags available on the market.

A current barrier to stores supplying these bags is the lack of these bags that meet Australian Standards and the lack of connection between these retailers and suppliers. Further research into this alternative would be encouraged before an expansion of the Ban is introduced.

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APPENDIX 1 - Survey Respondents

The demographic of respondents included in the observations and surveys were representative of the broader NT population. They were aligned with the average demographics of the NT and the stores included in the observation and surveys were selected to ensure a representative population.

The age of the observed and surveyed respondents roughly aligned with the latest NT Census population split from June 2012 (see Table 8). A lower proportion of respondents were aged between 16 and 25 years old (7%) than the overall population (20%), however this is not unexpected as many of the people within this age group may still live at home and thus not have a need to visit the supermarket often. A slightly higher proportion of respondents aged 26-35 years old and 46-55 years old also participated in the survey (28% and 22%) compared to the NT population (23% and 17%), however the results are still considered representative of the broader population.

Table 8: Age of observed and surveyed respondents, by supermarket and shopping centre, compared to the NT census population age splits

Shopper Age	Supermarket		Shopping Centre		Total		NT Census Population (as at June 2012)*	
	n	%	n	%	n	%	Age group	% of population >15yrs
16-25 yrs old	13	6%	8	14%	21	7%	15-24 yrs old	20%
26-35 yrs old	64	27%	17	29%	81	28%	25-34 yrs old	23%
36-45 yrs old	57	24%	5	9%	62	21%	35-44 yrs old	19%
46-55 yrs old	56	24%	10	17%	66	22%	45-54 yrs old	17%
56-65 yrs old	23	10%	7	12%	30	10%	55-64 yrs old	13%
66+ yrs old	17	7%	4	7%	21	7%	65+ yrs old	8%
Unsure/ N/A / refused	6	3%	7	12%	13	4%	-	-
Total	**236**	**100%**	**58**	**100%**	**294**	**100%**	-	**100%**

**Source: ABS, 2013*

More females (53%) were included in the survey than males (34%) or couples (9%), which is expected as females still shop more than males (see Table 9).

Table 9: Gender of shoppers observed and surveyed, by supermarket and shopping centre respodents

Gender	Supermarket		Shopping Centre		Total	
	n	%	n	%	n	%
Female	135	57%	22	38%	157	53%
Male	80	34%	21	36%	101	34%
Both (i.e. couple)	18	8%	7	12%	25	9%
Unsure/ N/A / refused	3	1%	8	14%	11	4%
Total	**236**	**100%**	**58**	**100%**	**294**	**100%**

The number of surveys conducted at each store and the number of shopper observed, as well as the overall respondent figures are outlined in Table 10. A minimum of 40 surveys per store were conducted, totalling 226 surveys completed. An additional 68 observations were made at the supermarkets, averaging 17 observations per store in addition to the surveys conducted.

Table 10: Observed and surveyed shoppers from each supermarket and shopping centre location

Store	Observed		Surveyed		Total	
	n	%	n	%	n	%
Supermarket 1 – Metro	56	24%	40	18%	56	19%
Supermarket 2 – Metro	61	26%	43	19%	61	21%
Supermarket 3 – Metro	56	24%	43	19%	56	19%
Supermarket 4 – Regional	63	27%	42	19%	63	21%
Shopping Centre	-	-	58	26%	58	20%
Total	**236**	**100%**	**226**	**100%**	**294**	**100%**

APPENDIX 2 – Shopping Bag Descriptions

Shopping Bag Type	Shopping Bag Description
(Banned) Single-Use Plastic Bags	Plastic bags thinner than 35 microns, which are not biodegradable as per Australian Standard AS4736-2006.
Green Bags	Heavy polypropylene plastic bags, designed to be reused over 100 times.
LDPE	Heavier retail, boutique bags, typically used by large supermarkets, clothing and department stores.
Thick HDPE	Shopping bags, thicker than 35 microns, made from the same material as the Banned Single-Use Plastic Bags (high density polypropylene).
Cooler Bag	A shopping bag with thermal insulation. The outer bag is normally made from heavy polypropylene. It is designed to be used over 100 times.
Nylon Bag	Shopping bags made from nylon, which normally can fold up into a small shape or into a pouch.
Paper Bag	A shopping bag made from paper.
Calico Bag	A shopping bag made from calico, a plain-woven textile made from unbleached (and often not fully processed) cotton.
Other Bag	Any other non-banned shopping bag, which is not described above. For example, biodegradable bags (which meet Australian Standard AS4736-2006), barrier bags, cotton bags, etc.

APPENDIX 3 – Results

Supermarket & Shopping Centre Survey & Observation Results

Table 11: Shopping bag use behaviour for supermarket and shopping mall shoppers

Bag Usage	Supermarket		Shopping Mall		Total	
	n	%	n	%	n	%
Brought at least one bag from home	111	47%	24	41%	135	46%
Acquired at least one bag from store	89	38%	23	40%	112	38%
Did not use any bags	41	17%	17	29%	58	20%
Total	**236**	**>100%**	**58**	**>100%**	**294**	**>100%**

Table 12: Shopping bags brought from home by supermarket and shopping mall shoppers

Bags From Home	Supermarket		Shopping Mall		Total	
	n	%	n	%	n	%
Green Bag	49	44	5	21	54	40
LDPE Bag	49	44	4	17	53	39
Cooler Bag	37	33	-	-	37	27
Other bag	17	15	8	33	25	19
Nylon Bag	10	9	4	17	14	10
Thick HDPE	5	5	3	13	8	6
Calico Bag	1	1	2	8	3	2
Paper Bag	-	-	1	4	1	1
Total	**111**	**>100***	**24**	**>100***	**135**	**>100***

**Multiple choice question*

Table 13: Shopping bags obtained from the store by supermarket and shopping mall shoppers

Bags From Store	Supermarket		Shopping Mall		Total	
	n	%	n	%	n	%
LDPE Bag	81	91	16	39	97	87
Green Bag	5	6	1	2	6	5
Other Bag	3	3	3	7	6	5
Thick HDPE	-	-	4	10	4	4
Paper Bag	-	-	4	10	4	4
Cooler bag	2	2	-	-	2	2
Calico Bag	-	-	-	-	-	-
Nylon bag	-	-	-	-	-	-
Total	**89**	**>100***	**23**	**>100***	**112**	**>100***

Multiple choice question

Table 14: How many trips out of 10 shoppers bring their own bags with them to the store post-Ban, by supermarket and shopping centre respondents

Bring own bags to store	Supermarket		Shopping Centre		Total	
	n	%	n	%	n	%
0 trips / 10 - never	37	22%	22	38%	59	26%
1 trip / 10	13	8%	3	5%	16	7%
2 trips / 10	7	4%	4	7%	11	5%
3 trips / 10 - sometimes	3	2%	2	3%	5	2%
4 trips / 10	2	1%	-	-	2	1%
5 trips / 10 - about half the time	4	2%	2	3%	6	3%
6 trips / 10	5	3%	1	2%	6	3%
7 trips / 10	5	3%	3	5%	8	4%
8 trips / 10 - most of the time	15	9%	3	5%	18	8%
9 trips / 10	36	21%	3	5%	39	17%
10 trips / 10 - always	41	24%	14	24%	55	24%
Unsure/ N/A	-	-	1	2%	1	>0%
Total	**168**	**100%**	**58**	**100%**	**226**	**100%**
Average	**5.9 trips / 10**		**4.3 trips /10**		**5.5 trips /10**	

Table 15: How many trips out of 10 shoppers bring their own bags with them to the store pre-Ban, by supermarket and shopping centre respondents

Bring own bags to store	Supermarket		Shopping Centre		Total	
	n	%	n	%	n	%
0 trips / 10 - never	111	66%	43	74%	154	68%
1 trip / 10	4	2%	1	2%	5	2%
2 trips / 10	8	5%	-	-	8	4%
3 trips / 10 - sometimes	9	5%	1	2%	10	4%
4 trips / 10	2	1%	1	2%	3	1%
5 trips / 10 - about half the time	8	5%	2	3%	10	4%
6 trips / 10	3	2%	2	3%	5	2%
7 trips / 10	4	2%	-	-	4	2%
8 trips / 10 - most of the time	1	1%	-	-	1	>0%
9 trips / 10	5	3%	1	2%	6	3%
10 trips / 10 - always	10	6%	4	7%	14	6%
Unsure/ N/A	3	2%	3	5%	6	3%
Total	**168**	**100%**	**58**	**100%**	**226**	**100%**
Average	**1.8 trips / 10**		**1.4 trips /10**		**1.7 trips /10**	

Table 16: How many times respondents claimed to reuse thick HDPE and LDPE bags before disposal

Reuse Number of Thick HDPE and LDPE Bags	Supermarket		Shopping Mall		Total	
	n	%	n	%	n	%
0-1 times	25	15	7	12	32	14
2-3 times	26	15	12	21	38	17
4-5 times	24	14	7	12	31	14
6-8 times	12	7	5	9	17	8
9-11 times	10	6	8	14	18	8
12-20 times	15	9	4	7	19	8
17-30 times	6	4	2	3	8	4
>30 times	4	2	4	7	8	4
Unsure	46	27	9	16	55	24
Total	**168**	**100**	**58**	**100**	**226**	**100**

Table 17: How respondents dispose of their shopping bags once they can no longer be used for shopping, by supermarket and shopping centre respondents

Bring own bags to store	Supermarket		Shopping Centre		Total	
	n	%	n	%	n	%
General Waste bin	143	85%	44	76%	187	83%
Household Recycling bin	11	7%	6	10%	17	8%
Stockpile bags	9	5%	6	10%	15	7%
Shopping bag recycle bin	2	1%	-	-	2	1%
Other		7%	1	2%	12	5%
Unsure	2	1%	1	2%	3	1%
Total	**168**	**>100%***	**58**	**>100%***	**226**	**>100%***

**Multiple Choice Question*

Table 18: How supportive consumers are of the Plastic Bag Ban, pre-ban, out of 10, by supermarket and shopping mall respondents

Support for Plastic Bag Ban Pre-Ban	Supermarket		Shopping Mall		Total	
	n	%	n	%	n	%
0 out of 10 -extremely unsupportive	13	8	5	9	18	8
1 out of 10	3	2	-	-	3	1
2 out of 10	6	4	2	3	8	4
3 out of 10	11	7	-	-	11	5
4 out of 10	2	1	1	2	3	1
5 out of 10 - neither supportive nor unsupportive	37	22	12	21	49	22
6 out of 10	10	6	3	5	13	6
7 out of 10	12	7	3	5	15	7
8 out of 10	16	10	12	21	28	12
9 out of 10	6	4	6	10	12	5
10 out of 10 - extremely supportive	44	26	13	22	57	25
Unsure/ N/A	8	5	1	2	9	4
Total	**168**	**100**	**58**	**100**	**226**	**100**
Average	**6.3 /10**		**6.8 /10**		**6.4 /10**	

Table 19: How supportive consumers are of the Plastic Bag Ban, post-ban, out of 10, by supermarket and shopping mall respondents

Support for Plastic Bag Ban Post-Ban	Supermarket		Shopping Mall		Total	
	n	%	n	%	n	%
0 out of 10 -extremely unsupportive	11	7	2	3	13	6
1 out of 10	3	2	-	-	3	1
2 out of 10	5	3	-	-	5	2
3 out of 10	7	4	4	7	11	5
4 out of 10	3	2	1	2	4	2
5 out of 10 - neither supportive nor unsupportive	28	17	8	14	36	16
6 out of 10	6	4	2	3	8	4
7 out of 10	8	5	5	9	13	6
8 out of 10	16	10	9	16	25	11
9 out of 10	13	8	5	9	18	8
10 out of 10 - extremely supportive	67	40	21	36	88	39
Unsure/ N/A	1	1	1	2	2	1
Total	**168**	**100**	**58**	**100**	**226**	**100**
Average	**7.1 / 10**		**7.5 /10**		**7.3 /10**	

Table 20: Recall of the Ban's pre-Ban public awareness campaign

Bring own bags to store	Supermarket		Shopping Centre		Total	
	n	%	n	%	n	%
Yes, aware of campaign	103	61%	34	59%	137	61%
No, have not seen or heard about this campaign	60	36%	16	28%	76	34%
Unsure/ N/A	5	3%	8	14%	13	6%
Total	**168**	**100%**	**58**	**100%**	**226**	**100%**

Table 21: How inconvenienced shoppers are by the Ban, out of 10, by supermarket and shopping centre respondents

Inconvenienced by the Ban	Supermarket		Shopping Centre		Total	
	n	%	n	%	n	%
0 out of 10 -not at all inconvenienced	79	47%	30	52%	109	48%
1 out of 10	13	8%	5	9%	18	8%
2 out of 10	11	7%	3	5%	14	6%
3 out of 10	13	8%	3	5%	16	7%
4 out of 10	7	4%	2	3%	9	4%
5 out of 10 - somewhat inconvenienced	29	17%	10	17%	39	17%
6 out of 10	4	2%	-	-	4	2%
7 out of 10	5	3%	1	2%	6	3%
8 out of 10	2	1%	1	2%	3	1%
9 out of 10	-	-	-	-	-	-
10 out of 10 - extremely inconvenienced	4	2%	3	5%	7	3%
Unsure/ N/A	1	1%	-	-	1	>0%
Total	**168**	**100%**	**58**	**100%**	**226**	**100%**
Average	**2.2 /10**		**2.1 /10**		**2.2 /10**	

Table 22: Benefits and detriments of the Ban to the NT community, by supermarket and shopping centre respondents

Benefits & Detriments of the Ban to the Community	Supermarket		Shopping Centre		Total	
	n	%	n	%	n	%
Benefits						
Better for the environment	51	30%	33	57%	84	37%
Reduction in litter	59	35%	18	31%	77	34%
Reduction in waste to landfill	34	20%	9	16%	43	19%
Reducing the impact on our waterways/ marine life	22	13%	9	16%	31	14%
Encouraging reuse behaviour in a broad sense	15	9%	5	9%	20	9%
Increased awareness of need to think about the environment	11	7%	4	7%	15	7%
Saving resources	8	5%	3	5%	11	5%
Like the new bags for reuse	6	4%	1	2%	7	3%
Helps save animals	5	3%	1	2%	6	3%
Detriments						
Additional cost of shopping	32	19%	8	14%	40	18%
Inconvenient	14	8%	4	7%	18	8%
Lack of storage bags for other activities	10	6%	3	5%	13	6%
OHS&W issues with cross contamination	11	7%	-	-	11	5%
Need to buy bin liners/freezer bags	7	4%	4	7%	11	5%
Not reduced/ increase in litter and rubbish	10	6%	-	-	10	4%
OHS&W issues with overloading weight of the bags	7	4%	-	-	7	3%
Increased income for Supermarkets	6	4%	1	2%	7	3%
Fewer opportunities for reuse of bags/ miss old bags	2	1%	3	5%	5	2%
Neutral						
Other	26	15%	11	19%	37	16%
No benefits or detriments	17	10%	2	3%	19	8%
Unsure	7	4%	5	9%	12	5%
Too early to tell the benefits/impact	2	1%	2	3%	4	2%
Total	**168**	**>100%***	**58**	**>100%***	**226**	**>100%***

**Multiple response question*

Retailer Observation Results

Table 23: Bag types on offer and prices charged for each bag

Bag Types at Retailers and Prices Charged	Number of Stores Supplying Bag Type	Number of Stores Charging $ For Each Bag								
		$0.00 (free)	$0.10 to $0.20	$0.99 to $1.12	$1.50	$1.99 to $2.00	$2.49 to $2.50	$2.99 to $3.00	$4.99 to $5.00	$7.99
Thin HDPE (banned bags)	-	-	-	-	-	-	-	-	-	-
Thick HDPE	7	6	-	1	-	-	-	-	-	-
Thick LDPE	7	4	3	-	-	-	-	-	-	-
Green Bags	7	-	-	5	1	2	-	1	-	-
Cooler Bags	2	-	-	-	-	-	2	-	1	-
Paper Bags	5	4	1	-	-	-	-	-	-	-
Calico Bags	2	-	-	-	-	-	-	1	1	-
Barrier Bags	-	-	-	-	-	-	-	-	-	-
Other Bags	8	2	1	1	-	2	-	2	-	1
Total	**17**	**13**	**5**	**5**	**1**	**4**	**2**	**4**	**2**	**1**

Stakeholder Interview Results

Table 24: Effectiveness of the retailer education campaign for the implementation of the Ban

Retailer Education Campaign Effectiveness	Total n
0 out of 10 – not at all effective	-
1 out of 10	-
2 out of 10	-
3 out of 10	-
4 out of 10	-
5 out of 10 – somewhat effective	-
6 out of 10	-
7 out of 10	-
8 out of 10	4
9 out of 10	-
10 out of 10 - extremely effective	-
Unsure/ N/A	-
Total	**4**
Average	**8 /10**

Table 25: Effectiveness of the retailer resources provided with the retailer education campaign for the implementation

Retailer Resources Effectiveness	Total n
0 out of 10 – not at all effective	-
1 out of 10	-
2 out of 10	-
3 out of 10	-
4 out of 10	-
5 out of 10 – somewhat effective	-
6 out of 10	-
7 out of 10	-
8 out of 10	3
9 out of 10	1
10 out of 10 - extremely effective	-
Unsure/ N/A	-
Total	**4**
Average	**8.25 /10**

APPENDIX 4 - Supermarket Shopper Observations & Survey

A) Day		**D) Interviewer:**	
B) Date		**E) Store:**	
C) Time		**F) Respondent No:**	

Obs1 Estimated shopper age?

(Main shopper – person who pays)

- ☐ 16 – 25 years old
- ☐ 26 – 35 years old
- ☐ 36 – 45 years old
- ☐ 46 – 55 years old
- ☐ 56 – 65 years old
- ☐ 66+ years old

Obs2 Gender of shopper?

- ☐ Male
- ☐ Female
- ☐ Both *(couple)*

Obs3 Which types of shopping bags has the shopper brought FROM HOME?

(Indicate with a 'tick' whether the shopper brought each type of bag under the appropriate heading – please specify 'other' bag types)

LDPE	Thick HDPE	Green Bag	Paper Bag	Calico Bag	Other	*Specify Other*

Obs4 How many of each shopping bag has the shopper purchased from the SUPERMARKET? *(Leave if not applicable - Write number of each bag under the appropriate heading – please specify 'other' bag types)*

LDPE	Thick HDPE	Green Bag	Paper Bag	Calico Bag	Other	*Specify Other*

QUESTIONNAIRE - SUPERMARKET

Hi my name is _____ and I'm from Rawtec. We're conducting research on behalf of the Northern Territory Government on shopping bag use and was wondering if you would be able to help out by answering a few questions for us? Your answers remain confidential and your answers will help us determine the effectiveness of the NT Plastic Bags Ban.

Q1 Thinking about grocery shopping behaviour, out of every 10 trips to the supermarket, how often would you bring your own shopping bags with you?

- ☐ 0 trips / 10 - never
- ☐ 1 trip / 10
- ☐ 2 trips / 10
- ☐ 3 trips / 10 - sometimes
- ☐ 4 trips / 10
- ☐ 5 trips / 10 – about half the time
- ☐ 6 trips / 10
- ☐ 7 trips / 10
- ☐ 8 trips / 10 – most of the time
- ☐ 9 trips / 10
- ☐ 10 trips / 10 – always
- ☐ Unsure

Q2 Thinking back 2-3 years ago, before the NT Plastic Bags Ban was introduced, out of every 10 trips to the supermarket, how often did you bring your own shopping bags with you?

- ☐ 0 trips / 10 - never
- ☐ 1 trip / 10
- ☐ 2 trips / 10
- ☐ 3 trips / 10 - sometimes
- ☐ 4 trips / 10
- ☐ 5 trips / 10 – about half the time
- ☐ 6 trips / 10
- ☐ 7 trips / 10
- ☐ 8 trips / 10 – most of the time
- ☐ 9 trips / 10
- ☐ 10 trips / 10 – always
- ☐ Unsure

Q3 Before the NT Plastic Bags Ban was introduced, a public awareness campaign was conducted. Do you recall any of the advertisements or communications surrounding this campaign? For example – *show them a couple of images of the campaign*

- ☐ Yes, aware of campaign
- ☐ No, have not seen or heard about this campaign
- ☐ Unsure

Q4 How many times on average do you use your LDPE/Thick HDPE bags before disposal?

Usage	LDPE/Thick HDPE
Unsure *(indicate with a 'tick')*	
Number/ Response *(write number/response, e.g. 3 times, or one month based on once a week usage)*	

QUESTIONNAIRE - SUPERMARKET

Q5 **How do you generally dispose of your shopping bags once they can no longer be used for shopping?**

(Multiple choice if they mention more than one)

- ☐ General waste bin *(including bin liners)*
- ☐ Household recycling bin
- ☐ Shopping bag recycling bin *(in a supermarket/ shopping centre)*
- ☐ Stockpile bags (don't dispose of them)
- ☐ Unsure
- ☐ Other *(please specify)*____

Q6 On a Scale from '0' to '10', where '0' indicates not at all supportive and '10' indicates extremely supportive, **How supportive are you of the NT Plastic Bags Ban?**

- ☐ 0 – extremely unsupportive
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 – neither supportive nor unsupportive
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 – extremely supportive
- ☐ Unsure

Q7 On a Scale from '0' to '10', where '0' indicates not at all supportive and '10' indicates extremely supportive, **How supportive of the NT Plastic Bags Ban were you, 2-3 years ago, before it was introduced?**

- ☐ 0 – extremely unsupportive
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 – neither supportive nor unsupportive
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 – extremely supportive
- ☐ Unsure

Q8 On a scale from '0' to '10', where '0' indicates 'not at all inconvenienced' and '10' indicates 'extremely inconvenienced', **How inconvenienced are you by the NT Plastic Bags Ban?**

- ☐ 0 – not at all inconvenienced
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 – somewhat inconvenienced
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 – extremely inconvenienced
- ☐ Unsure

QUESTIONNAIRE - SUPERMARKET

Q9 What benefits/detriments do you believe the NT Plastic Bags Ban has brought to the community? *(Multiple Choice, select as many as apply)*

- ☐ Better for the environment
- ☐ Reduction in litter
- ☐ Reduction in waste to landfill
- ☐ Saving resources
- ☐ Reducing the impact on our waterways/ marine life
- ☐ Increased awareness of need to think about the environment
- ☐ Encouraging reuse behaviour in a broad sense *(e.g. reuse containers around home before they are disposed of)*
- ☐ Too early to tell the benefits/impact
- ☐ *- Additional cost of shopping*
- ☐ *– Inconvenient*
- ☐ *–Lack of storage bags for other activities*
- ☐ *–OHS&W issues (cross-contamination)*
- ☐ *OHS&W issues (overloading weight of the bags)*
- ☐ Other *(please specify below*

Q10 Space for notes - (Do you have any suggestions for improvement of the NT Plastic Bags Ban/Additional Comments? **)**

Do not ask this question, this is space for notes if the respondent makes suggestions. What are these suggestions?

Q11 *Thank you for your time in participating in our survey, it is greatly appreciated. For quality control purposes, can we please quickly grab you name and a contact phone number. These details will not be linked to your survey responses in any way, will remain completely confidential and will not be shared with any third parties.*

Name: ____

Phone: ____

APPENDIX 5 – Shopping Centre Shopper Survey

A) Day		D) Interviewer:	
B) Date		E) Store:	
C) Time		F) Respondent No:	

Obs1 Estimated shopper age?

(Main shopper – person who pays)

- ☐ 16 – 25 years old
- ☐ 26 – 35 years old
- ☐ 36 – 45 years old
- ☐ 46 – 55 years old
- ☐ 56 – 65 years old
- ☐ 66+ years old

Obs2 Gender of shopper?

- ☐ Male
- ☐ Female
- ☐ Both *(couple)*

ObsA Which types of shopping bags has the shopper appear to have?

(Indicate with a 'tick' whether the shopper brought each type of bag under the appropriate heading – please specify 'other' bag types)

LDPE	Thick HDPE	Green Bag	Paper Bag	Calico Bag	Other	***Specify Other***

QUESTIONNAIRE – Retail Shopping

Hi my name is _____ and I'm from Rawtec. We're conducting research on behalf of the Northern Territory Government on shopping bag use and was wondering if you would be able to help out by answering a few questions for us? Your answers remain confidential and your answers will help us determine the effectiveness of the NT Plastic Bags Ban.

Obs3 Which types of shopping bags has the shopper brought FROM HOME?

(Indicate with a 'tick' whether the shopper brought each type of bag under the appropriate heading – please specify 'other' bag types)

LDPE	Thick HDPE	Green Bag	Paper Bag	Calico Bag	Other	***Specify Other***

QUESTIONNAIRE – Retail Shopping

Obs4 **How many of each shopping bag has the shopper received/purchased from the SHOPPING CENTRE?** *(Leave if not applicable - Write number of each bag under the appropriate heading – please specify 'other' bag types)*

	LDPE	Thick HDPE	Green Bag	Paper Bag	Calico Bag	Other	*Specify Other*
A) # of each bag							
B) # bags PAID for							
C) How much did you pay for each bag? *($ or 'dn' (don't know)*							

Q1 **Thinking about retail shopping behaviour** *(excluding supermarkets/grocery stores/food stores)*, **out of every 10 trips to retailers, how often would you bring your own shopping bags with you?**

- ☐ 0 trips / 10 - never
- ☐ 1 trip / 10
- ☐ 2 trips / 10
- ☐ 3 trips / 10 - sometimes
- ☐ 4 trips / 10
- ☐ 5 trips / 10 – about half the time
- ☐ 6 trips / 10
- ☐ 7 trips / 10
- ☐ 8 trips / 10 – most of the time
- ☐ 9 trips / 10
- ☐ 10 trips / 10 – always
- ☐ Unsure

Q2 **Thinking back 2-3 years ago, before the NT Plastic Bags Ban was introduced, out of every 10 trips to retail stores** *(excluding supermarkets/grocery stores/food stores)*, **how often did you bring your own shopping bags with you?**

- ☐ 0 trips / 10 - never
- ☐ 1 trip / 10
- ☐ 2 trips / 10
- ☐ 3 trips / 10 - sometimes
- ☐ 4 trips / 10
- ☐ 5 trips / 10 – about half the time
- ☐ 6 trips / 10
- ☐ 7 trips / 10
- ☐ 8 trips / 10 – most of the time
- ☐ 9 trips / 10
- ☐ 10 trips / 10 – always
- ☐ Unsure

QUESTIONNAIRE – Retail Shopping

Q3 **Before the NT Plastic Bags Ban was introduced, a public awareness campaign was conducted. Do you recall any of the advertisements or communications surrounding this campaign?** For example – *show them a couple of images of the campaign*

- ☐ Yes, aware of campaign
- ☐ No, have not seen or heard about this campaign
- ☐ Unsure

Q4 **How many times on average do you use your LDPE/Thick HDPE bags before disposal?**

Usage	LDPE/Thick HDPE
Unsure *(indicate with a 'tick')*	
Number/ Response *(write number/response, e.g. 3 times, or one month based on once a week usage)*	

Q5 **How do you generally dispose of your shopping bags once they can no longer be used for shopping?**

(Multiple choice if they mention more than one)

- ☐ General waste bin *(including bin liners)*
- ☐ Household recycling bin
- ☐ Shopping bag recycling bin *(in a supermarket/ shopping centre)*
- ☐ Stockpile bags (don't dispose of them)
- ☐ Unsure
- ☐ Other *(please specify)*____

Q6 On a Scale from '0' to '10', where '0' indicates not at all supportive and '10' indicates extremely supportive, **How supportive are you of the NT Plastic Bags Ban?**

- ☐ 0 – extremely unsupportive
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 – neither supportive nor unsupportive
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 – extremely supportive
- ☐ Unsure

QUESTIONNAIRE – Retail Shopping

Q7 On a Scale from ‘0’ to ‘10’, where ‘0’ indicates not at all supportive and ‘10’ indicates extremely supportive, **How supportive of the NT Plastic Bags Ban were you, 2-3 years ago, before it was introduced?**

- ☐ 0 – extremely unsupportive
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 – neither supportive nor unsupportive
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 – extremely supportive

Q8 On a scale from ‘0’ to ‘10’, where ‘0’ indicates ‘not at all inconvenienced’ and ‘10’ indicates ‘extremely inconvenienced’, **How inconvenienced are you by the NT Plastic Bags Ban?**

- ☐ 0 – not at all inconvenienced
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 – somewhat inconvenienced
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 – extremely inconvenienced
- ☐ Unsure

Q9 **What benefits/detriments do you believe the NT Plastic Bags Ban has brought to the community?** *(Multiple Choice, select as many as apply)*

- ☐ Better for the environment
- ☐ Reduction in litter
- ☐ Reduction in waste to landfill
- ☐ Saving resources
- ☐ Reducing the impact on our waterways/ marine life
- ☐ Increased awareness of need to think about the environment
- ☐ Too early to tell the benefits/impact
- ☐ Encouraging reuse behaviour in a broad sense *(e.g. reuse containers around home before they are disposed of)*
- ☐ *- Additional cost of shopping*
- ☐ *– Inconvenient*
- ☐ *–Lack of storage bags for other activities*
- ☐ *–OHS&W issues (cross-contamination*
- ☐ *OHS&W issues (overloading weight of the bags)*
- ☐ Other *(please specify below)*

QUESTIONNAIRE – Retail Shopping

Q10 Space for notes - Do you have any suggestions for improvement of the NT Plastic Bags Ban/Additional Comments?

What are these suggestions?

Q11 *Thank you for your time in participating in our survey, it is greatly appreciated. For quality control purposes, can we please quickly grab you name and a contact phone number. These details will not be linked to your survey responses in any way, will remain completely confidential and will not be shared with any third parties.*

Name: ____

Phone: ____

APPENDIX 6 – Retailer Observations

A) Day		**D) Interviewer:**	
B) Date		**E) Store:**	
C) Time			

R.Obs1 What type of retailer is the store? *(What does it sell?)*

R.Obs2 Which types of shopping bags does the retailer have available to the public in the check-out area and how much is the retailer charging for each bag type? *(Indicate with a 'tick' to show that the retailer provides/sells the type of shopping bag under the appropriate heading, and clearly write how much the retailer charges for each bag '-' indicates the bag is of no charge – please specify 'other' bag types)*

Bag Type	'✓'	Cost Charged for Bag ($)
Thin HDPE *(less than 35 microns)*		
Thick HDPE		
LDPE		
Green Bags		
Cooler Bags		
Paper Bags		
Calico Bags		
Barrier Bags *(only ✓ if at checkouts)*		
Other		
Specify Other		

APPENDIX 7 – Stakeholder Questionnaire

Company:	
Name:	
Position:	
Date:	

Thank you for agreeing to answer the questionnaire reviewing the Northern Territory Plastic Bag Ban. The questionnaire will take approximately 15 minutes.

Q1 On a scale from ‘0’ to ‘10’, where ‘0’ indicates ‘not at all effective’, ‘10’ indicates ‘extremely effective’ and ‘5’ indicates ‘somewhat effective’, **How effective do you think the retailer education campaign was for the implementation of the NT Plastic Bags Ban?**

- ☐ 0 – not at all effective
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 – somewhat effective
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 – extremely effectively
- ☐ Unsure
- ☐ Don’t recall

Q2 On a scale from ‘0’ to ‘10’, where ‘0’ indicates ‘not at all effective’, ‘10’ indicates ‘extremely effective’ and ‘5’ indicates ‘somewhat effective’, **How effective were the retailer resources provided with the retailer education campaign for the implementation of the NT Plastic Bags Ban?**

- ☐ 0 – not at all effective
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 – somewhat effective
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10 – extremely effectively
- ☐ Unsure

STAKEHOLDER QUESTIONNAIRE

Q3 Were there any challenges surrounding the implementation of the NT Plastic Bags Ban? If so, what were they? *If 'No' skip to Q4.*

Q3A How did you overcome these challenges?

Q4 Are you still experiencing any ongoing challenges in regards to the NT Plastic Bags Ban?

Q5 As part of the retailer environment, what are your thoughts surrounding how the community adapted to the introduction of the NT Plastic Bags Ban? ***(i.e. Were they resistant to the introduction, were they well informed, etc.?)***

Thank you very much for your time today, it is greatly appreciated.