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Plastic Bags

by

Stewart Smith

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EXECUTIVE SUMMARY

There are two main types of plastic bags in use in Australia in the retail sector. These are the 'singlet' type bag made of high density polyethylene (HDPE) and the boutique style bag, made of low density polyethylene (LDPE). The HDPE singlet bag is usually non-branded, and used mainly in supermarkets, take-away food and produce outlets. The LDPE boutique bags tend to be branded and are used by stores selling higher value goods.

Approximately 6.9 billion new plastic bags are used by consumers each year. Around 6 billion of these are HDPE and 900 million are LDPE bags. 53 per cent are obtained from supermarkets, with the remaining 47 per cent from other retailers. The plastic used in these two forms of plastic bags equates to roughly two per cent (or over 36,850 tonnes) of total plastics produced in Australia each year.

The problem with plastic bags include: littering and associated indiscriminate waste disposal and consumer behaviour; resource consumption issues, including reduction, reuse and recycling; plastic degradability issues relating to littering and resource use; and social issues, community education and awareness, and consumer perceptions.

An analysis of overseas approaches to mitigating the problem of plastic bags indicates that there are two main approaches. One is to reduce the amount of plastic bags used in the first place, with initiatives aimed at consumers. The Irish plastic bag levy is an example of this. The second method is aimed at the post-consumer stage, using initiatives to improve plastic bag collection and recycling facilities.

Nine different options to deal with the impact of plastic bags in Australia are canvassed. These include: retailers' code of practice; kerbside recycling; litter education; the introduction of biodegradable bags; the introduction of plastic bag levies, and a ban on certain types of plastic bags.

The Environment Protection and Heritage Council has agreed to ask industry and the community to cut plastic bag litter by 75 per cent by the end of 2004. The following four short term actions were also agreed: government to develop legislative options, including a possible plastic bag levy and ban on plastic bags; retailers to develop and implement a strong National Code of Practice for the Management of Plastic Retail Carry Bags by April 2003, which includes targets for recycling and reductions in bag use.

The Environment Protection and Heritage Council approved the Australian Retailers Association Code of Practice, but noted that if the Code is not implemented and / or targets not reached, Ministers will again look at implementing mandatory measures. Ministers also indicated their support for phasing out light weight single use carry bags containing HDPE within five years. In March 2004 Premier Carr was reported as saying that he will soon force supermarkets to charge for plastic bags or ban them altogether.

1.0 INTRODUCTION

Australia consumes over 6.9 billion new plastic bags each year, and up to 80 million of these become litter every year. Whilst on land littered plastic bags may be an eyesore, in the marine and aquatic environment they can be ingested by wildlife resulting in death. Recently the Premier Hon Bob Carr MP has stated that he would like to introduce a ban on plastic bags. This Briefing Paper outlines the problems of plastic bags, international responses, and the institutional and regulatory response in Australia.

2.0 THE TYPES OF PLASTIC BAGS

There are two main types of plastic bags in use in Australia in the retail sector. These are the 'singlet' type bag made of high density polyethylene (HDPE) and the boutique style bag, made of low density polyethylene (LDPE). The HDPE singlet bag is usually non-branded, and used mainly in supermarkets, take-away food and produce outlets. The LDPE boutique bags tend to be branded and are used by stores selling higher value goods.

Approximately 6.9 billion new plastic bags are used by consumers each year. Around 6 billion of these are HDPE and 900 million are LDPE bags. 53 per cent are obtained from supermarkets, with the remaining 47 per cent from other retailers. The plastic used in these two forms of plastic bags equates to roughly two per cent (or over 36,850 tonnes) of total plastics produced in Australia each year.

It is estimated that 67 per cent of HDPE singlet bags are imported, whereas the reverse is true for LDPE bags. In 2001-02, 675 million (75%) LDPE bags were produced in Australia, and 225 million were imported. In total, the majority of plastic bags used in Australia are imported. Approximately 440 full-time equivalent people are employed in Australia in the process of making plastic bags – including from the manufacture of polyethylene to the production of bags. The two main Australian plastic bag manufacturers are located in Queensland and Victoria.¹

Most plastic shopping bags cost around one or two cents each, which is built into the product cost. The average annual cost per household for plastic bags is estimated to be around \$10- \$15 per year.²

¹ Environment Protection and Heritage Council, *Plastic Shopping Bags in Australia*. National Plastic Bags Working Group Report to the National Packing Covenant Council, 6 December 2002, at 8.

² Environment Australia, Department of the Environment and Heritage, *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts. Final Report*. Prepared by Nolan-ITU Pty Ltd, December 2002 at 4.

3.0 THE PROBLEM WITH PLASTIC BAGS

In October 2002 the Environment Protection and Heritage Council asked the National Packaging Covenant Council to convene a special Plastic Bags working group to investigate issues associated with the use of lightweight plastic bags. In its subsequent report, the Working Group identified four main areas of concern in regard to the use of plastic bags. These were:

- Plastic bag littering, and associated indiscriminate waste disposal and consumer behaviour;
- Resource consumption issues, including reduction, reuse and recycling;
- Plastic degradability issues relating to littering and resource use;
- Social issues, community education and awareness, and consumer perceptions.³

In regards to littering, plastic bags are of significant concern in the marine and aquatic environment, as aquatic life can be threatened through entanglement, suffocation and ingestion. Pollution originating from the continent contributes up to 80 per cent of all marine pollution. In August 2003 the Federal Minister for the Environment and Heritage listed injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris as a key threatening process. Plastic bags are included in the definition of harmful marine debris. Plastic bags in the marine environment are of particular concern because when animals ingest them and die, as the animal decomposes the plastic bag is then re-released into the environment, available again for another animal to ingest and cause a fatality.

Whilst plastic bag litter on land does not appear to be a major problem for wildlife, it is unsightly and can block gutters and drains creating stormwater problems. Litter studies indicate that plastic bags are generally in the top twenty litter items counted, although not the top ten.

Plastic bags lend themselves to inadvertent litter due to their lightness and easy ability to 'balloon' with the wind. This may occur from disposal routes such as litterbins and landfills and from animal interactions with rubbish bins. It has been estimated that people litter between 30 and 50 million bags each year, with another 20 to 30 million bags inadvertently littered during waste disposal.⁴ Plastic bags do not readily break down in the environment, so the number of plastic bags in the environment is, in effect, cumulative, with the nation adding approximately another 80 million bags to the environment each year.⁵

³ Environment Protection and Heritage Council, *Plastic Shopping Bags in Australia*. National Plastic Bags Working Group Report to the National Packing Covenant Council, 6 December 2002.

⁴ Environment Protection and Heritage Council, *Plastic Shopping Bags in Australia*. National Plastic Bags Working Group Report to the National Packing Covenant Council, 6 December 2002, at 11.

⁵ Australian Senate, Environment, Communications, Information Technology and the Arts Legislation Committee, *Plastic Bag Levy (Assessment and Collection) Bill 2002 [No. 2] and the Plastic Bag (Minimisation of Usage) Education Fund Bill 2002 [No.2]*, November 2003 at 7.

Most of the waste in Australia is disposed of in landfills. Surveys indicate that 60 per cent of bags taken home are reused as bin liners or waste bags, lunch bags and general carry bags. Bags that are reused as bin liners end up in landfill, and it is likely that bags reused for other purposes also end in landfill. That annual plastic bag disposal to landfill is estimated at 6.67 billion bags or 36,700 tonnes per year. This equates to roughly 0.2 per cent of total solid waste going to landfill each year in Australia.⁶

Plastic bags may take between 20 and 1000 years to break down in the environment. The environmental impact of plastic bags in landfill is likely to be low due to their inert nature. The major impact of plastic bags in disposal is not their effect on the actual landfill, but in litter emanating from the site. This is especially associated with unloading operations rather than the compaction and burial of waste.

3.1 Resource Consumption

Plastic bags are manufactured from ethylene, which is a by-product of gas or oil refining, ie a non-renewable resource. As noted, the 6.9 billion bags consumed each year are equivalent to 2.5 per cent of the total plastics consumed in Australia. The energy consumed in the manufacturing process for one HDPE singlet bag, plus the energy content of the bag (the embodied energy) is calculated as :

- Fuel consumed by driving a car 1 kilometre is equivalent to 8.7 bags; or
- Fuel consumed by driving a 28 tonne articulated truck 1 kilometre is equivalent to 64.6 bags.

In comparison, it is estimated that the making of a plastic bag compared to a paper bag: uses up to 40 per cent less energy; produces up to 80 per cent less solid waste; produces 72 per cent less atmospheric emissions; and creates 90 per cent less waterborne waste. Because plastic bags are lighter than paper bags there is also less fuel used in distributing the plastic bags, resulting in less greenhouse gas emissions.⁷

Major supermarket chains have established a plastic bag return recycling scheme, where drop-off bins are provided for used bags. The scheme relies on separation, with only HDPE bags collected. In 2001-2002, it is estimated 1,000 tonnes, or approximately 180 million bags, was recycled through these drop-off bins. This is a recycling rate of approximately 2.7 per cent. The majority of bags are exported for reprocessing, whilst about 50 tonnes was reprocessed in Australia, with the reprocessed material used in pipe manufacture. The recycling of plastic bags

⁶ Environment Protection and Heritage Council, *Plastic Shopping Bags in Australia*. Plastic Bags Working Group Report to the National Packing Covenant Council, 6 December 2002, at 11.

⁷ Environment Protection and Heritage Council, *Plastic Shopping Bags in Australia*. Plastic Bags Working Group Report to the National Packing Covenant Council, 6 December 2002, at 12.

via the kerbside recycling scheme is limited to only a few council areas in South Australia. In all other areas, any plastic bags placed in the kerbside recycling stream are disposed to landfill.

In regard to the social issues aspect of plastic bag use, the Plastic Bags Working Group noted that plastic bags are popular with consumers and retailers because they are functional, lightweight, strong, cheap and a hygienic way of transporting food and goods. The Working Group noted the irony of the majority of consumers using the equivalent of one new plastic bag a day, whilst complaining that ‘someone’ should do something about the issue. For instance, a poll for Clean Up Australia in 2001 found that although 92 per cent of those surveyed indicated that the effects of plastic bags on wildlife was a major concern, the majority of respondents indicated that they weren’t likely to use an alternative (72 per cent), reuse a bag (63 per cent) or recycle a bag (64 per cent).⁸

4.0 OVERSEAS APPROACHES TO THE ISSUE OF PLASTIC BAGS

The Nolan-ITU report for Environment Australia reviewed approaches to dealing with plastic bags from around the world. Their review found:

Bangladesh: Serious flooding resulting in major loss of life has been linked to plastic bags blocking drains. In March 2002 Bangladesh banned the manufacture and distribution of plastic bags. Prior to the ban, the country consumed 9 million plastic bags a day, of which 85 per cent were littered into the waste stream. The first stage of the ban applied to the capital only, to be extended nationally.

Canada: Plastic bags are included in kerbside collection services in many areas of Canada. The report described the program as very successful, but gave no recycling rates.

Denmark: In January 1994 the Danish Government introduced a range of ‘green’ taxes – including a packaging tax. Originally a tax on plastic carrier bags was introduced, but it now includes paper bags as well. The tax reduced consumption of plastic and paper by 66 per cent. The tax is included in the wholesale price of the bags to the retailers, and is therefore not obvious to consumers.

Hong Kong: Hong Kong prohibits retailers over a specified size from providing bags to customers free of charge. There are also recovery facilities for plastic bags provided within supermarkets.

India: There is very little waste and recycling infrastructure in many areas, and the low value of lightweight plastic shopping bags means that bags are not recovered through scavenging activity.

⁸ Environment Protection and Heritage Council, *Plastic Shopping Bags in Australia*. Plastic Bags Working Group Report to the National Packing Covenant Council, 6 December 2002, at 13.

In August 2000, the manufacture and use of plastic shopping bags was banned in Bombay, in an effort to reduce the number of plastic bags clogging stormwater drains and causing flooding. Large fines and the suspension of trading for one month apply if retailers are caught using plastic bags.

Ireland: In Ireland plastic shopping bags were a cause for widespread concern as they were a very visible litter problem in rural environments. On 4 March 2002 the Irish plastic bag levy was introduced, levying all plastic bags with a 0.15 euros (A\$0.27) tax. The levy applies to all plastic bags, including biodegradable polymer bags, with the exception of those used to contain fresh produce, and those designed for reuse and sold for more than 0.70 euros (A\$1.27). The levy is aimed at the consumer, with the retailer legally obliged to pass on the levy directly to the consumer, and itemised on the customer's receipt. Retailers collecting the levy make payments quarterly, which are paid into an Environment Fund, used to support waste management and other environmental initiatives.

With the introduction of the levy it has been reported that the use of plastic bags has fallen by 90-95 per cent. The major retailers predict that rather than experience an increase in plastic shopping bag consumption over time, the reduction rate will stabilise at 95-96 per cent of pre-levy consumption.

South Africa: Plastic bags have been so prevalent in the South African litter stream that they have been termed the country's 'National Flower'. In response to litter concerns, the initial proposal from the South African government was to ban plastic bags outright, but this has been 'watered down'. In September 2002, a Memorandum of Agreement was signed between the Minister for Environmental Affairs and various labour and business organisations. The Agreement established a non-government body with revenue collection responsibilities – a compulsory levy will be placed on plastic bags with revenue going to the new body. The new body has the following objectives:

- To promote efficiency in the use, re-use, collection, recycling and disposal of plastic bags;
- To receive a levy from all registered plastic bag manufacturers;
- To investigate the development of new markets for recycled material;
- To establish plastic bag collection points within easy walking distance of all major settlements;
- To support government in the removal of plastic bag litter from environmentally sensitive areas.

The Government also banned the thin light plastic carrier bags, requiring them to be thicker and hence more durable for re-use. Nolan-ITU noted that the South African system hints at the dilution of emphasis from consumer behaviour to post-consumer behaviour

European Approaches: In Europe, the principal measures implemented to deal with plastics are the Producer Responsibility mechanisms – these do not target plastic bags specifically but aim to encourage the recycling and recovery of plastics. Different Member States use different approaches, but in most countries, the packaging industry makes payments to designated bodies

who are responsible for arranging for the collection, separation, recycling and recovery of a pre-determined amount of packaging. A notable feature is that these fees paid by the packaging industry are not necessarily passed on to consumers in a transparent manner.

Conclusion from Overseas Approaches: It is apparent that there are two distinct methods of reducing the impact of plastic bags on the environment. One is to reduce the amount of plastic bags used in the first place, with initiatives aimed at consumers. The Irish plastic bag levy is an example of this. The second method is aimed at the post-consumer stage, using initiatives to improve plastic bag collection and recycling facilities.

5.0 OPTIONS TO REDUCE THE IMPACT OF PLASTIC BAGS

The Nolan-ITU report identified nine different options to deal with the impact of plastic bag litter and resource use. These were:

- Maintenance of the status-quo;
- Review and expansion of the Shopping Bag Code of Practice;
- Kerbside recycling of plastic shopping bags;
- Expanded and on-going litter education;
- Introduction of biodegradable bags;
- Use of reusable bags and 'Bags for Life';
- Bans on plastic shopping bags;
- Voluntary levy on shopping bags;
- Legislated levy on shopping bags.

Each of these are discussed below:

Maintenance of the status-quo

If it was considered that plastic shopping bags are a resource efficient and most suitable option for carrying retail goods, the current situation could continue. However, associated environmental and economic impacts would continue, and would be likely to increase with increasing population.

Review and expansion of the Shopping Bag Code of Practice

At the time of writing the Nolan-ITU report, it was noted that in 1997 the Australian Supermarket Institute had developed a Code of Practice for plastic shopping bags. The Institute ceased to exist in 1998 and the Code was amended and adopted by the Australian Retailers Association. However, the Code was widely seen as deficient in many aspects, and in October 2003 the Australian Retailers Association released a revamped Code of Practice for the Management of Plastic Bags. In the preface to the Code, the Association noted its implementation was important to avoid a plastic bag tax. It stated: "If the targets are not achieved, it is highly likely that a tax of 25 cents per plastic bag will be applied. A tax would cost consumers millions of dollars and cause serious administrative and operational inefficiencies for retailers, and is likely to require system changes similar to those required to implement GST."⁹

⁹ Australian Retailers Association, *Code of Practice for the Management of Plastic Bags*, 9

The Code committed retailers to:

- A 25% reduction in plastic bags issued by the end of 2004;
- A targeted reduction of 50% in plastic bags issued by the end of 2005;
- An increase in the recycling rate of plastic bags to 15% (in store) and to target a 30% (combined in store and kerbside) increase by the end of 2005;
- The introduction of recycled content plastic bags consistent with availability;
- Work with the Australian plastics and recycling industries to extend the targeted rate of phase out, over time, of HDPE bags made of non-recycled plastic;
- Support the EPHC target of an audited 75% reduction in bag litter by December 2005;
- Ensure availability in stores of multiple use bags;
- Offering customers easily accessible recycling stations in major supermarkets and shopping centres;
- Objectively auditing the effectiveness of the Code;
- Target a participation rate of 90% of the Association's supermarket and chain members (Group 1 retailers) by December 2003 – these retailers account for around 50% of current lightweight HDPE bags issued. Campaign strongly to enlist as many smaller retailers to adopt the Code, with the aim of achieving a 25% participation rate of Association members by 31 December 2004.¹⁰

A Commonwealth Senate Committee inquiring into the introduction of a plastic bag levy noted:

The Committee was disappointed to note that the only concrete commitments in the Code are for a 25 per cent reduction in bags issued by the end of 2004 and an increase in the recycling rate to 15 per cent by the end of 2005. The publicised target of a reduction in bags issued by 50 per cent is only a *targeted* reduction in the Code.....Additionally, the reduction targets in the Code will be adjusted to reflect business growth. This has the potential to legitimise reductions that are less than 25 per cent, depending on the business growth of the retailers. Clearly, the code of practice cannot be relied on as the sole vehicle to phase-out bags in line with the EPHC decision of December 2002.¹¹

Mr Joy of the National Packaging Covenant told the Committee:

The 15 per cent figure which is in there in relation to kerbside recycling is acknowledged by all parties to be something they will try for, but something they are not at all confident they will get....I would be very surprised to see it get much over five per cent, frankly. [And in regard to achieving the targeted 50 per cent reduction on plastic bag

October 2003.

¹⁰ Australian Retailers Association, *Code of Practice for the Management of Plastic Bags*, 9 October 2003.

¹¹ Australian Senate, Environment, Communications, Information Technology and the Arts Legislation Committee, *Plastic Bag Levy (Assessment and Collection) Bill 2002 [No. 2] and the Plastic Bag (Minimisation of Usage) Education Fund Bill 2002 [No.2]*, November 2003 at 24.

usage]... Whether they will get to 50 per cent at the end of 2005, I am, like many people, sceptical. But I think there are a lot of things that they can do to significantly increase the rate of take-up of long life bags.¹²

In late February 2004 the Federal Minister for the Environment and Heritage Hon Dr David Kemp MP noted that the major supermarkets have cut plastic bag use by more than 200 million in the past year, and ninety per cent of supermarkets have signed up to the voluntary Retailers' Code of Practice.¹³ In response, John Dee of Planet Ark noted that this plastic bag reduction represented only three percent of the total number of plastic bags issued annually. Greens Senator Bob Brown noted: "Bunnings has introduced a 10 cent levy in their stores and got a 90 per cent consistent reduction and here's the (Environment Minister) saying a 3 per cent reduction under the voluntary system is magnificent. Well it's not, it's a flop."¹⁴

Kerbside Recycling

The plastic shopping bag is one of the most high profile retail packaging exclusions from the kerbside recycling system. However, several barriers exist for the inclusion of shopping bags into kerbside recycling. These include:

- The bags are extremely lightweight – this positive resource efficiency characteristic of shopping bags also acts as a barrier to recycling. Recyclables are sold by weight, and plastic shopping bags have an average weight of 5.5 grams. Over 180,000 bags are required to make a tonne of material. Their light weight makes them very difficult to sort using mechanical separation;
- The bags are low in value – the economical value of material to kerbside recycling is a combination of the price received per tonne of sorted material and the number of tonnes received. For instance, aluminium has a relatively low volume but high price per tonne (\$1,000/tonne), whilst newspaper has a lower value per tonne but high yields which support its recovery. Plastic bags recovered through the kerbside recycling system would have both low value (<\$120/tonne) and low weights which decrease the viability of their recovery through the kerbside system;
- Contamination – this is in two forms. Firstly, the contamination of the plastic bags themselves as they are designed to contain a wide range of other packaging and products. They are difficult to wash and residuals often remain in the bags as contamination. Secondly, consumers find it difficult to distinguish between polymer types, and it is likely that any kerbside collection system would result in a range of plastic films being collected.

¹² Australian Senate, Environment, Communications, Information Technology and the Arts Legislation Committee, *Plastic Bag Levy (Assessment and Collection) Bill 2002 [No. 2] and the Plastic Bag (Minimisation of Usage) Education Fund Bill 2002 [No.2]*, November 2003 at 25.

¹³ "Supermarkets slash plastic bags." *Media Release*, Hon Dr David Kemp MP, Minister for the Environment and Heritage, 25 February 2004.

¹⁴ "Plastic bags blowing away." In *The Australian*, 26 February 2004.

As a stand-alone option, increased recycling of plastic shopping bags through the kerbside recycling system will not effect consumption and would be expected to have a negligible effect on the litter stream.

Litter Education

The Nolan-ITU report noted the long history of litter campaigns, including Clean Up Australia Day, Keep Australia Beautiful 'Tidy Towns' and various State and National based programs. The report concluded that litter education is an important supporting element of other initiatives that may be undertaken to reduce plastic bags and their impacts.

Biodegradable Bags

Since the Nolan-ITU report in December 2002, a report to the Environment Protection and Heritage Council on the impact of biodegradable bags has been released, and the information in this section is drawn from this later report. There are many different types of degradable plastics being introduced into Australia at present, resulting in confusion about their impacts and benefits. An important distinction needs to be made between biodegradable plastics, ie, those that are capable of undergoing decomposition into carbon dioxide, methane, water, inorganic compounds, or biomass in which the predominant mechanism is the action of microorganisms, and bioerodable plastics, which oxidise and embrittle in the environment and erode under the influence of ultraviolet light and heat. Biodegradable plastics include starch based polymers and are designed to break down under composting conditions. Bioerodable plastics are designed to break down under the influence of heat and ultraviolet light. There is insufficient data to say with any certainty, how long degradable polymers take to fully biodegrade, and the impacts of any end products in the environment.

A life cycle assessment concluded that reusable bags have lower environmental impacts than all of the single use bags, including both conventional HDPE bags and degradable bags. Degraded polymers could potentially reduce the visual impacts of plastic bags in the litter stream. There is insufficient evidence to say whether degradable bags will have a positive or negative impact on littering behaviour. For instance, one fear is that consumers will consider it 'is OK to litter as it will just break down', leading to an increase in littering behaviour and levels.

However, one of the biggest concerns about degradable plastics and their additives is that they will contaminate batches of recycled resins. Degradable plastics have the potential to interfere with the processing of recovered plastics and to destabilise and compromise the properties of recycled plastics if they enter the plastics recycling stream. The choice for retailers and bag manufacturers appears to be either to pursue a recycling strategy or a composting strategy for the bags, not both.¹⁵

In regard to degradable bags, the Nolan-ITU report concluded that their widespread use as an alternative to plastic bags may not deliver overall environmental gains.

¹⁵ Environment Protection and Heritage Council, *The Impacts of Degradable Plastic Bags in Australia*, 11 September 2003.

Voluntary Levy

Levies on plastic shopping bags in other parts of the world have achieved significant reductions in plastic bag consumption. There are two possible approaches – voluntary and legislated. Voluntary levies have been implemented in Australia in several areas, as reported below:

- Lord Howe Island – retailers were asked to apply a 55 cent charge for plastic bags to their customers. Of the island’s three grocery shops, one charges it to all shoppers, one doesn’t apply the levy and the third sometimes charges. The Nolan-ITU report doesn’t state the reduction in plastic bags used, but notes: “It seems that an element of the success of the initiative in reducing plastic bag use on the island may have been due to the change in consumer habits and thinking rather than strict implementation by the retailers.”
- IKEA – the retailer introduced its own 10 cent plastic bag levy in October 2002. Since its introduction, IKEA have reduced their plastic bag consumption from 8000 per week to 250 per week – a 97 per cent reduction;
- Aldi supermarkets – this supermarket chain charges for plastic bags, and provides four options for customers to carry their goods. These are: 15 cent plastic bag; 69 cent cotton bag; \$1.49 cooler bag; reused boxes (free); or no bag or own bag. The most common option chosen is the reused boxes, or for small purchases no bags;
- In October 2003 Bunnings Hardware stores introduced a 10 cent levy on plastic bags, which has resulted in a 91 per cent reduction in plastic bag use.¹⁶

Nolan-ITU concluded that it is unlikely that a voluntary levy would get near full compliance across the whole retail sector, and it may be more difficult to implement and sustain [than a legislated levy].

Legislated Levy

A levy on all single use shopping bags in another option, and to be effective would need to be at a consistent level across all retail stores. To enhance the message to consumers and prevent retailers from absorbing the levy, the levy would need to be charged separately and collected through a central administration.

To achieve a significant reduction in plastic shopping bag consumption it is considered that the levy should be set between 10 and 30 cents. This is supported by the Irish experience, where an AU\$0.27 levy resulted in an over 90 per cent reduction.

On 21 October 2002 Senator Bob Brown introduced into the Senate the *Plastic Bag Levy (Assessment and Collection) Bill 2002* and the *Plastic Bag (Minimisation of Usage) Education Fund Bill 2002*. Identical Bills were introduced into the House of Representatives by Mr Peter Andren MP on the same day. The Bills provided for a levy on plastic bags to be paid

¹⁶ As reported by Senator Bob Brown, Australian Senate, Environment, Communications, Information Technology and the Arts Legislation Committee, *Plastic Bag Levy (Assessment and Collection) Bill 2002 [No. 2] and the Plastic Bag (Minimisation of Usage) Education Fund Bill 2002 [No.2]*, November 2003 at 38.

by the retailer, who must pass the charge on to the customer. In March 2003 the Senate resolved to refer the Bills to the Environment, Communications, Information Technology and the Arts Legislation Committee.

In a submission to the Committee, the conservation organisation Planet Ark indicated what might occur in Australia if a levy that replicated the results observed in Ireland was introduced:

Australia currently uses 6.0 billion plastic check out bags every year. If we reduced that by 90% like the Irish have done, then we would only be using 690 million plastic check out bags every year. That's a reduction of over 6.2 billion plastic check out bags every year.

A 25 cent levy on these 690 million plastic bags would raise \$172.5 million a year towards environmental causes. Such monies could go towards the fixing up of Australia's salinity problems or providing free reusable shopping bags for every household etc.

According to Nolan-ITU, it is estimated that Australia currently uses 390 million kitchen bin liners every year. If like the Irish we increased the amount of kitchen bin liners being sold by 77%, then we would only be using an extra 300 million kitchen bin liners every single year.

...even after you allow for this 300 million bag increase in kitchen bin liner sales, with a levy in Australia there would still be an overall reduction of 5.9 billion plastic check out bags every year. A 6.2 billion plastic check out bag reduction versus a 300 million increase in kitchen bin liners...

If Australia replicated the success of the Irish levy, Planet Ark estimates that the overall number of plastic bags being used could be reduced by up to 5 billion plastic bags every year.¹⁷

The majority report of the Committee noted that whilst voluntary codes of practice agreed to by Governments are unlikely to achieve the greatest possible reduction in plastic bag use in the short term, this approach has the majority support of the Ministers of the Environment Protection and Heritage Council. Hence the Committee recommended that the Bills not be agreed to. In a Supplementary Report by Labor Members of the Committee, it was stated that the voluntary approach and Retailers Code of Practice is unlikely to yield sufficient environmental benefits. Labor members considered the evidence presented to the Committee supports appropriate and effective mandatory legislative measures to minimise plastic bag use. In a Dissenting Report of the Australian Greens, it was noted that a levy has been demonstrated to work overseas and in Australia, and has huge public support. The Australian Greens stated that the overwhelming body of evidence to the Committee suggested that the number of plastic bags presents a large and costly environmental problem and that a levy should be imposed.¹⁸

¹⁷ Submission by Planet Ark to the Australian Senate, Environment, Communications, Information Technology and the Arts Legislation Committee, *Plastic Bag Levy (Assessment and Collection) Bill 2002 [No. 2] and the Plastic Bag (Minimisation of Usage) Education Fund Bill 2002 [No.2]*, November 2003 at 13.

¹⁸ Australian Senate, Environment, Communications, Information Technology and the Arts

Plastic Bag Bans

Banning outright the use of plastic bags is another option, and this has been undertaken in several Asian countries. In Australia, several towns have instituted a voluntary ban of plastic bags. For instance, the coastal town of Coles Bay in Tasmania has become the first plastic bag free zone. The retailers in the town, assisted by the environment group Planet Ark, have all agreed not to use plastic bags. Calico bags have been issued to permanent residents, and visitors either need to buy a calico bag or pay for a paper bag. Where paper cannot be used for hygiene reasons, plastic bags made from tapioca starch (ie biodegradable) are used. Planet Ark then challenged other towns to 'go plastic bag free'.¹⁹ In response, in NSW the townships Kangaroo Valley and Huskisson have voluntarily banned the use of plastic bags.²⁰ The director of Planet Ark, noting the success of the voluntary bans and the ability of people to cope with them, stated: "We used to call for a levy but these towns have shown that when you have an outright ban people just bring their own bags."²¹

The Nolan-ITU report concluded that a total ban on plastic bags in Australia would be seen as excessive and inappropriate, but a limited ban on high litter potential bags, implemented with other measures, could be considered.

6.0 A 'TRIPLE BOTTOM LINE' ASSESSMENT OF PLASTIC BAGS AND THEIR ALTERNATIVES

If the objective of government policy is to reduce the number of light weight 'check out bags' being consumed and adding to the litter stream, the obvious question is what can take their place and what impact do these alternatives have. To answer these questions the Nolan-ITU report assessed plastic bags and alternatives against economic, social and environmental criteria. An initial assessment for each alternative is reproduced below.

Table 1: Triple Bottom Line Assessment of Plastic Bags and their Alternatives

Option	Economic Issues	Social Issues	Environmental Issues
Singlet HDPE	Well established market for supply of bags. Current retail system	Convenient to consumers. A proportion of consumers are	Manufactured from non-renewable resources (oil or gas). Prominent in litter

Legislation Committee, *Plastic Bag Levy (Assessment and Collection) Bill 2002 [No. 2] and the Plastic Bag (Minimisation of Usage) Education Fund Bill 2002 [No.2]*, November 2003 at 33-39.

¹⁹ "Village declared bag-free zone" in *The Sunday Telegraph*, 27 April 2003.

²⁰ "Huskisson bags coastal plastic-free shopping title" in *Illawarra Mercury*, 22 November 2003.

²¹ "Carr may push for plastic bag ban." in *The Sydney Morning Herald*, 6 March 2004.

	and checkout design based on these bags. Low cost to retailers and free to consumers. ~67 % of bags imported.	concerned about environmental impacts.	stream. Potential hazard to wildlife. Reused in the home for other applications (eg bin liners)
50 % Recycled Singlet HDPE	No change required to retail systems or consumer behaviour. ~67 % of bags imported.	Just as convenient as virgin bags. Partly addresses consumer concerns about environmental impacts. No impact on overall consumption of bags.	Life cycle environmental impacts reduced due to recycled content. Provides a market for post industrial recycled HDPE. Impacts on litter and wildlife the same as for virgin bags.
Boutique LDPE	Well established market for supply of bags. High percentage of bags manufactured locally. Current retail system based on these bags. Low cost to retailers.	Convenient for consumers. Marketing and branding for products. A proportion of consumers are concerned about environmental impacts, but probably less than for singlet bags.	Manufactured from non-renewable resources. Less impact on litter and wildlife than singlet bags (heavier, generally disposed of in the home). Reused in the home for other applications.
Calico	Bags are 100% imported. Designed to be integrated with current retail system. Cost to consumers of purchasing bags ~\$2 per bag, expected life of one year. May slow down speed at checkout.	Less convenient for consumers – need to bring own bags back to supermarket. Reusable bags may have indirect impacts on behaviour (ie, encourage consumers to be more waste wise in other aspects of daily life). Working conditions in overseas manufacturing a potential concern.	Cotton industry is a large user of water and chemicals. Washing the bags consumes water, energy and detergents. Reduces consumption (and therefore environmental impacts) of single use bags.
Woven HDPE Swag Bag	Bags are imported. May slow down	Less convenient for consumers – need to	Manufactured from non-renewable

	<p>speed at checkout. Cost to consumers of purchasing bags - \$4 per bag, expected life 2 years.</p>	<p>bring own bags back to supermarket. Reusable bags may have indirect impacts on behaviour (ie, encourage consumers to be more waste wise in other aspects of daily life).</p>	<p>resources. Reduces consumption (and therefore environmental impacts) of single use bags.</p>
PP Fibre 'Green bag'	<p>Bags are imported. May slow down speed at checkout. Cost to consumers of purchasing bags - \$3 per bag, expected life 3 years.</p>	<p>Less convenient for consumers – need to bring own bags back to supermarket. Reusable bags may have indirect impacts on behaviour (ie, encourage consumers to be more waste wise in other aspects of daily life).</p>	<p>Manufactured from non-renewable resources. Reduces consumption (and therefore environmental impacts) of single use bags</p>
Kraft paper-handled	<p>Bags are manufactured locally. May slow down speed at checkout unless system is redesigned to accommodate them.</p>	<p>Primarily single use therefore requires minimal adjustment by consumers.</p>	<p>Manufacture of paper consumes more water and generates more waterborne wastes. Paper bags are 100% recyclable where paper collection is available.</p>
Solid PP Smart Box	<p>Imported Cost to consumers of purchasing boxes ~\$7 per box, expected life of 3 years Cost to retailers of buying trolleys to accommodate boxes, redesigning checkouts to accommodate boxes.</p>	<p>Less convenient for consumers – need to bring boxes back to supermarket. Awkward to carry long distances.</p>	<p>Manufactured from non-renewable resources. Reduces consumption (and therefore environmental impacts) of single use bags. Potentially recyclable at end of life but collections and disassembly system would need to be established.</p>

Biodegradable starch based bags	Bags are imported. Bags are more expensive for retailers approx 6 cents per bag.	Primarily single use therefore requires no adjustment by consumers.	Manufactured from renewable resources (eg, corn, potato starch). Impacts of agriculture include water consumption, chemical use, land degradation. Reduced impact in litter due to rapid degradation in the open.
Photo-degradable (PE with UV sensitive additives)	Bags are imported? Bags are more expensive for retailers approx 6 cents per bag.	Primarily single use therefore requires no adjustment by consumers.	Manufactured from non-renewable resources. Same impact on solid waste in landfill as conventional bag. Reduced impact in litter due to rapid degradation when exposed to sunlight.
Biodegradable (PE with prodegradant additives)	Bags are imported? Bags are more expensive for retailers approx 6 cents per bag.	Primarily single use therefore requires no adjustment by consumers.	Manufactured from non-renewable resources. Bags will degrade in landfill but over a long period of time (due to lack of moisture and air) Reduced impact in litter due to rapid degradation when exposed to sunlight.

Source: Environment Australia, Department of the Environment and Heritage, *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts. Final Report*. Prepared by Nolan-ITU Pty Ltd, December 2002 at 39.

From this analysis it is evident that no one alternative rated highly across all criteria. The Plastic Bags Working Group noted the dilemmas:

- Boxes and cartons are cost effective, but unsuitable for pedestrians, older people, children and pregnant women;

- Preliminary findings suggest that overall the manufacture and production costs of paper are higher than those of plastic, but paper recycling issues are more well defined and resourced;
- Once littered, paper bags behave in similar ways to plastic and become wind blown and transported by water. However, they are less flexible, will absorb water and sink, and so are less likely to attach themselves to bushes and grasses along roadsides and waterways;
- Natural fibre bags have a positive image and a good variety of uses, although most are currently imported so there may be social and outworker issues to be considered.
- Alternative bags are more likely to be used on shopping trips that are planned in advance, and for occasions on which a number of items are likely to be purchased. Consumers are less likely to have them when purchasing on impulse. On these occasions, retailers are obliged to provide bags for consumer convenience, and this is an opportunity to consider the most appropriate type of bag.²²

7.0 THE AUSTRALIAN INSTITUTIONAL RESPONSE

The Environment Protection and Heritage Council was established by the Council of Australian Governments (COAG) in June 2001. The Council is comprised of Environment Ministers from the Commonwealth and State Governments. In October 2002 the Council asked the National Packaging Covenant Council to convene a special plastic bag working group to investigate issues associated with the use of lightweight plastic bags. The National Packaging Covenant is the leading instrument for managing packaging waste in Australia. It was signed by the Australian and New Zealand Environment and Conservation Council Ministers, Local Government and a broad range of industries in the packaging supply chain on 27 August 1999.

The Plastic Bag Working Group reported to the National Packing Covenant Council in December 2002.²³ In response to this report, The Environment Protection and Heritage Council agreed to ask industry and the community to cut plastic bag litter by 75 per cent by the end of 2004. The following four short term actions were also agreed:

- Government to develop legislative options, including a possible plastic bag levy and ban on plastic bags;
- Retailers to develop and implement a strong National Code of Practice for the Management of Plastic Retail Carry Bags by April 2003, which includes targets for recycling and reductions in bag use. Ministers challenged retailers to meet the following targets for the Code for the next two years:
 - 50% recycling rate for HDPE plastic bags;
 - 50% reduction in the number of HDPE plastic bags used;

²² Environment Protection and Heritage Council, *Plastic Shopping Bags in Australia*. Plastic Bags Working Group Report to the National Packing Covenant Council, 6 December 2002, at 21.

²³ Environment Protection and Heritage Council, *Plastic Shopping Bags in Australia*. Plastic Bags Working Group Report to the National Packing Covenant Council, 6 December 2002.

- 90% participation rate of retail chains and 25% participation rate of small retailers in the Code.
- Develop a proposal for a coordinated national customer and retailer awareness program and encourage continued participation in current litter programs such as the Clean Up Australia Bag Yourself a Better Environment Campaign.
- Undertake a comprehensive study on the full impact on the introduction of degradable plastic bags into the Australian market place, including the effect on national recycling, local manufacturing and landfills and develop a national standard for the use of degradable plastics in Australia by December 2004.²⁴

The Environment Protection and Heritage Council approved the Australian Retailers Association Code of Practice, but noted that if the Code is not implemented and / or targets not reached, Ministers will again look at implementing mandatory measures. Ministers also indicated their support for phasing out light weight single use carry bags containing HDPE within five years, and agreed that the Retailers Association should be engaged in negotiations to specify actions beyond 2005 to achieve this objective.²⁵

On March 5 2004 Premier Carr was reported as saying that he will soon force supermarkets to charge for plastic bags or ban them altogether. He stated that if an agreement on a ban or financial penalty on plastic bags can't be reached between all states, NSW will go it alone.²⁶ On 16 March 2004 during debate on the phase out of plastic bags, a Government MP stated: "Industry has made a commitment to reduce plastic bag use, and in the next few months we will find out how successful that commitment has been. If no progress is made, or if it is too slow, the community will not be able to wait and the Government will need to intervene."²⁷ The Opposition put forward a proposal to charge consumers 10 or 15 cents for each plastic bag, with that money to be refunded when the plastic bags are returned to the stores on a Thursday night or Saturday morning. The Opposition noted that this would also provide a means for community groups such as Lions, Rotary or scouts to raise money, and avoid inconveniencing retailers and consumers because plastic bags would still be available.²⁸

On March 29 2004 the Federal Environment Minister Hon David Kemp MP launched the Clean Up Australia's 'Say NO to plastic bags' campaign, which aims to educate both retailers and consumers to use reusable bags and cut down on plastic bag use. The Minister was reported as saying: "All environmental ministers believe that all plastic bags should be phased out within five years.... If this voluntary campaign isn't working then of course we have to consider what to do

²⁴ Environment Protection and Heritage Council, *Communique – Governments Focus on Plastic Shopping Bags*. 23 December 2002.

²⁵ Environment Protection and Heritage Council, *Communique – Plastic Bags*. 1 August 2003.

²⁶ "Carr to ban plastic shopping bags." *AAP Newstrack*, March 5 2004.

²⁷ *NSWPD*, Plastic Bag Phase Out, Consideration of Urgent Motion, 16 March 2004, at 7300.

²⁸ *NSWPD*, Plastic Bag Phase Out, Consideration of Urgent Motion, 16 March 2004, at 7300.

(next).” At the launch of the campaign, Clean Up Australia founder Ian Kiernan supported a voluntary approach, as he considered this was better than a ban on plastic bags because it re-educated rather than punished the public.

8.0 CONCLUSION

The Environment Protection and Heritage Council, of which NSW is a member, has agreed to the phase out of all plastic bags within five years. Whether this is achieved through voluntary industry programs or government regulatory mechanisms ultimately is a moot point. However, the NSW government has indicated that if voluntary industry programs do not remove plastic bags from the waste stream ‘fast enough’, it will introduce its own regulations to hasten the phase out of plastic bags. How this will actually be achieved has not been widely canvassed.

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