# PLASTIC SHOPPING BAGS IN AUSTRALIA

## National Plastic Bags Working Group
## Report to the National Packaging Covenant Council

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This report has been prepared for the National Packaging Covenant Council by the National Plastic Shopping Bags Working Group.

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**Plastic Bags Working Group Report to the National Packaging Covenant Council**

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## EXECUTIVE SUMMARY

Current plastic bag use and disposal, both by consumers and through waste management activities, not only create environmental problems, but also reinforce the perception of a wasteful society. Plastic bags as litter create a visual pollution problem, and affect our aquatic wildlife, while the heavy reliance on 'disposable' plastic bags by the Australian consumer raises questions of resource consumption and resource efficiency.

The present media debate on plastic bag use has been invigorated by reports coming from the Irish government concerning the apparent success of their plastic shopping bag levy, indicating significant reductions in the use of plastic shopping bags. Australian Environment Ministers, recognising the community's concern, established an expert working group to provide a range of options for the National Packaging Covenant Council and governments for reducing the environmental impact of plastic carry bags.

The Plastic Bags Working Group found that Australians consume approximately 6.9 billion plastic carry bags a year, which equates to just under one bag per person per day. They concluded that plastic bags are Australia's highest volume 'add-on' packaging designed as a single use or disposable product and are not necessarily essential to product integrity. Approximately 53% of plastic bags are distributed from supermarket outlets, while 47% come from other retail outlets such as fast food shops, liquor stores, and general merchandising.

After intensive examination of the issues associated with plastic bag use and disposal, the Working Group identified four main areas of concern that it considered should be addressed by a mix of solutions:

- Consumer behaviour that results in littering, and associated indiscriminate waste disposal;
- Resource efficiency issues, including reduction, reuse and recycling;
- Plastic degradability issues relating to littering and resource use; and
- Social issues, including triple bottom line concerns, community education and awareness, and consumer perceptions.

Although studies show that plastic bags are numerically around 2% of the litter stream at most surveyed sites, the impact of these bags is nevertheless significant, particularly to aquatic life and in the loss of visual amenity. Plastic bags are also more noticeable in the litter stream because of their size, and because they take hundreds of years to break down.

Plastic bags appear in the litter stream as a result of both inadvertent and intentional littering behaviour. Inadvertent litter is usually associated with windblown litter from disposal routes such as litterbins and landfill sites. Intentional litter results from inappropriate disposal actions by consumers.

The Working Group has identified a range of management options to address both behaviours. It recommends that current and future waste management and landfill management practices be investigated and that specific nationally consistent guidelines be developed to assist landfill operators to minimize off site litter in a variety of locations and circumstances. The Group also recommends that in the short term, active support be given to current consumer awareness and anti-litter programs, and in the longer term, that the effectiveness of the current programs be

examined, with proposals being developed for a coordinated national anti littering and consumer awareness campaign, specifically focused on plastic bag use.

The Working Group has also developed management options designed to reduce, recycle and reuse plastic carry bags. To reduce the amount of carry bags used, the Working Group recommends the adoption and implementation by all retailers of a *National Code of Practice for Management of Plastic Retail Carry Bags* with defined targets and a comprehensive reporting system. It also recommends consumers shift to more durable, reusable, and recyclable bags. In parallel with the development of the Code, the Working Group recommends that a proposal for the introduction of a levy on plastic bags also be developed. This proposal should set out an implementation process and include a full impact assessment as required by the Council of Australian Governments.

To promote an increase in recycling, the Working Group recommends the National Packaging Covenant Council proceeds with its program to 'close the recycling loop' for plastic bags. It recommends that the Covenant Council investigate and develop mechanisms to improve the in-store recycling rate, and look at ways of encouraging the development of markets for the reprocessed resin, particularly the use of recycled resin in plastic carry bag production.

The Working Group, cognizant of the divergent views and experiences with degradable plastics, recommends Standards Australia commence the development of a national standard for degradable plastics. The Working Group also recommends that a comprehensive study on the full impact of introducing degradable bags into the Australian marketplace, including the effect on plastic recycling, local manufacturing, and landfills, be undertaken as a matter of priority. Some members of the Group indicated their strong support for moving to biodegradable bags if they can be clearly demonstrated to deliver preferred environmental outcomes.

Overall, after investigating all the issues associated with the use and impact of plastic bags and their alternatives, the Plastic Bags Working Group recommends that a range of short and long term complementary initiatives be undertaken, rather than one approach in isolation. Any program designed to reduce plastic bag use and eliminate litter must include a mix of approaches.

## SECTION 1: INTRODUCTION

### 1.1 Background

Recent media reports have reflected significant concerns amongst the Australian community about the current rate of plastic shopping bag use (high density polyethylene or HDPE supermarket bags), and suggestions have been made that steps need to be taken to reduce this use. The impetus for these concerns was news of the Irish Government's success in achieving a 90% reduction in the numbers of plastic bags used after the imposition of a levy (the PlasTax). This levy theme was adopted and promoted by a number of parties in Australia, including Australian Greens' Senator Bob Brown, and the Council for the Encouragement of Philanthropy in Australia.

The PlasTax news achieved wide media coverage[1], although the reasons for the imposition received little, if any, explanation[2]. The Nolan-ITU report suggests that, in Ireland, the desire to reduce the number of bags being used was a waste minimisation measure, rather than a resource efficiency issue. The catalyst was concern about the visual impacts of plastic bags in the landscape, even more obvious in the green hedgerows of Ireland than in Australia, and the negative impression this was having on tourism.

### 1.2 Plastic Bags Working Group

At a meeting of the Environment Protection and Heritage Council on 11 October 2002, Ministers agreed to pursue a number of actions relating to the adverse impacts of plastic bags on the Australian environment. Ministers requested specific proposals from the National Packaging Covenant Council for consideration at their meeting in December 2002. Ministers also resolved to create a working party of officials, industry and community representatives—the Plastic Bags Working Group—to identify options for consideration by the National Packaging Covenant Council.

The Working Group's terms of reference were to:

- Identify options for eliminating the environmental impact of non-degradable plastic shopping bags to achieve better environmental outcomes; and
- Take into account the development and intent of the National Packaging Covenant in its deliberations.

The Working Group was tasked to:

- Investigate the broad range of issues surrounding plastic bag use in Australia;
- Undertake the role of an expert advisory group to the Covenant Council, providing it with ideas and options for consideration and comment and, as appropriate, to forward to Ministers; and
- Feed into and take value from an analysis being prepared by Environment Australia on the impacts of overseas plastic bag levies.

[1] Daily Telegraph, Adelaide Advertiser, West Australian, Herald Sun, Sunday Herald Sun, Canberra Times, The Age, Sunday Telegraph, Courier Mail, Hobart Mercury, Sunday Mail, Sydney Morning Herald, Australian Financial Review, and many regional papers as well as radio and TV

[2] Although information provided to the media by CEPA, Planet Ark, and others, did receive comprehensive coverage of the issues as raised by these groups.

At the first meeting of the Working Group in Melbourne on 24 October 2002, members agreed to form three sub-groups to investigate the issues and propose options for the consideration of the full Working Group:

| Group | Issue(s) | Chair |
|---|---|---|
| Sub-Working Group 1 | *National Code of Practice for the Management of Plastic Retail Carry Bags* | Ian Coles<br>EcoRecycle Victoria |
| Sub-Working Group 2 | *Voluntary Levy & Other Policy Options* | Rob Joy<br>EPA Victoria |
| Sub-Working Group 3 | *Product Options & Consumer Awareness Issues* | Anthea Tinney/Kerry Smith<br>Environment Australia |

In parallel to this work, Environment Australia commissioned a consultant, Nolan-ITU Pty Ltd, to undertake research on the *Analysis of Levies and Environmental Impacts*. The consultants provided an interim draft report to the Working Group on 12 November 2002 (which was also circulated to the Covenant Council), with the final report received on 3 December 2002.

The consultants were also privy to the discussions of the three Sub-Working Groups, and in this way were able to identify stakeholder issues and information gaps as the work progressed.

This report is a compilation of the work undertaken by members of the Sub-Working Groups, and includes pertinent information from the Nolan-ITU report. It aims to define the extent of the 'plastic bag problem' in Australia, and provide workable management options for consideration by the Covenant Council and governments.

## SECTION 2 : THE 'PROBLEM'

The following four main areas of concern were identified in the course of the Working Group's investigations:

- 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; and
- Social issues, including triple bottom line concerns, community education and awareness, and consumer perceptions.

### 2.1 Types of Plastic Shopping Bags

In Australia, two main types of plastic bags are used in the retail sector: 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 a non-branded bag, used mainly in supermarkets, take-away food and fresh produce outlets, but also in smaller retail outlets such as service stations and newsagents. The LDPE boutique style bags are generally branded and are used by stores selling higher value goods, such as department stores, clothing and shoe outlets.

The Working Group's terms of reference did not cover dry cleaning bags, garbage bags, plastic in-store product bags, or other packaging.

### 2.2 How many plastic bags are used in Australia?

The Nolan-ITU report notes that approximately 6.9 billion new plastic bags are used by consumers each year, or just under one bag per person per day. This equates to roughly 2% (or over 36 850 tonnes) of total plastics produced in Australia each year. Around 6 billion of these are HDPE bags and 900 million are LDPE bags. 53% are obtained from supermarkets, with the remaining 47% from other retailers.

### 2.3 Where are plastic bags manufactured?

Nolan-ITU estimates that 67% of HDPE singlet bags are imported, with the remaining 33% produced in Australia. The Nolan-ITU report notes that 225 million LDPE bags were imported in 2001-2002, with 675 million produced in Australia. There are two main plastics bag manufacturers in Australia: Detmark Poly Bags in Victoria; and S-Pak Australia Pty Ltd. in Queensland. Melbourne company Qenos is the sole Australian producer of HDPE and LDPE material for bag manufacture.

As the figures indicate, more LDPE bags are manufactured in Australia than are imported, but considering the overall numbers of bags in use (both HPDE and LDPE), it can be concluded that the majority of plastic bags used in Australia are imported.

In total, pproximately 400 full-time equivalents are employed in the whole process from manufacture of polyethylene to the production of bags

### 2.4 Marine and other animal injuries

Plastic bags are of significant concern in the marine and other aquatic environments, as aquatic life can be threatened through entanglement, suffocation and ingestion. The 1995 *State of the Marine Environment Report* found that pollution originating from the continent contributes up to 80% of all maritime pollution and is a major threat to the long-term health of near-shore marine systems.

There are also concerns relating to aesthetic and health issues from materials washed onto shorelines and inshore areas, and to the impacts on aquatic life interacting with increasing amounts of non-degradable and possibly toxic substances.

There is little evidence to suggest that litter from shipping is a significant issue. Laws prohibiting the disposal of plastics at sea appear to be effective. No data is available on the actual number of plastic bags that end up in the marine environment, but it is estimated that 70% of marine debris comprises non-degradable plastics.

Floating litter is known to travel considerable distances, with regional and sometimes global consequences. For example, it is possible that poor waste management practices in neighbouring countries may increase the amount of marine debris in Australia's north. More robust information on the origins of marine debris will be essential to the elimination of plastic bag litter in the marine environment and this requirement has been noted in the recommendations.

Plastic bag litter on land does not appear to be a major problem for wildlife, though there have been reports of some livestock (cattle) deaths due to plastic bag consumption. There is

some evidence to suggest that grazing stock in areas surrounding landfills will graze on windblown plastic bags resulting in stock losses. Autopsies following such stock losses in the ACT have failed to find plastic bags as the cause of death, although Victorian evidence suggests that stock loss does occur in this way. [3]

However, plastic bag litter is unsightly, and can block gutters and drains, creating stormwater problems[4]. This can then lead to greater problems if the bags travel through into the rivers and streams, eventually to the ocean.

The Working Group recommends that existing marine debris recording systems (currently operating within various States) be supported and extended nationally, and consideration be given to extending these to include freshwater systems (or an alternate but related national freshwater debris recording system be created.) This recommendation has been included under the recommendations addressing litter issues.

## 2.5 Littering

Litter studies indicate that plastic bags are generally in the top twenty litter items counted, although not in the top ten. Measured in numerical terms, items such as cigarette butts are more prevalent in the litter stream[5], and can have wide-ranging and devastating impacts on the landscape, on wildlife, and the economy through bushfire ignition. However, butts are not perceived as a problem by the public, perhaps due to their insignificant appearance and small size[6].

Data collected by Clean Up Australia and Keep Australia Beautiful suggests that plastic bags comprise around 2% of the litter collected at clean up sites[7]. Although this is indeed a small proportion, by their nature plastic bags are a very visible component of the litter stream, and their material persistence means that the number of bags in the environment will increase over time.

Litter can be either deliberate or inadvertent. The Nolan-ITU report indicates that:

- 20-30 million bags are inadvertently littered from waste management activities such landfills and bins at shopping centres; and
- 30-50 million bags are littered away from home (both deliberate and inadvertent);

Plastic bags lend themselves to inadvertent litter due to their lightness and easy ability to 'balloon' with wind, and this may occur from disposal routes such as litterbins and landfills, and from animal interactions with rubbish bins.

Litter associated with waste management activities is mainly associated with unloading operations at landfills rather than with the compaction and burial of waste. This windblown litter is largely contained by litter fences within the landfill site, and by perimeter fence litter

[3] EPA Victoria.

[4] A ban on plastic bags in Bangladesh imposed in March 2002 resulted from serious flooding caused by drains blocked by plastic bags (Nolan-ITU).

[5] Cigarette butts are the most commonly found litter items (Clean Up Australia). From the *National Pollutant Inventory Perth Airshed Emissions Study 1998/99* it is estimated that 5 million butts or 1 tonne are littered each day. Butts are not biodegradable and can remain in the environment for 5 years. Toxic leachates persist for at least 7 days, and butts have been found in the stomachs of birds, whales, and fish.

[6] Cigarette butts are currently being addressed as a priority by the Environment Protection & Heritage Council under the National Waste Framework.

[7] This figure is indicative only, as plastic bags counted at clean up sites may not have been deposited in that year.

patrols. Some litter does, however, escape from time to time, and these instances need to be controlled.

Consumer behaviour is still the most significant reason for plastic bags entering the litter stream: the Nolan-ITU report estimates that people litter between 30 and 50 million bags each year, compared with 20 to 30 million bags inadvertently littered during waste disposal. We do not know exactly who litters—there is no known gender, age or socio-economic differentiation in littering behaviour. A NSW EPA study, *Fast Life, Fast Litter* found that there are three main reasons for why people litter:

- Laziness;
- A perception that litter is not an important environmental concern; and
- In particular contexts, such as at a cinema or on New Year's Eve.

People tend to litter in recreational areas such as beaches and coastal sites, waterways, national parks, major visitor spots and sporting venues, and also in urban areas, and along roadways. The lack of appropriate disposal facilities does not appear to be a problem, with most littering occurring within 5 metres of a bin. It also appears that people are inclined to litter if there is litter already present in the area.

There is an opportunity to improve upon current litter abatement activities and strategies, including changing consumer perceptions and behaviour. These recommendations have been included under litter and community education recommendations later in this report.

## 2.6 Waste Disposal

The majority of waste in Australia is disposed of in landfills. A recent survey carried out by Quantum Market Research for the Council for the Encouragement of Philanthropy in Australia[8] indicated that 75% of people surveyed reused shopping bags as 'free' bin liners. The Nolan-ITU report estimates that 60% 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 landfills. Bags reused for other purposes are also likely to enter the waste stream and eventually end up in landfill. The annual plastic bag disposal to landfill is estimated at 6.67 billion units or 36 700 tonnes per year (Nolan-ITU report). This equates to roughly 0.2% of total solid waste going to landfill each year in Australia.

Plastic bags may take between 20 and 1 000 years to break down in the environment. However, the environmental impact of plastic bags in landfill is likely to be low due to their essentially inert or unreactive nature. It appears that plastic bags may have some landfill management benefits including stabilising qualities, leachate minimisation and minimising greenhouse gas emissions. However, dense layers or strata of bags have been discovered in older landfills, which increases the cost of resource recovery operations, and the cost of landfill reuse options.

The Nolan-ITU report notes that information obtained from landfill operators indicates that the major impact of plastic bags in disposal is not their effect in the actual landfills, which are designed to be as stable as possible, but in litter. This litter problem at landfill sites is largely associated with unloading operations rather than with the compaction and burial of waste as

[8] *Environment Friendly Shopping Bags Consumer Concept Evaluation* research report, prepared for CEPA by Quantum Market Research, August 2002.

the compaction and burial process generally punctures the plastic bags and makes them less likely to become windblown. Keep Australia Beautiful (Victoria) found that 47% of the litter at and around landfills is plastic litter, with a proportion of this material being plastic bags.

Windblown litter at landfill sites is currently managed with litter fences within the landfill and through litter patrols around perimeter fences, although a small proportion of this litter may escape into the environment. The problem at landfill sites is largely related to the visual impact of the litter. Degradable bags would be unlikely to solve this problem, as they would not degrade quickly enough to reduce windblown litter. Degradable bags might also add to the visual problem if slow degradation occurs (by degrading into smaller pieces that are harder to pick up).

Windblown litter from disposal sites in close proximity to a marine environment (including landfills and litterbins), is more likely to be associated with environmental harm and special waste management practices to reduce the problem in these areas could be considered. In order to address these special sites, as well as litter originating from landfills and litterbins, the Working Group recommends that nationally consistent guidelines be developed to assist landfill operators to minimize off site litter in a variety of locations and circumstances.

RECOMMENDATION

Request the EPHC Waste Working Group to:

- Investigate current and future waste management (including landfill management) practices with the view to developing specific national best practice guidelines to reduce litter, within six months;
- Consider extending the existing marine garbage recording system for small coastal ships to all States, and consider support of the proposed WWF marine debris database (South Australia);
- Investigate the development of a national freshwater debris recording system;
- Review by December 2003 the effectiveness of improved litter abatement activities and practices in landfill management, and in the maritime and tourism industries. Identify gaps and recommend measures to address those gaps;
- Investigate the compulsory branding of plastic bags in order to identify the litter source.

## 2.7 Resource Consumption

Nolan-ITU estimates that 6.9 billion bags (HDPE and LDPE) or 36 850 tonnes of plastic polymer, are consumed in Australia each year. This is equivalent to just 2.5% of the total plastics consumed in Australia per year by weight. HDPE and LDPE are manufactured from ethylene (a by-product of gas or oil refining), a non-renewable resource.

As noted in the Nolan-ITU report, the energy consumed in the manufacturing process of one HDPE singlet bag plus the energy content of the bag (the embodied energy) is equivalent to:

- Fuel consumed by driving a car 1 km is equivalent to 8.7 bags;
- Fuel consumed by driving a 28 tonne articulated truck 1 km is equivalent to 64.6 bags (i.e. travelling from Melbourne to Sydney would be roughly equivalent to 57 300 bags).

In comparison, it is estimated that the making of a plastic bag uses up to 40% less energy, produces up to 80% less solid waste, 72% less atmospheric emissions and 90% less waterborne waste, than a paper bag. Because plastic bags are lighter than paper bags there is

also considerably less fuel used in distributing the plastic bags, which means less greenhouse gas emissions[9].

HDPE bags are a remarkably efficient use of plastic resin[10], yet the potential for reusing this resource has not yet been realised in Australia. Due to the low volume of resin contained in each bag, the resource needs to be collected in large numbers in order to be economically viable. Currently only around 2.7% of new bags are recycled through supermarket collections, with most of this amount exported for reprocessing.[11] There is certainly an opportunity to increase recycling rates by a range of measures, in order to recycle the resource and to support the development of an Australian reprocessing industry, and this is reflected in the recommendations.

## 2.8 Social Issues

Plastic bags are popular with consumers and retailers because they are a functional, lightweight, strong, cheap, and hygienic way of transporting food and goods. However, despite this popularity, there appears to be widespread public concern that plastic bag are 'bad'. In a recent media talk-back session with the Commonwealth Minister for the Environment and Heritage[12], callers expressed their concerns on a range of issues including suggestions for alternatives and the kinds of alternatives they were currently using, concern that those with vested interests would dominate the decision-making process, and suggestions for other types of plastic packaging that should be considered.

The high visibility of HDPE plastic bags (usually white or pale coloured), and the extent to which their use has pervaded society, is seen by some members of the community as a symbol of the 'wasteful society'. However, given that alternatives are readily available (depending on personal choice), and that a recycling collection system has been in place for several years (albeit a system that relies on consumer action), it is interesting that the majority of consumers continue to use the equivalent of one new plastic bag per day whilst complaining that 'someone' should do something about the issue. This is supported by data collected by Clean Up Australia from newspoll surveys conducted during their 2001 *Bag Yourself a Better Environment Campaign*: although 92% of those surveyed indicated that the effects of plastic bags on wildlife was a major concern (75% for landfill and 86% on rubbish), the majority of respondents indicated that they weren't likely to use an alternative (72%), reuse a bag (63%), or recycle a bag (64%).

A number of reasons can be used to justify this communal targeting of plastic bags above the range of other packaging materials. Plastic bags are Australia's highest volume 'add-on' packaging designed as a single use or disposable product and are not necessarily essential to product integrity.

Nolan-ITU estimates that, on average, plastic shopping bags cost one cent each (wholesale), and as this cost is incorporated into retail store overheads, most consumers would see plastic bags as 'free' commodities. However, the real average cost per household is more likely to be around $10 to $15 per year (Nolan-ITU). This expense would be regarded as relatively minor by most consumers. If plastic bags were replaced by alternatives, including degradable bags, the financial cost to the consumer would certainly increase.

[9] Graeme Gibson, *Plastic Shopping bags – An informal discussion*, 1997, ACT Government

[10] Based on low energy inputs, very high packaging to function ratio (ie. a plastic bag is able to carry many times its own weight), and a single rather than multiple production transformation (eg. compared with plastic office equipment and household goods).

[11] 1 000 tonnes or around 180 million units in 2001-2002 (Nolan-ITU).

[12] Plastic Bag Levy talkback on 4BC, 28 November 2002.

The Nolan-ITU report has also noted that, in the event of a significant reduction in plastic bag use, a number of jobs in the plastic bag supply chain would probably be lost.[13] However, this loss would be offset by employment gains in other areas by, for example, creating jobs in the paper industry if fast food outlets were required to eliminate plastic bags (20 jobs), by an increased demand for kitchen refuse bags, in the alternative bag industry, and in the administration of levy (if this was applied). These employment scenarios would change depending on the mix of options applied. In any case, any loss of jobs in any industry is an important factor to consider, and will create associated social and economic impacts.

## SECTION 3 : EXISTING PLASTIC BAG MANAGEMENT PRACTICES

There has been a mix of management solutions used in Australia over the last few years to limit the effects of plastic bags on the environment. Public awareness strategies, and voluntary measures appear to be the most common methods used to address consumer behaviour, although in the marine environment legislation has been used effectively to curb plastic bag litter from shipping.

### 3.1 Regulatory Measures

In NSW, the *Protection of the Environment Operations Act, 1997* (POEO Act) has been amended to allow for stronger but more flexible and enforceable anti-litter provisions. A single fine for littering was replaced in July 2000 with a tiered range of fines ranging from $60 for small items, up to $375 for aggravated littering. These amendments have been part of the broader NSW Government Litter Prevention Program, which uses a mix of approaches, including education, financial incentives and infrastructure provisions, to minimise littering in the community.

In Queensland, the statutory measure is the litter provisions of the *Environmental Protection (Waste Management) Regulation 2000* that provides for fines of up to $1 500 for litter offenders. The power to issue fines, including on-the-spot fines for litterers, rests with officers from the Environmental Protection Agency and local governments.

South Australian litter fines and penalties are legislated under the *Local Government Act*. Whilst plastic bags are not highlighted, fines are $315 expiation and up to $4 000 (court imposed). The South Australian Environment Protection Authority under the *Environment Protection Act* (1993) administers landfill licenses. License conditions state that all reasonable measures are taken to limit and control litter on the site. Breaches of licence conditions carry heavy penalties.

Recent legislative changes have been implemented in Victoria. *The LitterAct 1987* has been incorporated into the *Environment Protection Act 1970* to emphasise that littering is damaging to the environment. On the spot penalties have been substantially increased with the fine for littering a small item raised from $20 to $100 and other on the spot fines raised to $200. Court imposed fines have also been substantially increased with, for example, court fines for littering from a vehicle and aggravated littering raised to $6 000.

Australian legislation, the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*, based on the International Convention for the Prevention of Pollution from Ships (known as MARPOL 1973/78, Annex V), specifically prohibits the discharge of plastics into

[13] Reduction of plastic bags by 70% equals 250 fulltime jobs.

the sea. The laws apply to all vessels including dinghies, yachts and fishing vessels. Fines of up to $A1.3 million for companies and $260 000 for individuals may be imposed on boat operators illegally discharging garbage at sea.

MARPOL 1973/78 also requires vessels over 400 tonnes to develop a waste management plan which contains procedures for collecting, storing, processing and disposal of garbage. Ships must be fitted with appropriate handling equipment such as compactors or incinerators, and details of every garbage incineration or disposal must be recorded. The record book and any receipt for using a waste reception facility in port must be kept for two years and be available for inspection by authorities. In addition, all vessels of 12 metres or more in length are required to display placards which provide information about garbage laws.

The Working Group recognises that investigations and possible prosecutions of polluters can be a difficult, costly and resource intensive process. However, the legislation itself appears to be working as an effective deterrent, as available data suggests that pollution from Australian shipping is minimal, with 80% of marine debris being of terrestrial origin.

The Australian Marine Industries Federation has recently indicated that their Board is concerned about both the environmental impacts of plastic bags and the damage they inflict on marine engines. State Boating Industry Associations who are Federation members will be phasing out the use of plastic bags at their boat shows by 2004.[14]

### 3.2 Economic Instruments

As well as regulations relating to the littering of plastic bags, there have also been several attempts to bring in a levy or charge on plastic bags over the last ten years.

There was an attempt in the Australian Capital Territory (ACT) to bring in a levy or charge on plastic bags. In March 1999, a Private Members Bill proposing that retail businesses in the ACT would charge customers directly for any plastic shopping bags provided, was not supported by the government. It was perceived that the Bill would place a burden on business without addressing the plastic bag problem adequately. The ACT Government agreed to continue with community education initiatives to reduce the use of plastic shopping bags.

Recently there have been two proposals to apply a levy on plastic shopping bags: two Bills presented in the Senate by Australian Greens' Senator Bob Brown[15], and supported by two Private Member's Bills by the Hon Peter Andren in the lower house; and a proposal presented by Mr Ron Clarke, President of the Council for the Encouragement of Philanthropy Trust.

Senator Brown's Bills propose to apply a levy of 25 cents on plastic bags (including biodegradable bags) at the retail point of sale which would be paid into a national environment fund to be administered by the Minister for the Environment. The levy will not apply to paper bags or plastic bags used for fresh produce. On presenting his Education Fund Bill in the Senate in October 2002, Senator Brown stated that the purpose of the levy was *"not to collect funds but to change customer behaviour and reduce the environmental impact of the billions of plastic bags disseminated each year…"* Both Bills are currently awaiting debate in the Parliament.

The Council for the Encouragement of Philanthropy proposal (*The CEPA Trust Solution*, September 2002) proposes a four-tier levy system with charges ranging from 5 to 20 cents

[14] Correspondence to the Hon Dr Kemp by Ms Sherry Donaldson, CEO Australian Marine Industries Federation Ltd, 21 October 2002.
[15] Plastic Bag Levy (Assessment and Collection) Bill 2002 and Plastic Bag (Minimisation of Usage) Education Fund Bill 2002.

depending on the type of bag (including biodegradable bags and bags made from other types of material) charged to customers at point of sale. The funds would be collected by bag suppliers from retailers and administered through state jurisdictions, with monies raised (minus administration fees) going to charitable and education activities. The goals of the levy are to reduce the use of non-degradable plastic shopping bags, to encourage retailers to issue biodegradable bags, to educate the community, and ensure no party suffers financially. This proposal was presented to a range of parties, including the Minister for the Environment and Heritage, Dr David Kemp. As a result of this presentation, Mr Clarke joined the Plastic Bags Working Group and participated in Sub-Working Group 2 Voluntary Levy and Other Policy Options.

## 3.3 Voluntary Instruments

### *3.3.1 National Packaging Covenant*

The National Packaging Covenant is the leading instrument for managing packaging waste in Australia. It was signed by Australian Environment Ministers (Commonwealth, State and Territory, not including the Northern Territory), local government and a broad range of industries in the packaging supply chain on 27 August 1999, with a lifespan of 5 years. It is a self-regulatory agreement between industries in the packaging chain and all spheres of government, based on the principles of shared responsibility through product stewardship, and applied throughout the packaging chain (from raw material suppliers to retailers) to the ultimate disposal of waste packaging.

This voluntary agreement is backed by legislation to ensure Covenant signatories are not disadvantaged in the market place, and to provide a complementary regulatory safety net affecting those who do not sign the Covenant. Each state and territory (except the Northern Territory) has implemented a National Environment Protection Measure for Used Packaging Materials with a range of penalties.

Signatories are required to undertake actions that reduce the effects of packaging on the environment, and this definition includes plastic bags.

With almost 600 signatories (as at November 2002), the Covenant has been successful in raising almost $35 million for expenditure on recycling systems, by broadening the waste minimisation agenda from its focus on recycling to full product stewardship, and by supporting and achieving change at the company level. Cross-industry performance indicators are currently being developed to enable the collection of reporting information and to assess the success of the Covenant as a whole in reducing the effects of packaging on the environment.

### *3.3.2 Code of Practice for Supermarket Carry Bags*

*The Code of Practice for Supermarket Carry Bags* was initiated by the Australian Supermarket Institute (now replaced by the Australian Retailers' Association) and EcoRecycle Victoria, and was launched in December 1997. The original signatories included Coles, Franklins, and Safeway (Woolworths), with Ritchies signing at a later date. The Code covered 317 stores as at 2001. Operating only in Victoria, signatories agreed to implement eight actions aimed at reducing, reusing, and recycling plastic shopping bags, monitor their use, and report annually. Whilst narrow in scope, the Code's 2001 Annual Report noted a small decrease (around 4%) in the number of plastic bags being used over the previous year, and 30 624 reusable bags sold (down on previous years). Many of the Code's commitments rely on the knowledge and ability of in-store staff to implement them, and consequently the level of commitment may differ from store to store. The Australian Retailers' Association has been

keen to expand the Code nationally, and to this end, has been discussing this opportunity with governments. More recently, members of Sub-Working Group 1, including the Association, have been preparing an expanded and strengthened Code of Practice to cover all plastic carry bags used by retailers. This work is included at **Appendix C** of this report.

### *3.3.3 Alternative Bag Trials*

There have been several trials of plastic bag alternatives by major supermarket chains in conjunction with state, territory and local governments, and non-government organisations.

In November 2002, Coles launched a calico bag incentive program in Tasmania to reduce the use of plastic bags. The state-wide initiative encourages Tasmanians to purchase a Coles calico bag ($2 each), and rewards customers with two cents per bag deduction off their grocery bill each time they are used.

A successful calico bag trial was held in the Australian Capital Territory (ACT) in 1999. The "ReBaG" trial, which involved the ACT Government, ran for one month at a local IGA supermarket, and reportedly received overwhelming community support. The demand for the 5 000 calico bags produced for the trial far outweighed the limited supply.[16]

Paper bag trials appear to have been less effective, and Nolan-ITU data suggest that the environmental impacts of paper bags could be more significant than those of plastic bags.

The ACT Government supported a *Reusable Paper Bag Trial* run by Coles Supermarkets in the ACT in 1998. During the trial, 25 000 plastic bags were replaced by 10 000 kraft paper bags, at a cost to the consumer of 15 cents each. The trial findings noted that a 2 cent discount incentive was not enough to motivate consumers who had not already committed to changing their shopping behaviour. However, Coles now offers these paper bags at their stores throughout Australia.

The Queensland EPA is currently negotiating a voluntary agreement with the fishing bait bag industry to replace polyethylene bait bags with biodegradable ones, as polyethylene bags have been implicated in the mortality rate of marine animals including the currently endangered leatherback and loggerhead turtles. This initiative is being supported by SeaWorld and the Great Barrier Reef Marine Park Authority. The Queensland EPA has commissioned research to look at the digestion of biodegradable plastics in the gut of turtles and technical aspects regarding performance of the product to contain and market fish bait.

Biodegradable bags have also been trialed by a number of Queensland ice and bread manufacturers and the EPA is encouraging the use of biodegradable bags in recreational settings and other areas where littering is more prevalent and recycling opportunities remote.

During the forthcoming National Plastic Bag Awareness Program, *Bag yourself a better environment* month, in March 2003, Coles and Woolworths supermarkets have committed to undertaking trials to encourage the reduction of plastic bag use. These commitments include requesting checkout staff to ask customer whether a bag is needed, and to offer plastic bag free lanes in a number of trial stores.

[16] In 1997 the ACT Government also supported the Bag-A-Bargain promotion at a local shopping centre which aimed to attract new customers to the centre and assist in waste reduction by promoting calico bags purchased from retailers at $2 each. No evaluation was undertaken.

### *3.3.4 Community Awareness & Education*

There has been a diversity of consumer awareness/education campaigns over the past 25 years based around litter, waste management and stormwater management. These campaigns have aimed to increase community awareness and/or advocate a variety of behaviours.

**Appendix A** provides a list of various Australian based awareness/education activities in which the message aims to address the use of plastic bags and their environmental, economic and social impacts.

The implementation of these campaigns ranges from a local to a national scale, where the messages may target a specific audience or be targeted at the whole community. The level of resourcing varies from a few thousand dollars to millions (e.g. NSW Litter Prevention Program - $4m over 3 years).

Some of the more effective consumer awareness/education campaigns (from the perspective of consumer recognition and influencing behaviour) have been *Do the Right Thing*, Clean Up Australia Day, *Don't be a Tosser*, Cards 4 Planet Ark, Phones for Planet Ark, and the *Drain is Just for Rain*.

There have been numerous plastic bags campaigns that have focused on the impacts of plastic bags, and on how to reduce or prevent these impacts. For instance, many local councils, environment groups, and some retailers have promoted the use of alternatives such as calico bags; as well as promoting the impacts of plastic bags on aquatic life through graphic imagery.

These campaigns have been effective in raising the community's awareness that plastic bags can be harmful to the environment and have encouraged a small percentage of consumers in changing their behaviour by using alternatives, and/or reusing and recycling. The momentum of these small locally based campaigns has been growing in recent years.

The first national TV campaign on plastic bags occurred in 1992 and involved three advertisements that were produced by Planet Ark and Channel 7. These were aired in prime viewing time as part of the *Save the Planet* series of 20 second television advertisements, and focused on the need to use alternatives to plastic bags and the need, wherever possible, to reue or refuse plastic bags.

In November 2001, the first nationally based plastic bag campaign involving both retailers and consumers was implemented by Clean Up Australia in partnership with the Australian Retailers Association, Environment Australia, Coles and Woolworths. *The Bag Yourself a Better Environment* campaign demonstrated that a national campaign working with retailers can change consumer and retailer behaviour, as shown by short term increases in recycling and use of alternatives. It also demonstrated the desire of local communities to extend the campaign locally through good participation in the promotional 'ambassadors' component of Clean up Australia's program. The campaign provided detailed information about plastics, plastic bags and alternatives to both retailers and members of the community. An extended version of the campaign will be repeated over March 2003, with the support of Environment Australia.

The Irish Government implemented a comprehensive education campaign when the PlasTax was introduced. Pamphlets were sent to every household outlining why the levy was being introduced, where the funds would be spent and how consumers could avoid the levy by using reusable bags.

A national plastic bag campaign by Planet Ark was launched in Australia on the same day that the Irish levy came into force. This focused on the problems of plastic bags and the possibility that a levy was needed to give people a financial incentive to change their plastic bag behaviour. This campaign has been successful in raising the public awareness of plastic bag related issues and has led to wide media coverage. Planet Ark have since been joined by the Council for the Encouragement of Philanthropy in Australia and the Sunday Telegraph in the implementation of this campaign.

A local debris collection project has been undertaken by volunteers from the Australian Surfrider Foundation and the fishing industry over the last three years. The *Tasmanian Marine Debris Campaign*[17] targets the remote and uninhabited south-west coast of Tasmania and aims to remove marine debris washed up from the Southern Ocean. Two tonnes of rubbish was collected in 2001, comprising a total of 6 300 items of rubbish. Several schools also collect rubbish from their local beaches and record the origin of the debris on a database. It would be useful if the information collected from these two programs could be included in the proposed WWF-maintained marine debris database, in order to collate disparate information on plastic bags in marine debris.

There is scope to develop a national community awareness and education campaign, with the cooperation of community and retailer groups, that aims to alert consumers to the adverse effects of plastic bags on the environment, and provides information on how consumers can reduce these effects.

RECOMMENDATION

Undertake the following plastic bag education and awareness activities:

- Actively support current consumer and retailer awareness campaigns to reduce plastic bag litter, such as but not limited to, Clean Up Australia's National Plastic Bag Awareness Program's month of action commencing in February 2003.
- Develop a proposal for a coordinated national customer and retailer awareness program that would:
  - Promote the use of plastic bag alternatives through various communications from governments, retailers and non-government organisations;
  - Promote marine and land-based littering awareness;
  - Encourage appropriate waste disposal (anti-littering) behaviour;
  - Target youth awareness through competitions and other such means.
- Review by June 2003 the effect of consumer awareness and education programs on plastic bags, such as the State and Territory Governments' Litter Abatement programs, and NGO (Clean Up Australia and Planet Ark) programs. Identify gaps and recommend measures to address those gaps.

### *3.3.5 Voluntary Levies*

Voluntary levies have been implemented in some Australian contexts, but these should not be regarded as representative of the retail industry as a whole.

[17] This project was awarded the inaugural Minister's Coastal Custodian Award in December 2002.

As part of a waste management strategy (in 2000), retailers on Lord Howe Island were asked to sell plastic bags to customers at 55 cents each. Calico bags were also distributed to encourage a change in consumer expectations. The charge has not been uniformly implemented and the Nolan-ITU report notes that the reduction in plastic bag use may be due to changed consumer behaviour, rather than by uniform implementation of the levy.

A small supermarket in Byron Bay, NSW, introduced a charge of 10 cents for plastic (and biodegradable) bags in 2002. This charge has resulted in an 83% decrease in bag use (from 1 200 to 200 per day). Three types of alternatives are provided (the biodegradable bag, free paper bag, and cotton/string bag at $1.50 each), with the retailer reporting no decrease in sales, although costs have risen due to the increased expense of providing paper bags free of charge.

In 2002, IKEA (homewares retailer) introduced a 10 cent charge on their plastic bags, while also providing a reusable alternative. The company reported a reduction in plastic bag use by 97% (from 8 000 to 250 per week), with many customers preferring the no bag option. (The popularity of this choice may relate to the flat-pack packaging system used by the retailer).

ALDI supermarkets also charge customers for plastic bags (15 cents for a LDPE reusable bag) and offer three alternative types (a cooler bag at $1.49, reused boxes, and a 69 cents cotton bag). Consumers most commonly choose the reused boxes, or no bag for small purchases.

## SECTION 4: MANAGEMENT ISSUES

### 4.1 Reducing the number of plastic bags

One of the key aims is to reduce the number of plastic shopping bags being used, and thus reduce the harmful impacts on wildlife and the broader environment. The identification, testing and marketing of viable alternatives will be crucial to the success of the reduction in plastic bag use.

#### *4.1.1 Alternatives*

Life-cycle analysis indicates that environmental and littering benefits would be gained by a major shift from single use and disposable bags to multi-use and longlife bags. The Nolan-ITU study finds that, although overall there are no significant differences in the environmental outcomes of the range of alternatives examined[18], reusable heavy-duty plastic bags produce a combination of good resource use, longevity, and recycling outcomes.

Research undertaken by the Sub-Working Group on alternatives (Group 3) suggests that issues connected with degradable bags and the possible impacts they may have on the environment are separate to those relating to other alternatives, and these issues have been addressed in more detail in item 4.5 on Degradable Plastics. Supplementing or replacing non-degradable plastic bags with degradable bags presents a range of important issues, which need to be addressed thoroughly to prevent the creation of a new range of problems.

Information on 21 types of alternative bags (including degradables) may be found at **Appendix B** – Alternative Carry Systems. This research indicates that box and carton types

[18] While various types of bags performed better than others when assessed against individual criteria (such as resource utilisation, or litter impacts) no one type rate uniformly high across all the criteria.

are cost effective, but unsuitable for pedestrians, older people, children, and pregnant women due to carrying difficulties. Preliminary findings indicate that, overall, the manufacturing and production costs of paper are higher than those of plastic, however 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, paper bags are less flexible, will absorb water and sink, 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 fibre bags are currently imported, so there may be social and outworker issues to be considered. More information is also needed about crop production costs and impacts, and outworker issues, versus plastic production.

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 a bag with them when purchasing on impulse: items such as clothing, CDs, magazines and stationery, and so on. In these instances, retailers are obliged to provide bags for consumer convenience, and this is an opportunity for retailers to consider the most appropriate type of bag.

There are checkout and other store design issues and costs applicable to all types of alternatives (except possibly degradable plastic bags). Alternative bags should meet minimum cleanliness and hygiene standards, and therefore should be washable/cleanable. HDPE bags currently provided to customers are in a clean condition. Hygiene and food safety requirements for plastic bags used to contain and package food are addressed by Australian Standard *2070-1999 Plastic materials for food content use*. However, Food Standards Australia New Zealand advises that there are no Australian regulations or standards for plastic, or other, bags used to transport food already packaged: the relevant parts of the Australia New Zealand Food Standards Code (3.2.2 *Section 9 Food Packaging* and *Section 10 Food Transportation*) do not cover bags used to carry food and drink items obtained from stores.

If customers choose to pack unpackaged food items (such as fruit and vegetables) into their own bag, rather than use a plastic bag, then stores may need to consider their responsibilities under the Food Standards Code, as they have responsibility for food integrity until the customer leaves the store. However, some members of the Working Group expressed the view that shifting to alternative bags presents no greater hazards to food hygiene over and above current exposure routes (such as dirty trolleys).

Supermarkets should define the types of bags they are willing or able to accommodate in their stores, and communicate this information to their customers.

Any increased cost to the customer through the required purchase of alternatives, may result in trolley thefts, and stealing of alternative bags provided for purchase by stores. Retailers may face increased security costs in order to combat theft, costs relating to the implementation of a returnable deposit trolley system, and bar coding or other identification of alternatives sold in-store.

The introduction of alternatives may affect landfill operations by reducing the number of plastic bags going to landfills; by introducing a significant number of degradable bags (the general long-term effects, and the short-term effects of large amounts in landfill, are not known at this stage); and by introducing quantities of other materials (natural fibres, some polypropylene, some metals etc.) as used in baskets, backpacks and other bags: although these amounts are not expected to be substantial.

A significant take-up in alternatives could affect markets in two different ways. Demand for particular alternatives could create opportunities to support existing or develop new Australian markets (such as hemp, cane, and polypropylene recycling), and/or for existing and developing 3rd world schemes (such as jute and sisal). This demand could also inflate commodity prices, as was experienced by jute commodities in Bangladesh when the government banned plastic bags earlier this year. On the flip side, existing Australian plastic bag manufacturers may be disadvantaged by a significant alternatives take-up and consequent downturn in plastic bag use unless they diversified into degradable bags, and a sustainable market for these was created.

The wholesale and retail price of most alternative types is currently higher (sometimes significantly) than the prices of HDPE and LDPE plastic bags. However, in most cases (not degradables) this cost will be a one-off charge for a reusable and multi-use item that may last for some time. The wholesale cost of degradable bags, at between 2.5 to 10 cents depending on the variety, is also significantly higher than non-degradable plastic bags (at around 1 cent each).

The higher cost of alternatives may disadvantage people on low incomes and pensions. This could be addressed by retailers offering alternatives at cost price for a limited and introductory incentive period. The cost may also reduce over time with increased demand resulting in more efficient manufacturing costs.

It can be assumed that, by using an alternative bag, consumers will be encouraged to use these bags responsibly, and there will be a corresponding reduction in the number of plastic bags ending up as litter in the environment. However, consumers will be more likely to throw away a lightweight plastic bag (such as a degradable bag) than a reusable bag made from a long-lasting material (such as fabric or hardened plastic). In particular, the Nolan-ITU report suggests that 0.79 billion plastic bags are currently used for non-home purposes, and that 20 million of these end up as litter. The perceived attributes of degradable bags may actually encourage consumers to dispose of these bags inappropriately, on the mistaken understanding that they will not harm the environment. Although there are currently no available data, it should be noted that there is a possibility that the introduction of degradable bags on a large scale may not necessarily change consumer littering behaviour.

Future outcomes are difficult to predict as consumers will probably continue to use a mix of bag options depending on: the availability of alternative bags; cost; family size; trip destination; planned or impulse buying; and type of shopping trip (bulk, regular, local, etc.)

RECOMMENDATIONS

Encourage consumers to shift from single use and disposable bags to multi-use and longlife bags through education and awareness programs, and by coordinating the collection of information on plastic bag alternatives and making this available to the public via relevant webpages.

Request Food Standards Australia New Zealand to investigate and advise on hygiene standards for bags used to transport pre-packaged goods, and promote this advice to customer through retailers.

### *4.1.2 National Code of Practice for the Management of Plastic Retail Carry Bags*

Building upon the 1997 *Code of Practice for Supermarket Carry Bags*, this proposed national code has been strengthened in several key areas and extended to include all retailers, not just supermarkets. The Code aims to:

- Encourage retailers to adopt a consistent national approach to the provision of plastic carry bags as a means of optimising the sustainable use of resources;
- To reduce the adverse impacts of plastic carry bags on the environment by:
    - reducing the use of plastic carry bags;
    - encouraging the reuse and recycling of plastic carry bags;
    - supporting the development and promotion of alternatives to plastic carry bags.

Supported by the Australian Retailers' Association (ARA), retailers will be encouraged to sign the Code and undertake a range of actions designed to reduce the number of plastic bags being used and encourage consumers to reuse and recycle plastic bags. Participants are required to collect specific data and forward this to the ARA for collation at specific intervals. The collated data will be forwarded to the National Packaging Covenant Council for inclusion in their report to the Environment Protection and Heritage Council. A copy of the proposed Code is at **Appendix C.**

The Code aims to achieve a goal of increasing the reuse and recycling of plastic bags to 85% by the end of 2007, with targets for plastic bag reduction to be included by April 2003.

Members of the Working Group noted the following concerns relating to the proposed Code:

- Reuse and recycling goals and targets should be separated into two separate items, to allow for more accurate reporting on these issues;
- Stakeholders should be involved in the formation of trial methodologies, to ensure that standardization requirements are met;
- The Code should ensure that the appropriate linkages are made with National Packaging Covenant requirements;
- The Code may need to consider separate commitments and reporting requirements for supermarkets, and for other retailers.

RECOMMENDATION

The Working Group recommends the following actions:

- Note the significant development towards a strong *National Code of Practice for the Management of Plastic Retail Carry Bags*, and agree that all retailers should be covered by the Code;
- Develop a comprehensive reporting regime and targets for the *National Code of Practice for the Management of Plastic Retail Carry Bags* by April 2003, with the initial report on base line data to be completed within three months;
- Six monthly reporting against the effectiveness of the Code of Practice and achievement of targets.

## 4.2 Reusing plastic bags

The Nolan-ITU report notes that due to their usefulness, plastic shopping bags are used beyond their 'single use' design. Reuse applications include waste bags or bin liners, lunch bags and general carry bags for gym or pool gear or other such uses.

The PACIA *National Plastics Recycling Survey* 1992 indicated that 85% of people reused plastic shopping bags for some application, and in a recent Quantum Market Research survey (2002) it was reported that 75% of people reused shopping bags as bin liners or waste bags, with other reuses on top of this again. The Nolan-ITU report states that as it is unlikely that this percentage of people actually reuse bags, a more realistic reuse rate is approximately 60%, with 3.68 billion bags being reused in the home for a variety of purposes, including bin liners

The rate of reuse however is significant, and any reduction in the availability of plastic shopping bags will certainly increase the market for plastic garbage bags. After the introduction of the levy in Ireland, and subsequent reduction in the demand for plastic shopping bags, Irish retailers reported an increase in the use of kitchen tidy bags by approximately 77% (Nolan-ITU). This would counteract some of the resource use savings in reducing plastic shopping bag production. The Nolan-ITU report also notes that the sale of the kitchen tidy bags in Ireland is minor in comparison with the overall reduction in plastic shopping bag use.

In landfill, the environmental impact of plastic bags is low due to the inert or unreactive nature of the material. The bags may also stabilise landfill, and minimise leachate and greenhouse gas emissions. However, the bags can take between 20 and 1 000 years to break down, and the dense layers of plastic bags found in older landfills may increase the cost of resource recovery operations and landfill reuse options.

The development and use of a degradable bin liner or waste bag may provide a viable alternative to plastic bag use in landfill, but the environmental impacts need to be carefully examined. Degradable bag issues have been addressed in more detail in item 4.5 on Degradable Plastics.

### 4.3 Recycling

Overall, recycling of plastics is well established in Australia, with the PACIA *National Plastics Recycling Survey 2002* showing an overall recycling increase from 11% in 2000 to 13.1% in 2001. This also shows the recycling rate in 2001 for HDPE and LDPE in general as 19% and 13.4% respectively.

While HDPE carry bags are currently being recycled in major supermarket chains in Australia, it is estimated that only 1 000 tonnes or about 180 million bags (Nolan-ITU report) were recovered through this collection system annually. The Sub-Working Group research estimates that around 25% or 8 250 tonnes of used plastic bags are available for recycling[19], therefore, the current recycling rate for HDPE carry bags is estimated at 12% of the available volume of both new and reused bags.

While most of the recovered used bags are exported overseas for reprocessing, about 50 tonnes are currently being reprocessed in Australia (mainly in the agricultural pipe industry). The National Packaging Covenant Council is currently investigating, the establishment of a system that will provide another Australian market for recovered plastic bags and work towards closing the recycling loop. This system has four points of activity:

1. *Retrieval:* Introduction of HDPE storage and recycling bags (the Bob Sock) which will allow for the collection of more plastic bags.

[19] Based on 6 billion bags weighing approximately 33 000 tonnes, with 75% being re-used as bin liners and so on: the remaining is estimated to be available for recycling.

2. *Reprocessing*: A South Australian based reprocessor has estimated it can reprocess an additional 20-30 tonnes or 2 million bags a month.
3. *Production:* A Victorian bag manufacturer will include 50% of the reprocessed resin in the production of new carry bags for the same price as virgin bags.
4. *Retail:* Major supermarket chains will purchase the recycled content bag.

Sub-Working Group 3 research noted that additional opportunities for increased recycling may be achieved by co-locating compatible materials with the used plastic bags. For example, tertiary packaging such as stretchfilm and shrinkfilm pallet wrapping, and dry cleaning bags, could be included and reprocessed with used plastic bags. This potential increase could also be facilitated through the existing kerbside recycling system, and the Working Group recommends that the feasibility of this option be investigated.

Any reduction in the number of plastic bags, however, could affect the amount of LDPE and HDPE material available for recycling.

Concern also exists amongst recyclers that degradable materials in the recycling stream could lead to product failure and loss of confidence in the marketplace (ie.degradable polymers manufactured into new products). The introduction of degradable bags, therefore, either as an alternative choice or as an HDPE replacement, will likely present considerable collection and recycling challenges.

RECOMMENDATION

Assist the development of plastic bag recycling by:

- Investigating the feasibility of kerbside recycling systems in the context of best practice programs established under the National Packaging Covenant, to include HDPE & LDPE plastic bags;
- Actively encouraging the development and distribution of a HDPE bag to be used for storing and recycling domestic plastic bags through retail recycling bins;
- Encouraging the identification and development of markets for recycled plastic resin and products through the product stewardship relationships encompassed by the National Packaging Covenant
- Strengthening existing recycling infrastructure in retail stores.

### 4.4 Waste-to-Energy / Incineration

Currently in Australia, very little of the total disposal waste stream is treated via 'alternative waste treatment' technologies, including waste to energy facilities. However, where waste to energy technology is used, the significant embodied energy contained in plastic bags and other plastic materials could provide a valuable feedstock to the process.

Due to the underdeveloped aspects of current waste-to-energy technologies, the Working Group does not consider this to be a significant issue at this stage.

### 4.5 Degradable Plastics

A recent Environment Australia report produced by Nolan-ITU discusses the range of developments and environmental impacts that need to be considered when applying degradable technologies to a given situation. *Environment Australia: Bio-degradable Plastics – Development and Environmental Impacts* (Nolan-ITU, October 2002) contains valuable

references for determining the best way to manage the plastic bag problem, and some of this information has been used in this report.

### *4.5.1 Degrading mechanisms*

There is no one degradable plastic, but rather a range of plastics which have been designed to breakdown in different ways. Degradability, as a term, encompasses bio-degradability as well as bio-additive technologies and the differences between the two processes are important in order to inform the Working Group's recommendations.

The different classes of degrading mechanisms are summarised as:

- Hydrocarbon based polymers that rely on pro-degradant additives;
- Pure starch type polymers; and
- Starch hydrocarbon polymer mixes.

Fifteen different polymer types have been identified so far. Degradable materials have been in existence for a number of years with mixed results in the market place. These have been applied to a range of plastic product groups, and plastic bags have been made from various degradable materials overseas for several years. In Australia, degradable plastic bags are quite new and have not yet seen broad application, use or evaluation.

### *4.5.2 Product Stewardship*

The Product Stewardship philosophy used by industry seeks to ensure that prior to the introduction of new materials and products, the risks are identified and understood, and any negative impacts are eliminated. Where products seek to overcome an identified problem, the key objective should be to ensure that an overall improvement is accomplished and damage is not unknowingly caused by the creation of other issues or problems. Application of Product Stewardship principles is paramount to the issue of plastics bags.

### *4.5.3 Impact on litter*

The concern has been raised that degradable bags breaking down could create amounts of smaller particles. The Nolan-ITU report into Degradable Polymers notes that:

> *"The visual impact of littering is unlikely to decrease with the use of biodegradable plastics since windblown plastic litter and plastic films/bags snagged on branches and bushes will not be exposed to sufficient levels of microbes for proper degradation to take place. Consequently biodegradation of such litter may take many years. This problem may potentially be combined with the possibility that conspicuous littering by plastics may actually increase due to the belief by consumers that biodegradable plastics will disappear in the environment."*

However, the Sub-Working Group also notes that the differences between full starch polymers and pro-degradant plastics need to be recognised. While a starch/ polyethylene mixed plastic can break down to polyethylene fragments which are likely to remain in the litter stream for several years, some members of the Group were of the view that full starch polymers and pro-degradant polyethylene behave differently.

For example, some members indicated that full starch polymer plastic (such as PLA) and pro-degradant polyethylene plastic fully break down in the environment to $CO_2$, $H_2O$ and biomass in a few months. Others did not believe this was the case, clearly indicating a need to fully test these claims. This was something the Sub-Working Group was unable to do in the limited

time available. The environment in which plastics break down also needs to be considered. Land-based or aquatic breakdown environments have different triggers that need to be better understood.

However, the Working Group agrees that different degradable polymers break down in the environment and that the time taken depends on a range of environmental conditions. It also agreed that a proper understanding of polymer types and the conditions required for complete degradation is needed to determine how this technology could best be used.

### *4.5.4 Testing & standards*

While starch hydrocarbon polymer mix type degradables have been around for some time with mixed results, prodegradant and pure starch polymer technology are both relatively new. These polymer types have also not seen broad application either overseas or here in Australia. While we should therefore remain open to the possible contribution these sorts of polymers can make to solve the litter problem, the Working Group acknowledges the need for careful and comprehensive testing to ensure further problems are not created through landfilling of discarded polymers, or through littering. Biodegradability standards should help move us forward in this area.

No Australian Standards have yet been developed to manage the use of degradable plastic products. Fortunately there are overseas standards that can be used as a guide in the development of suitable standards. The standards will need to target the solutions being sought and separate standards could be required for degrading and/or composting, domestic, and commercial situations.

The time to develop and implement an Australian standard is estimated at approximately two years. However, some American Standard Test Methods for degradable bags are in the process of being re-vamped and could provide a shorter time frame for development and implementation.

Australian standards also need to be developed for the broader range of plastic items, not only plastics shopping bags. Companies seeking to use products made from degradable materials have little in the way of guidance about a new area of technology that has not been tested. Those responsible for ensuring conformance to a standard also require a method and process to verify that products supplied are in fact what has been specified.

### *4.5.5 Landfill impacts*

Landfills are currently managed at the State level, and any degradable bag proposal would need national uniformity to be implemented appropriately. Some jurisdictions are presently in the process of revising landfill practices in the light of new strategies being developed, and these are consequently in the process of change (which is only likely to increase in the future). For example, a proposal for NSW landfills becoming bio-reactors for rapid decomposition provides a different set of circumstances for degradable products, including plastics bags. These types of management changes need to be factored into degradable bag considerations.

Although the impacts of degradable plastics on landfill are not fully understood, these are not expected to be significant.

### *4.5.6 Impacts on recycling practices*

Concern has been raised by a number of stakeholders that recyclable and degradable products cannot be mixed in the one market place without creating recycling stream contamination.

The Working Group noted that the broader plastic recycling industry in Australia is strong and growing, with current recycling levels at 13.1% for all plastics and 27% for plastics packaging (PACIA *National Plastics Recycling Survey 2002*). The Working Group also noted that the current recycling rate for plastic bags is low with present tonnage at 1 000 tonnes per annum out of the 33 000 tonnes available.

There is a need to distinguish between pro-degradant technology and starch based technology, in that small quantities of the former will have no impact on recycling (as the addition of anti-oxidant negates the effect of the pro-degradant). It is true, however, that no starch-based plastic (either full polymer such as PLA or starch/polyethylene mix) can be added to the recycling stream. Any introduction of degradable bags would also demand a highly effective method (including monitoring and policing) of ensuring that these items never enter any recycling infrastructure.

These concerns may be met by a system of different plastic bag colours (for example, green for starch based plastic), with an associated consumer education campaign. However, this could create a complicated system for shoppers, and may not be effective given the various types of bags that might be used.

The wholesale introduction of degradable bags may also affect the threshold for plastic bag recycling, if the available stock of bags was significantly reduced.

### *4.5.7 Markets*

Australian recycling companies have raised concerns that post-consumer degradable polymers manufactured into new products could lead to product failure and loss of confidence in this marketplace. Given the investment by these companies, they have a concern to protect their markets and investments.

Market forces that need to be managed include costings, as pro-degradant (additive) bags are currently +25% in cost terms**,** and bio-degradant (starch based) bags are currently x4 in cost terms.

The impacts on local manufacturing and employment also needs to be considered. The current Australian manufacturing of plastic bags is a viable industry and the impacts on this sector, as well as the effect on the Australian marketplace including through product displacement issues, should be factored into the overall range of solutions.

### *4.5.8 Environmental impacts*

The Working Group acknowledges that more information on the following issues is also needed to properly inform degradable bag considerations:

- The impact on Biological Oxygen Demand (BOD) issues relating to wastewater;
- Compost toxicity and management;
- Leachate issues from landfill and other disposal routes including domestic composting;
- Population trends issues including urban densification and the potential reduction in households composting due to high and medium density dwellings;
- Sustainability and overall resource efficiency of all resources used to manufacture bags;

- Current materials and manufacturing processes;
- Alternative materials and manufacturing processes;
- Impacts on arable land and water usage;
- Comparable resource efficiency investigations to consider thicker gauge bags for final landuse and their ultimate destination.

Some members of the Group indicated their strong support for moving to biodegradable bags if they can be clearly demonstrated to deliver preferred environmental outcomes.

RECOMMENDATION

Clarify issues associated with degradable plastics by:

- Working with Standards Australia to develop appropriate standards for the use of degradable plastics in Australia, seeking to finalise the standard by December 2004;
- Undertaking a comprehensive study on the full impact of the introduction of degradable bags into the Australian marketplace, including the effect on plastic recycling, local manufacturing, and landfills.

## 4.6 Levy

Recently, the debate on plastic bag use and disposal was invigorated with the highly publicised Irish plastic bag levy, where dramatic reductions in plastic bag use have been reported. Nolan-ITU reports that the use of economic instruments to address environmental challenges have become more popular in the last decade. There are more than 60 environmental levies and taxes on products internationally, some of which have been applied to plastic shopping bags.

For many people, plastic shopping bags are a symbol of society's wasteful use of resources. It is as important to consider the symbolic importance of this issue as it is to consider information based on documentary evidence. At some levels, a levy is an attractive solution to the problem of plastic shopping bags, and one that has been adopted in several overseas jurisdictions.

Ireland is the only country with a plastic shopping bag levy paid directly by consumers, although, South Africa currently has a proposal to introduce a similar levy. Denmark and Italy have 'hidden' taxes, which apply to plastic shopping bags, which are absorbed into the overall costs of products to consumers. Bangladesh, Taiwan and parts of India have or are currently introducing bans on plastic bag manufacture and distribution. Under the European Union, a number of countries have packaging material levies and packaging recovery targets which apply to industry.

Options to reduce the use of plastic bags are assessed in **Appendix D** – Mechanisms to Reduce Plastic Bag Use**.** The options listed are not mutually exclusive, and a combination of options may be best suited to the Australian environment.

### *4.6.1 Constitutional issues*

The capacity to impose a levy on products is a central issue addressed in the Australian Constitution. Section 90 of the Constitution allocates the right to impose excises (i.e. duties on domestically manufactured products) to the Commonwealth. Any tax, levy or other monetary charge that is calculated by reference to the value of products or the number sold is

likely to be an excise. While it is feasible to construct legislation at State level seeking to avoid a charge being interpreted as an excise, in recent times, the High Court of Australia has fairly consistently viewed such charges as excises and in a number of high profile cases has disallowed them. Recent changes in the taxation of fuel, alcohol and tobacco that was formerly imposed at State level but are now charged by the Commonwealth and paid over to the States reflect the high degree of uncertainty that may surround particular proposals.

The risk of ultimate failure is a strong reason for States not attempting to impose such charges, even if the Commonwealth did not oppose the move. The fine balance of legal opinion on this matter is indicated by the fact that the South Australian government has received legal advice that it cannot impose such charges while the Department of Premier and Cabinet in Victoria has received advice to the opposite effect. Therefore, if a levy on plastic shopping bags were to be adopted, it would be desirable for it to be imposed at a national level.

### *4.6.2 Services*

The limitations set out above relate to traded products. There is no reference in the constitution to services. It is arguable that State legislation could be constructed so as to impose a charge on the service of providing containers for shoppers to remove their purchases from retail premises and that such a charge could be *ad valorem* or standardised without running a significant risk of breaching the constitution.

### *4.6.3 National uniformity*

There are a number of means of ensuring that States and Territories act uniformly. These include:

- Resolutions of Councils of Ministers;
- The development of Commonwealth regulation/ legislation;
- Agreement between jurisdictions to develop complementary legislation/ regulation (with or without a unifying measure such as a National Environment Protection Measure).

Whatever means is adopted for ensuring national uniformity, if it is to be effective at State/ Territory level, it must comply with the requirements of the Constitution. A National Environment Protection Measure cannot, for example, agree that an excise is to be levied at State/Territory level if such a levy would be unconstitutional.

### *4.6.4 Putting levies to a purpose*

The imposition of a plastic bag levy, if it were constitutional, could be introduced through amendment of environment protection legislation in each jurisdiction or could be provided for through budget bills. In the latter case, revenues raised would form part of general revenue and would be expended in accordance with other Government general priorities. However, community sentiment suggests that the funds raised should be used for charitable or environmental purposes. If the provisions were within environment protection legislation, revenues could be hypothecated for environmental programs. It is, however, significantly difficult to secure the agreement of Treasuries to the hypothecation of levies. It is not advisable to consider raising levies under environment protection legislation with revenues expended for non-environmental purposes.

### *4.6.5 Elasticity*

The purpose of levies is varied. They could be for revenue generation purposes, and in this case, the level at which the levy is set is a reflection of the expenditure needed for a particular purpose (East Timor levy, Ansett levy, etc.)

In the case of a plastic bag levy however, the purpose of the levy is to affect human behaviour. Calculating the levy thus requires an understanding of the elasticity of demand for plastic shopping bags. If no other action were taken, it could be assumed that the imposition of a charge on plastic bags would result in an increased demand for free-of-charge alternatives such as paper bags, calico bags, "bags for life" or degradable plastic bags.

It will be necessary to gain an understanding of whether changes in behaviour brought about by the imposition of a levy are long term or short term, and consider the impacts of alternative bags on the environment.

Paper bags should not be exempted from a levy on the basis that they are not prevalent in the environment now since the reason for their absence is economic—retailers can buy plastic bags more cheaply. Where paper bags are used in similar conditions (eg. takeaway food wrappers), they may be equally problematic as litter.

A case could also be made for a levy on biodegradable bags as they have very similar physical characteristics to disposable plastic, would be used for the same purposes, and may be just as troublesome as their disposable counterparts.

### *4.6.6 Voluntary approaches*

Voluntary levies imposed by retailers upon their customers are problematic. Retailers may be disinclined to accept responsibility for imposing additional costs on their customers. Under competitive pressure, a business that has undertaken to impose a voluntary levy upon its customers may cease doing so as a means of gaining a competitive advantage. The imposition of a voluntary levy would require collaboration between retailers, which may be seen as collusive and the levy may be seen as interfering with market pricing mechanisms. Any measures taken to ensure compliance with the voluntary regime may be seen as a restriction on trade. There is precedent for the satisfactory resolution of these matters, but it is unlikely that they could be resolved quickly.

Retailers would probably only agree to the introduction of a voluntary levy if a credible threat existed of the introduction of a compulsory levy with significant impacts. There are numerous examples of stores (often the larger independents) operating community benefit schemes in their localities, where a percentage of sales from a store is directed to local charities and schools. Stores might be willing to operate such schemes on the basis that revenue from shopping bags was directed to local charities or environmental causes. Such a scheme would require regulatory underpinning to deal with free riders but would avoid the costs of collection of a levy by a state or commonwealth agency. However, the opportunity to hypothecate revenue from plastic shopping bags to environmental issues of state or national significance might be lost.

### *4.6.7 Other Approaches*

In the short term, an effective reduction in plastic bag waste and litter will probably be achieved by strengthening voluntary programs, rather than by coercion. However, as noted in the Nolan-ITU report, the real possibility of a levy in the future could also prove to be an

effective measure. As noted in the revised *Code of Practice for the Management of Retail Carry Bags*, these measures could also include a commitment on the part of retailers to support the inclusion of plastic bag recycling in kerbside collection programs. Alternatively retailers could agree to charge consumers for plastic bags and use the funds raised to subsidise the costs of re-usable bags for consumers. Research undertaken by Quantum Market Research in 2002 for the Council for the Encouragement of Philanthropy in Australia reports that consumers would consider paying between 7 and 10 cents for a degradable bag.

### *4.6.8 Basis for Decision Making*

Any decision on applying a levy needs to be based on a Life Cycle Analysis of the situation, and to decide if the advantages of a levy would outweigh the disadvantages. The decision would need to based on a comprehensive understanding of the elasticity of demand for Plastic Shopping Bags and substitutes or alternatives in the short, medium and long term.

The social impacts of a levy would also need to be carefully considered. For example, the Nolan-ITU report suggests "that a levy that reduced the use of plastic bags by 70% would result in the loss of approximately 250 full-time equivalent jobs in the supply chain." This may be offset by increased production of other alternatives, such as degradables, and reusable bags.

### *4.6.9 Options*

The best way of administering a levy is yet to be determined. Based on Working Group deliberations, the options are:

- Nationally mandated and administered levy;
- Nationally mandated levy jointly administered by the states and commonwealth;
- State based levies implemented collectively by the states and administered on a consistent basis;
- State based levies implemented individually by the states;
- Retailer administered levies implemented via some covenant-style mechanism to avoid the free-rider problem and to provide audit mechanisms;
- Retailer administered levies on a purely voluntary basis.

These options, together with non-levy options, are summarised in **Appendix D**.
Further work is necessary to define the most appropriate style of levy for Australia. The Working Group recommends this work be undertaken within a three to six month period, in parallel with the definition of *National Code of Practice for the Management of Plastic Retail Carry Bags* targets by retailers.

RECOMMENDATION

Further investigate legislative options by July 2003 and scope a preferred legislative approach, including:

- Identification of all impacts associated with the introduction of the levy, including on retailers, consumers and governments;
- Undertake a survey to test attitudes to implementation of a national levy using various scenarios;
- Identifying the appropriate body to administer the levy together with the administration and funding allocation processes;
- Consideration of the impact of imposing the levy on all carry bags.

## SECTION 5 : GAPS IN THE AVAILABLE INFORMATION

Through the work of the Sub-Working Groups and the Nolan-ITU analysis, the Working Group identified a number of areas where data is either not available, or is not able to be verified. As noted below, this information would greatly assist in the formulation of policies to reduce the environmental impacts of plastic bags.

### RECOMMENDATION

Undertake further research to complete information gaps including:

- Data on the consumer usage of plastic bags, bags returned for recycling, geographic distribution of available bags, bags available for recycling, overseas plastic bag recycling and plastic bag presence in litter stream;
- Issues in regard to degradable plastic bags including overseas experiences, particularly in regard to how degradables work with existing and proposed waste management routes, their potential to damage recycling systems, and their effects on litter abatement;
- Data on life cycle analysis comparing plastic and cotton, and plastic and paper, and other materials used for carry bags, and information on whether alternatives minimize the visual aspects of litter as well as actual environmental harm;
- Information on the effectiveness of other Australian and international consumer awareness and education campaigns (such as seatbelt campaigns), and international plastic bag campaigns;
- The elasticity of demand for plastic shopping bags and their alternatives;
- Data on the effectiveness of a reduction in plastic bag use on the litter stream.

## SECTION 6 : RECOMMENDATIONS

After investigating issues associated with the use and impact of plastic bags and their alternatives, the Plastic Bag Working Group recommends that a range of short and long term complementary initiatives be undertaken, rather than one approach in isolation. Any program designed to reduce plastic bag use and eliminate litter must include a mix of approaches. An integrated approach, with the support of industry, governments, retailers and consumers, is likely to be the most effective way of tackling the plastic shopping bag issue.

The Working Group recommends that the effectiveness of agreed measures to reduce, recycle, reuse, and replace plastic carry bags be reviewed by December 2003.

HIGH PRIORITY RECOMMENDATIONS:

(A) Undertake the following plastic bag education and awareness activities: (Subsection 3.3.4)

- Actively support current consumer and retailer awareness campaigns to reduce plastic bag litter, such as but not limited to, Clean Up Australia's National Plastic Bag Awareness Program's month of action commencing in February 2003.
- Develop a proposal for a coordinated national customer and retailer awareness program that would:
  - Promote the use of reusable bag alternatives through various communications from governments, retailers and non-government organisations;
  - Promote marine and land-based littering awareness; and
  - Encourage appropriate waste disposal (anti-littering) behaviour; and
  - Target youth awareness through competitions and other such means.
  - Review by June 2003 the effect of consumer awareness and education programs on plastic bags, such as the State and Territory Governments' Litter Abatement programs, and NGO (Clean Up Australia and Planet Ark) programs. Identify gaps and recommend measures to address those gaps.

*Suggested responsibility: to be undertaken cooperatively between governments, NGOs, the Covenant Council, and industry organisations.*

(B) The Working Group recommends the following Code of Practice actions: (Subsection 4.1.2)

- Note the significant development towards a strong *National Code of Practice for the Management of Plastic Retail Carry Bags*, and agree that all retailers should be covered by the Code;
- Develop a comprehensive reporting regime and targets for the *National Code of Practice for the Management of Plastic Retail Carry Bags* by April 2003, with the initial report on base line data to be completed within three months;
- Six monthly reporting against the effectiveness of the Code of Practice and achievement of targets.

*Suggested responsibility: Retailers and other stakeholders.*

(C) Assist the development of plastic bag recycling by: (Subsection 4.3)

- Investigating the feasibility of kerbside recycling systems in the context of best practice programs established under the National Packaging Covenant, to include HDPE & LDPE plastic bags;
- Actively encouraging the development and distribution of a HDPE bag to be used for storing and recycling domestic plastic bags through retail recycling bins;
- Encouraging the identification and development of markets for recycled plastic resin and products through the product stewardship relationships encompassed by the National Packaging Covenant;
- Strengthening existing recycling infrastructure in retail stores.

*Suggested responsibility: National Packaging Covenant Council.*

(D) Clarify issues associated with degradable plastics by: (Subsection 4.5.8)

- Working with Standards Australia to develop appropriate standards for the use of degradable plastics in Australia, seeking to finalise the standard by December 2004;
- Undertaking a comprehensive study on the full impact of the introduction of degradable bags into the Australian marketplace, including the effect on plastic recycling, local manufacturing, and landfills.

*Suggested responsibility: Governments and relevant industry organisations.*

(E) Further investigate legislative options by July 2003 and scope a preferred legislative approach, including: (Subsection 4.6.9)

- Identification of all impacts associated with the introduction of the levy, including on retailers, consumers and governments;
- Undertake a survey to test attitudes to implementation of a national levy using various scenarios;
- Identifying the appropriate body to administer the levy together with the administration and funding allocation processes; and
- Consideration of the impact of imposing the levy on all carry bags.

*Suggested responsibility: Governments.*

MEDIUM PRIORITY RECOMMENDATIONS:

(F) Request the EPHC Waste Working Group to: (Subsection 2.6)

- Investigate current and future waste management (including landfill management) practices with the view to developing specific national best practice guidelines to reduce litter, within six months;
- Consider extending the existing marine garbage recording system for small coastal ships to all States, and consider support of the proposed WWF marine debris database (South Australia);
- Investigate the development of a national freshwater debris recording system;
- Review by December 2003 the effectiveness of improved litter abatement activities and practices in landfill management, and in the maritime and tourism industries. Identify gaps and recommend measures to address those gaps;
- Investigate the compulsory branding of plastic bags in order to identify the litter source.

*Suggested responsibility: Governments.*

(G) Undertake further research to complete information gaps including: (Section 5)

- Data on the consumer usage of plastic bags, bags returned for recycling, geographic distribution of available bags, bags available for recycling, overseas plastic bag recycling and plastic bag presence in litter stream;
- Issues in regard to degradable plastic bags including overseas experiences, particularly in regard to how degradables work with existing and proposed waste management routes, their potential to damage recycling systems, and their effects on litter abatement;
- Data on life cycle analysis comparing plastic and cotton, and plastic and paper, and other materials used for carry bags, and information on whether alternatives minimize the visual aspects of litter as well as actual environmental harm;
- Information on the effectiveness of other Australian and international consumer awareness and education campaigns (such as seatbelt campaigns), and international plastic bag campaigns;
- The elasticity of demand for plastic shopping bags and their alternatives;
- Data on the effectiveness of a reduction in plastic bag use on the litter stream.

*Suggested responsibility: National Packaging Covenant Council.*

LOWER PRIORITY RECOMMENDATIONS:

(H) Encourage consumers to shift from single use and disposable bags to multi-use and longlife bags through education and awareness programs, and by coordinating the collection of information on plastic bag alternatives and making this available to the public via relevant webpages. (Subsection 4.1.1)

*Suggested responsibility: Governments and NGOs.*

(I) Request Food Standards Australia New Zealand to investigate and advise on hygiene standards for bags used to transport pre-packaged goods, and promote this advice to customer through retailers. (Subsection 4.1.1)

*Suggested responsibility: Retailers.*

(J) Review by December 2003, the effectiveness of agreed measures to reduce, recycle, reuse, and replace plastic carry bags. (Long term recommendation) (Section 6)

*Suggested responsibility: National Packaging Covenant Council.*

# 1. APPENDIX A
## AUSTRALIAN PUBLIC AWARENESS CAMPAIGNS

| Campaign | Objective | Geographic Scope | Target Audience | Duration/ Cost | Effectiveness/ Comments |
|---|---|---|---|---|---|
| CUA Day – Friday Schools Clean up and Business Clean up Day | Community Participation Clean up the environment | National | General Public, Schools, Businesses | Annual Event Spread over three days | Big profile, very high participation 700,000<br>Since 1989:<br>• 6.05 million people have participated in CUA Day<br>• Just under 190,000 tonnes of rubbish has been collected<br>Annually:<br>• There are over 5,000 CUA Day sites which incorporates over 1,000 towns and cities in AUS.<br>• More then 36 hours of broadcast media (TV & radio) and more then 7 hours of CSA coverage is generated |
| Tidy Towns – KAB | Beautification of urban areas, competition based | State/Local council | Local Councils, General Public | Annual Event, ongoing | Long term program – big profile in councils and regional Australia |
| Leave Only Footprints – CUA | Prevent litter on beaches | Local/Regional | Beach goers, youth | Summer months 2000.01 & | Increased regional community awareness of the impacts of beach littering<br>In 2001:<br>• TV CSA reached a potential audience of 919,800 people<br>• Newspaper coverage reached a circulation of 228,834 people |
| Roadwatch - KESAB | Clean up roadsides, promote litter prevention | South Australia | General Public | Ongoing | Effective in raising awareness and clean-up of "hot spots". |
| Adopt A Road | Clean Up roadsides, promote litter prevention | ACT Victoria Tasmania Various Local Councils | General Public | Year round | Effective in raising awareness and keeping roadsides clean |
| Clean Site - KESAB | Reduce building site litter and pollution | South Australia | Builders, demolition companies, local government | Year round | Effective in introducing bins on sites, and in changing site management. |

| Campaign | Objective | Geographic Scope | Target Audience | Duration/ Cost | Effectiveness/ Comments |
|---|---|---|---|---|---|
| Bag Yourself a Better Environment – Plastic Bag Campaign (CUA etc) | Reduce, reuse, recycle plastic bags | National | Retailers, Consumers | 2001 – Week 2003 – Month | • Focuses on all sectors<br>• Aimed at raising awareness and education.<br>• 2001 key outcomes:<br>Increase in the purchase of calico bags by 155% across Coles and Woolworths stores.<br><br>215 % increase in Coles recycling of plastics during the week of action.<br><br>Extension of Woolworths plastics recycling program across all stores in WA |
| Do the Right Thing | Litter prevention | National | General Public | 1970's and 1980's | Well known campaign |
| Don't Waste Australia | Litter prevention | National/Local | General Public | Ongoing | Just commencing |
| Clean Up Your ACT | Litter education and prevention | ACT | General Public, Schools | 6 months | Just commencing |
| Butt it! Bin it! Please - KESAB | Cigarette butt litter prevention campaign | South Australia and Victoria | General Public | 1 year | Just commencing |
| Butts Out | Litter prevention | Local/Regional | | | |
| Litter in your Hands – Don't be a Tosser | Litter Prevention | NSW State | General Public | 3-4 years | Don't be a Tosser – very effective |
| Moonee Ponds Creek – Keep It Clean | Stormwater litter education and prevention | Catchment – Melbourne | General Public, Schools, Retailers, businesses | 18 months | Diversity of local activities |
| Vic – Litter Campaigns | | | | | |
| Beach Challenge – KAB | Beautification, litter prevention, recycling | Local council | Coastal communities | Ongoing, annual event | |

| Waste Campaigns | | | | | |
|---|---|---|---|---|---|
| Waste Wise – Vic | Waste minimization | VIC | Communities Businesses, Schools | Ongoing | |
| WasteWise Queensland | Voluntary industry outreach program | Qld | Business, industry, community groups | Ongoing | Several large national retailers among members including Bunnings Hardware and Coles Myer |
| Don't Waste Australia | Litter prevention | National/ Local | General Public | Ongoing | Just commencing |
| Waste Challenge | Prevent waste, reuse and recycle | NSW | General public | 1997-98 | Raised awareness |
| Waste Savers – NSW | Waste minimization | NSW | Businesses | Under review | |

| | | | | | |
|---|---|---|---|---|---|
| WRAPR – CUA waste reduction program for retailers | Waste minimization | National | Retailers, Businesses | Ongoing | Reduction in waste through accreditation.<br>• More then 400 Coles stores are registered participants – at least 80% are in their third year of participation<br>• 47 other small, medium and large businesses are participants |
| National Recycling Week – Planet Ark | Awareness, education, consumer behavioural change and recycling contamination reduction | Local & National (involves partnerships with local councils). | General Public | Annual event, held over a week | Promotes closing the loop |

| **Product Campaigns** | | | | | |
|---|---|---|---|---|---|
| Bag Yourself a Better Environment – Plastic Bag Campaign (CUA etc) | Reduce, reuse, recycle plastic bags | National | Retailers, Consumers | 2001 – Week<br>2003 – Month | See BYBE – Litter / Rubbish category |
| Stow it Don't Throw it - Plastics | Litter prevention | National | Boat users | Ongoing | |
| Cigarette Butt Campaigns – various | Litter prevention, disposal options | Local, regional and national | Smokers | Ongoing | |
| Phones 4 PlanetArk | Maximise recycling of old mobile phones and mobile phone batteries – increase recycling awareness too. | Local & National – involves 1,800 phone outlets Australia-wide) | General Public | Ongoing | |
| Cards 4 PlanetArk | Recycle greeting cards | Local & national – Over 1,000 retail outlets Australia-wide. | General Public | Annual event – Christmas time | |

| | | | | | |
|---|---|---|---|---|---|
| National Milk Carton Recycling Campaign – joint milk carton industry & Planet Ark initiative | Maximise recycling of milk cartons & awareness | National | | | |

| **General Environmental Campaigns** | | | | |
|---|---|---|---|---|
| Save the planet – TV Series | Environmental awareness | National | General Public | |
| Education Services - KESAB | Environmental Awareness | South Australia | Schools and general public | |
| Do Something! | Environment | National | Schools | |

3. APPENDIX B
4. ALTERNATIVE CARRY SYSTEMS

## 1. PAPER/CARDBOARD

| Type | Description | Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Cardboard | Box available at check outs (provided by store from deliveries) | Recyclable<br>Reusable<br>Degradable | In store | | **Environmental**<br>Made from recycled materials<br>**Economic**<br>Cheap (free)<br>**Social** | **Environmental**<br>Not recyclable through Kerbside Recycling<br>Less material being recycled through in-store collection<br>**Economic**<br>Checkout design<br>Boxes could be in short supply due to changes in transport systems<br>**Social**<br>Heavy to carry/lift |
| Cardboard | 'Catchy' : box in trolley | Recyclable<br>Reusable<br>Degradable | Aust. Patent | Jan Thompson<br>(08) 8365 1681 | **Environmental**<br>Made from recycled materials<br>**Economic**<br>**Social** | **Environmental**<br>Not recyclable through Kerbside Recycling<br>Less material being recycled through in-store collection<br>**Economic**<br>Cost of licensing from patent<br>Checkout design<br>**Social**<br>Heavy to carry/lift |
| Sugar cane | Low-grade paper made from 'bagasse' (cane trash) | Recyclable<br>Renewable<br>Degradable | Australia | Bernard Milford<br>Canegrowers' Assoc<br>(07) 3864 6444 | **Environmental**<br>Renewable resource<br>Waste reuse<br>**Economic**<br>Develop Aust markets<br>Looking at developing a bio-plastic (several years away)<br>**Social** | **Environmental**<br>**Economic**<br>Currently not economically viable to produce paper in Aust<br>**Social** |

## 2. APPENDIX B
## ALTERNATIVE CARRY SYSTEMS

| Type | Description | Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Paper | Generic paper sack | Recyclable<br>Renewable<br>Degradable | Australia | Peter Adams<br>Australian Paper<br>(03) 8540 2268 | **Environmental**<br>Made from recycled materials<br>Fibres can be recycled up to 6-8 times<br>Can be reused up to 6 times for dry goods<br>Renewable resource from pine plantations & managed forests<br>Collected through Kerbside Recycling<br>**Economic**<br>Around 90% of paper sacks manufactured in Aust. with Aust. fibre<br>**Social**<br>Good size to volume ratio | **Environmental**<br>Large amounts of paper entering the waste stream<br>Uses more water in production than plastic<br>Uses more energy in production than plastic (Winnipeg study)<br>Unsuitable for wet goods (unless plasticised)<br>Permeable<br>**Economic**<br>Cost approx. 10-12 cents each wholesale<br>Checkout design<br>**Social** |

**NATURAL FIBRE BAGS**

| Type | Description | 2. Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Cotton/Calico/ Canvas | Generic soft fabric bag with variety of handle types | Reusable<br>Renewable<br>Degradable | 95% of Aust cotton exported to Indonesia for manufacturing | Bruce Pike<br>Cotton R&D Corp<br>(02) 6792 4088<br><br>Geoff Naylor<br>CSIRO Textile & Fibre Division<br>Geelong<br>(03) 5246 4000 | **Environmental**<br>Multi-use bag for life<br>Renewable resource<br>Light, flexible, washable<br>**Economic**<br>Support/develop Aust markets<br>**Social**<br>'Green' image | **Environmental**<br>Crop production costs (water)<br>GM issues<br>High pesticides, herbicide needs<br>Washing uses resources<br>Less plastic recyclate<br>**Economic**<br>Products imported<br>Cost around $2 each<br>Checkout design<br>**Social**<br>Current Coles & Woolies bags are imported (China) – outworker issues |

## 2. APPENDIX B
## ALTERNATIVE CARRY SYSTEMS

| Type | Description | 3. Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Cotton/Calico/ Canvas | 'Trolley Bag" currently calico but other options possible (hemp), polyprop handles, elastic top | Reusable<br>Renewable<br>Degradable? | Germany | Tom Hart-Davies<br>Retailquip<br>(07) 3289 6661 | **Environmental**<br>Multi-use bag for life<br>Can be made from recycled materials<br>**Economic**<br>Develop Aust markets (hemp etc)<br>**Social** | **Environmental**<br>Less plastic recyclate<br>**Economic**<br>Cost approx. A$8-9 each wholesale. Currently selling in Hobart @ $12 each<br>Currently imported<br>Checkout design<br>**Social** |
| Jute | Generic woven fibre bag with variety of handle types | Reusable Renewable Degradable | India, Bangladesh | | **Environmental**<br>Multi-use bag for life<br>Renewable resource<br>**Economic**<br>Support 3rd World industry<br>Reportedly comparable to plastic bag production costs (in Asia)<br>**Social**<br>'Green' image | **Environmental**<br>Less plastic recyclate<br>Crop production costs?<br>**Economic**<br>Checkout design<br>**Social**<br>Imported product – outworker issues |
| Hemp | Generic soft fabric bag with variety of handle types | Reusable Renewable Degradable | Central Asia (origin)<br>China (imports)<br>Commercial production licensed in Australia | | **Environmental**<br>Multi-use bag for life<br>Renewable resource<br>Dryland crop possible<br>No pesticides, fungicides, herbicides needed<br>**Economic**<br>Support/develop Aust markets<br>**Social**<br>'Green' image | **Environmental**<br>Less plastic recyclate<br>May leach nitrogen into waterways<br>Crop production costs?<br>**Economic**<br>Hemp fabric is currently imported<br>More expensive to purchase than cotton?<br>Checkout design<br>**Social** |

## 2. APPENDIX B
## ALTERNATIVE CARRY SYSTEMS

| Type | Description | 4. Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| String | See Jute, Sisal | Reusable Renewable Degradable | | | **Environmental**<br>**Economic**<br>**Social**<br>Multi-use bag for life<br>Renewable resource<br>Cottage industry creation<br>Good size to expansion ratio | **Environmental**<br>Less plastic recyclate<br>**Economic**<br>Checkout design<br>**Social**<br>Difficult to carry large items |
| Sisal | Coarse woven bag or string bag | Reusable Renewable Degradable | Mexico, Central America | | **Environmental**<br>Multi-use bag for life<br>Renewable resource<br>**Economic**<br>Support 3rd World industry<br>**Social**<br>'Green' image | **Environmental**<br>Less plastic recyclate<br>Crop production costs?<br>**Economic**<br>Checkout design<br>**Social**<br>Imported product – outworker issues |
| Cane (rattan) basket | Generic woven basket with cane handles | Reusable Degradable (eventually)<br>Renewable | Thailand, China, Malaysia, India Indonesia & other SE Asian countries.<br>Crops being grown in Northern Aust. | Mandy Hallinan<br>Aust Commercial Bamboo Corporation<br>(02) 6684 1445 | **Environmental**<br>Multi-use bag for life<br>Carbon sequestration similar to conifers (3,700-4,000 lbs/hectare)<br>Waste chipped for mulch<br>Renewable resource<br>**Economic**<br>Support/develop Aust markets<br>**Social**<br>Rigid & sturdy vessel<br>'Green' image | **Environmental**<br>Less plastic recyclate<br>High water use (crop)<br>**Economic**<br>Product imported<br>Not currently used for basketmaking in Australia<br>**Social**<br>Heavy to carry/lift |

## 2. APPENDIX B
## ALTERNATIVE CARRY SYSTEMS

| Type | Description | 5. Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Palm/Pandanus/ Banana leaf | Generic woven basket | Reusable Degradable (eventually) Renewable | Samoa, Indonesia, India & other Asian & Pacific countries | | **Environmental** Multi-use bag for life Made from waste products Renewable resource **Economic** Support/develop Aust markets **Social** 'Green' image | **Environmental** Less plastic recyclate **Economic** Product imported Checkout design **Social** Outworker issues |

## 6. PLASTICS – Non degradable

| Type | Description | Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Polypropylene | 'Smartbox': box in trolley | Reusable Possibly recyclable | UK | Tom Hart-Davies Retailquip (07) 3289 6661 | **Environmental** Multi-use bag for life Potentially recyclable **Economic** Develop Aust. Markets **Social** | **Environmental** Manufactured from non-renewable resources No current Aust.markets for PP **Economic** Cost? Imported Checkout design **Social** Heavy to lift |
| Polypropylene | "Greenbag": non woven plastic with plastic handles | Reusable Possibly recyclable | Asia/UK | Eamonn Quinn Superquinn | **Environmental** Multi-use bag for life **Economic** **Social** | **Environmental** Manufactured from non-renewable resources No current Aust.markets for PP **Economic** Cost €1.00 retail each Imported **Social** Outworker issues? |

## 2. APPENDIX B
## ALTERNATIVE CARRY SYSTEMS

| Type | Description | 7. Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Low Density Polyethylene | ALDI bag with flexi-loop handles | Reusable | Australia | Michael Wales<br>Aldi<br>(02) 9675 9222 | **Environmental**<br>Multi-use bag for life<br>Contains recycled content reclaimed from industrial waste<br>**Economic**<br>Manufactured in Australia<br>**Social** | **Environmental**<br>Recyclable, but not collected through Kerbside Recycling<br>**Economic**<br>Cost 15 cents retail each<br>**Social** |

**PLASTICS – degradable**

| Type | Description | Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Polyethylene | "BioBag": DCP (prodegradant) additive. TDPA. Compostible bags and Landfill bags | Bioerodable: light, heat, attrition/stress<br>Recyclable | Canada (EPI) | Valpak<br>(02) 9984 0777<br><br>Amcor Flexibles<br><br>BioPlas<br>(02) 6232 6240 | **Environmental**<br>Does not affect bacteria, fungi, earthworms<br>Can use for binliners<br>Coverts to water & $CO_2$<br>Degrades in landfill in 2-3 years<br>Degrades in the open in yrs 2 months<br>Degrades in compost in 2-4 months<br>Degrades in water (with wave action)<br>**Economic**<br><br>**Social**<br>Good customer take-up – seen as benefiting the environment | **Environmental**<br>Requires environmental degrading first before bags bioerode<br>Need more info on degrading in water<br>Does not degrade in turtle digestive tracts as well as starch-based bags<br>No Australian Standards<br><br>**Economic**<br>Cost 2.5-3 cents/bag<br>**Social**<br>Perceived environmental benefits could result in inappropriate use |

## 2. APPENDIX B
## ALTERNATIVE CARRY SYSTEMS

| Type | Description | Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Starch polymer | "Mater-Bi": Starch-based polymer (corn, wheat, potato) | Biodegradable/ compostable | Italy (Novamount) | Warwick Hall<br>Plastral Fidene<br>(02) 9698 4866 | **Environmental**<br>No polymer or toxic residue, breaks down into cellulose<br>Renewable resource<br>Water soluble<br>Can use for binliners<br>Compostable<br>Degrades in landfill 3-6 weeks (no testing been done)<br>Degrades in the open (mulch film) 3-4 weeks<br>Degrades in compost 3 weeks<br>Degrades in water 6-months, 30 weeks<br>**Economic**<br>Manufactured in Newcastle (PCC Plastics) & Brisbane (Jonmar Plastics)at the moment<br>Support/develop Australian markets<br>**Social**<br>Good customer take-up – seen as benefiting the environment | **Environmental**<br>Degrades in turtle digestive tracts better than other plastics<br>No landfill testing done<br>No Australian Standards<br>**Economic**<br>Cost 9-10 cents/bag<br>Some bags still imported from Italy<br>Starch products imported from Italy<br>**Social**<br>Perceived environmental benefits could result in inappropriate use |
| Modified PET | "Biomax": hydro/ biodegradable polyester resin | Biodegradable/ compostable | USA (DuPont) | Leo Hyde<br>DuPont<br>(02) 9757 5100<br>0418 363 061 | **Environmental**<br>Degrades in compost 180 days<br>**Economic**<br>**Social**<br>Currently pilot with McDonalds<br>Good customer take-up – seen | **Environmental**<br>Residues?<br>Need more testing info<br>No Australian Standards<br>**Economic**<br>Cost 8 cents/bag<br>Imported product<br>**Social** |

## 2. APPENDIX B
## ALTERNATIVE CARRY SYSTEMS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | as benefiting the environment | |

2. APPENDIX B
ALTERNATIVE CARRY SYSTEMS

| Type | Description | Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Starch polymer | Starch-based polymer (corn) | Biodegradable/ compostable | Australia | Plantic Technologies Mark Fink (03) 9353 7979 | **Environmental** Degrades in landfill under 6 months Higher density so sinks in water **Economic** Support/develop Australian markets **Social** Good customer take-up – seen as benefiting the environment | **Environmental** Need more testing info No Australian Standards **Economic** Cost 6-7 cents/bag **Social** |

DCP: Degradable & Compostable Polymer additive
TDPA: Totally Degradable Plastic Additive technology from EPI (Environmental Plastic Incorporated, Canada)
PET: Polyethylene terephthalate

8.
9. OTHER

| Type | Description | Attributes | Origin | Contact | Advantages | Disadvantages |
|---|---|---|---|---|---|---|
| Granny trolley | Fabric/plastic case on wheels with handle | Reusable | | | **Environmental** Multi-use bag for life Large capacity **Economic** **Social** Rigid & sturdy vessel Easy to carry heavy items Easy for pedestrian shoppers | **Environmental** Mix of materials – hard to recycle **Economic** Expensive compared with alternatives **Social** Image problem Difficult to load into vehicles |
| Backpack | Generic backpack style bag made from variety of fabrics | Reusable | | | **Environmental** Multi-use bag for life Large capacity **Economic** Probably already purchased for other uses | **Environmental** Mix of materials – hard to recycle **Economic** Expensive compared with alternatives |

## 2. APPENDIX B
## ALTERNATIVE CARRY SYSTEMS

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | **Social**<br>Easy to carry heavy items<br>Easy for pedestrian shoppers | **Social** |

***UPDATE DRAFT 3ND DECEMBER 2002***

# RETAIL INDUSTRY NATIONAL CODE OF PRACTICE FOR THE MANAGEMENT OF PLASTIC RETAIL CARRY BAGS

Objectives:

***To encourage retailers to adopt a consistent national approach to the provision of plastic carry bags as a means of optimising the sustainable use of resources.***

***To reduce the impacts of plastic carry bags on the environment, by:***

- ***Reducing the issue of plastic carry bags***
- ***Encouraging the re-use and recycling of plastic carry bags***
- ***Supporting the development and promotion of alternatives to plastic carry bags***

## COMMITMENT OF INTENT

It is acknowledged that plastic retail carry bags have been useful as they are lightweight, waterproof, inexpensive, resource efficient, hygenic and enable customers to move quickly through the point-of-sale.

Australian retailers share community concerns about the impacts plastic bags have on our environment and are committed to working with Industry, Governments, and the Community to identify effective, sustainable, and viable solutions to reduce these impacts.

These solutions are to be guided by the framework provided by the National Packaging Covenant, the waste management hierarchy and the package of measures endorsed by the meeting of the Environment Protection and Heritage Council on 24 October 2002.

Signatories to this Code of Practice agree to implement the initiatives listed in this Code and to reflect these initiatives in their action plans under the National Packaging Covenant, where this is relevant. Covenant signatories commit to abide by the Code of Practice and will encourage those retailers outside the National Packaging Covenant framework to also adopt the Code as a basis of managing the impacts of their plastic retail carry bags.

In accordance with the Waste Management Hierarchy, initiatives under the Code will promote;

**Refuse -** avoidance initiatives which minimise the issuing of plastic bags;
**Reduce** – initiatives which reduce the number of plastic bags used;
**Reuse** - initiatives which encourage consumers to reuse plastic carry bags (after they take them home) and alternative bags
**Recycle** – initiatives which encourage the collection and recovery of plastic carry bags
**Report** – initiatives which document and demonstrate progress towards the achievement of the code objectives

This Code of Practice covers the period December 2002 to December 2007. The code will be reviewed annually by the industry working group with the goal of achieving a continual improvement in the sustainable management of plastic retail carry bags.

***Initiatives in support of the Code's objectives :***

**1**. Retailers commit to implement the Code by:

- Providing acceptable and effective alternatives to plastic carry bags;
- Educating staff and customers about the aims of the Code;
- Increasing the availability of plastic carry bag recycling options;
- Reporting on targets and performance measures as required;
- As a priority retailers will:

    - Increase the visibility of recycle bins for return of plastic carry bags, where this is possible and viable as part of the retail format.
    - Implement programs, including signage and staff training, by asking customers if they require a bag
    - Implement programs to increase the visibility of alternatives, such as calico bags, by moving to have alternative bags displayed at the front of stores, where this is possible as part of the retail format.
    - Trial consumer acceptance of alternative reduction initiatives in selected outlets in conjunction with initiatives such as the *Bag Yourself a Better Environment* campaign.

**2.** Retailers, in conjunction with government and non-government agencies, will develop and implement strategies to help consumers understand the benefits of reducing the use of plastic carry bags. These strategies will include:

- Informing consumers of the benefits of reduced use of plastic carry bags
- Providing "in-store" initiatives that will encourage customers to question their need for one or several plastic carry bags
- Examining financial incentives for those using their own bags

**3.** Retailers will reduce plastic bag use by training checkout staff to decrease the number of bags used and to encourage customer understanding of the need to increase the number of items per bag and where appropriate, asking if a bag is needed at all. Retailers will ensure that provisions are made for the easy use of alternative bags. These strategies will take into account the need to protect the integrity of purchased products and have regard for food safety requirements and consumer convenience and enable customers to move quickly through the point of sale.

4. Retailers will investigate, develop and implement strategies to encourage customers to reuse shopping bags in the home and for other purposes not retail related.
5. Retailers will provide and promote in-store recycling facilities where this is possible as part of the retail format. The retail industry will work with other industry sectors and governments to develop "end markets" for recycled plastic carry bags and provide incentives to the plastics recycling industry to encourage market development in this area, by stocking where viable, plastic carry bags made with a percentage of recycled content.
6. **Targets:**
   Retailers are committed to the achievement of significant change though the range of actions in this Code. The actual impact of the measures to be implemented cannot be accurately predicted at his stage. The establishment of arbitrary numerical targets before initiatives have been implemented would be mere guesswork and therefore unhelpful.
   Retailers accept that objective measurement is necessary and commit to the establishment of targets by the end of April 2003 after rigorous testing of alternatives has been completed. These targets (short and long term) will be factually based and will be established based on best environmental practices known at that time. The establishment of targets in this manner will enable the Code to be both more readily accepted as achievable by those retailers not currently signatories of the code and environmentally sound.
   The retail industry will demonstrate commitment to the code by:-
   - seeking to have 100% of Retailers who are signatories to the National Packaging Covenant adopt the Code.
   - encouraging non-National Packaging Covenant signatory retailers to adopt the Code and aim to achieving 90% of retailer chain signatures within 12 months.

Process for establishing targets

6.1 Retailers will establish targets to **reduce** the average number of plastic carry bags issued per customer, based on retail format, (base being December 2002) by:
   - A% by the end of 2003*
   - B% by the end of 2005*
   - C% by the end of 2007*

   The process by which these targets will be established is:-
   Members of the Retail Industry working group and other retailers will undertake measured trials of:- avoidance initiatives through the education of customers and staff, and reduction initiatives through issuance of alternative bags (Calico, Bag for life and Green bags). These trials will take place from January through March 2003.

Measured trials will encompass the impact on number and types of bags issued; costs; customer convenience; customer acceptance; Food Safety & Hygiene, Occupational Health and Safety and impact if any through the point of sale. Results of these trials will be tabled at a meeting of the Retail Industry working group to be held no later than 24th April, 2003. This meeting will agree the targets based on the outcomes of the above trials.

6.2 Retailers, working with plastic recyclers and local governments under the auspices of the National Packaging Covenant will seek to increase reuse and recycling of plastic carry bags as a percentage of bags issued to customers, based on retail format.

- D% by the end of 2003
- E% by the end of 2005
- 85% by the end of 2007

The goal that we seek to achieve by the end of 2007 is to increase the reuse and recycling of plastic carry bags to 85% of those issued to customers. This is based on currently available information.

The process by which the short term targets *(D% & E%)* will be established is:-

Members of the Retail Industry working group and other retailers will undertake measured trials of:- reuse initiatives through the education of customers and staff, and recycling initiatives through increased instore and kerbside collection and heightened promotional activity. These trials will take place from January through March 2003.

Measured trials will encompass the impact on number and types of bags re-used and recycled; costs; customer convenience; and customer acceptance and the flow through the ponit of sale. Results of these trials will be tabled at a meeting of the Retail Industry working group to be held no later than 24th April, 2003. This meeting will agree the targets based on the outcomes of the above trials.

## 7. Measurement and Reporting:

Retailers recognise the importance of transparency and shall collect and report data to the ARA on the management of plastic carry bags for inclusion in a 6 monthly report to the National Packaging Covenant Council for inclusion in their report to the Environment Protection and Heritage Council.
The Australian Retailers Association shall develop a reporting framework, including the development of a categorization system for plastic carry bags and shall commission a third party audit to verify the data provided to it by retailers.

- This report shall contain the following information to demonstrate achievements toward the objectives of the Code:
  - ◊ Total number of retailer brands who have signed the Code (including by State/Territory)
  - ◊ Total number of retail stores participating in the Code.
  - ◊ Number of plastic carry bags, by category type, provided by all signatory retailers
  - ◊ Average plastic carry bags / customer / retail format
  - ◊ Average number of items / plastic carry bag / retail format
  - ◊ Total of reusable (multi-use) carry bags provided/sold by the retailers

◊ The number of plastic carry bags, reused and recycled. This number will be calculated from recycling weights and consumer surveys and will be collected and reported annually. The ARA on behalf of retailers shall commission an annual consumer attitude survey to assess the impacts of the Code on customer behaviour.

◊ The Retail Industry undertakes to convene a stakeholder meeting on an annual basis.

### 8. Education and Awareness:

Retailers, with the support of industry,, government and community groups, will develop a communication program to raise customer and community awareness of the impacts of plastic bags on the environment.

The communication strategy will include:

- Launch and ongoing promotion of the *National Code of Practice for the Management of Plastic Retail Carry Bags*;
- In-store promotion of recycling and refuse/reduce/reuse measures and programs;
- Ongoing staff training to build and maintain awareness of and support for improved bag packing efficiencies and the promotion of alternatives;
- In-store promotion and participation in key community awareness and environmental programs.

### Other Initiatives

*Retailers and their industry bodies will consider and report annually on programs to:*

- Develop improved indicators for the measurement of achievement of the Codes objectives
- Support research into alternative commercially viable technologies
- Encourage and support the development of "end markets" for recycled plastic bags
- Work with local government to introduce kerbside collection of plastic carry bags
- Encourage packaging/filling/manufacturing companies to provide carrying devices on their larger packs to preclude the need for an outer carry bag
- Work with stakeholders to reduce the impacts of plastic bags on the environment
- Research overseas experiences of various measures and their effectiveness
- Encourage retail industry participation in the *National Code of Practice for the Management of Plastic Retail Carry Bags*

- Encourage retailer participation in the National Packaging Covenant.

**Definitions and clarifications:**

**Plastic Retail Carry Bag means:**

Any form of plastic bag designed for the general-purpose carriage of goods by consumers, excluding light plastic bags for the packing of perishable food and vegetables. This definition includes both degradable and non-degradable bags, and recyclable and non-recyclable bags.

**Initiatives:**

The initiatives mentioned in this Code will not contravene laws including those relating to Occupational Health and Safety and Food Safety.

***Retailers include:***

*Supermarkets, department stores, convenience stores, take-away food outlets, chemists, newsagents, hardware stores, clothing, general stores, hotels and bottle shops.*

*Other forms of retail trade such as community fetes, markets and stalls, may also contribute to the environmental impacts of plastic carry bags and shall be encouraged to comply with all relevant parts of this Code of Practice.*

### Retailer commitment:

The retailer endorses the objectives of the National Code of Practice for the Management of Plastic Retail Carry Bags and agrees to pursue initiatives to meet these objectives and to report regularly as required under the Code.

Signed for and on behalf of )
..... )
Name of Retailer )

By an authorised officer in the )

Presence of ) .....

Signature of authorised officer

| | |
|---|---|
| ..... | ..... |
| Signature of witness | Name of authorised officer |
| ..... | ..... |
| Name of witness (print) | Office held |
| ..... | |
| Date | |

## *APPENDIX D*

MECHANISMS TO REDUCE PLASTIC BAG USE

| OPTIONS | Pros | Cons | Timelines |
|---|---|---|---|
| Ban on plastic shopping bags | *Environmental*<br>*Major reduction in plastic bag litter Decreased use of non-renewable resources*<br>*Economic*<br>*Alternate industries prospering*<br>*Waste management costs down*<br>*Social*<br>*Increased awareness may flow to disposal of other items* | *Environmental*<br>*impact s of alternatives could be significantly more harmful than plastic bags*<br>*no incentive to reduce other litter*<br>*Economic*<br>*Increased purchases of bin liners – impact on consumers*<br>*Impact on plastic bag manufacturers and employees*<br>*Also import/export concerns*<br>*Recyclers – no input to processes*<br>*Social*<br>*Lose amenity of plastic bags – carry of wet products*<br>*No choice to make – no environmental commitment required of householders* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels*<br>*Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe.*<br>*Whichever legislative route was employed sufficient lead time to enable changeover to alternatives would be advisable.* |
| Mandated take-back of plastic bags | *Environmental*<br>*Possible reduction in plastic bag litter Economic*<br>*Recycling process will have substantial supply could result in an increase in markets for recovered material*<br>*Social*<br>*Take back of plastic bags may encourage further environmentally responsible behaviour*<br>*Community participation*<br>*Increased awareness may flow to disposal of other items* | *Environmental*<br>*May lead to shift to equally or more harmful alternatives.*<br>*Does not of itself encourage reduction in use or less littering – relies on proactive consumers*<br>*no incentive to reduce other litter Consumers may need to acquire plastic bags to dispose of nappies, dog poo, etc.*<br>*Economic*<br>*Retailers will need to set aside retail space normally rented to brand owners*<br>*Costs of recovery may outweigh savings*<br>*increased costs passed on to householders*<br>*Impact on plastic bag manufacturers and employees need markets for returned bags*<br>*Social*<br>*Will not change littering behaviour* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels*<br>*Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe.*<br>*Whichever legislative route was employed sufficient lead time to enable changeover to alternatives would be advisable.* |
| Commonwealth mandated and administered levy | *Environmental*<br>*Funds could be made available for environmental benefit*<br>*Will decrease plastic bag use (how much?)*<br>*Economic*<br>*May reduce cost of litter clean up.*<br>*Will lead to a nationally consistent approach*<br>*Social*<br>*Litter abated - visual amenity*<br>*Politically simple – clear government leadership* | *Environmental*<br>*Impact s of alternatives*<br>*Economic*<br>*Administrative cost for government and retailers*<br>*Adverse impacts on bag manufacturers.*<br>*Issues relating to how funds raised are expended*<br>*Social*<br>*Cost to consumers, particularly families – plastic bag levy or cost of alternatives*<br>*My be seen as another grab for money by governments* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels*<br>*Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe.*<br>*Whichever legislative route was employed sufficient lead time to enable changeover to alternatives would be advisable.* |

| OPTIONS | Pros | Cons | Timelines |
|---|---|---|---|
| Nationally mandated levy jointly administered by the states and commonwealth | *Environmental*<br>*Funds could be made available for environmental benefit*<br>*Will decrease plastic bag use (how much?)*<br>*Economic*<br>*May reduce costs of litter clean up*<br>*Social*<br>*Initially litter abated - visual amenity States and Commonwealth seen to be working together to address issues of environmental importance* | *Environmental*<br>*Impact s of alternatives*<br>*Economic*<br>*Funds not distributed equitably*<br>*May be administratively burdensome and lead to disagreements about the costs of administration*<br>*Funds not used consistently across all jurisdictions*<br>*Social*<br>*Impact on low income households* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe. Whichever legislative route was employed sufficient lead time to enable changeover to alternatives would be advisable.* |
| State based levies implemented collectively by the states | *Environmental*<br>*May reduce littering of plastic bags*<br>*Funds could be made available for environmental benefit*<br>*Economic*<br>*Jurisdictions would have control of funds May provide opportunities for flexibility*<br>*Social*<br>*Initially litter abated - visual amenity* | *Environmental*<br>*Impact s of alternatives*<br>*Economic*<br>*Costs increase for householders, retailers and government*<br>*Social*<br>*Will not necessarily be implemented consistently in all jurisdictions Confusion and equity issues* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe. Whichever legislative route was employed sufficient lead time to enable changeover to alternatives would be advisable. Complementary legislation, if required, could take a considerable time and would prevent a consistent national approach until the last piece of legislation was in place. A NEPM-base approach would take about 2 years. Legal challenges are possible and could result in patchy coverage and significant extension of timeframe.* |
| State based levies implemented individually by the states | *Environmental*<br>*May reduce littering of plastic bags*<br>*Funds could be made available for environmental benefit*<br>*Economic*<br>*Jurisdictions would have control of funds*<br>*Social*<br>*Initially litter abated - visual amenity May be flexible and easier to implement than an approach requiring national agreement* | *Environmental*<br>*Impact of alternatives*<br>*Economic*<br>*Costs increase for householders, retailers and government*<br>*Social*<br>*Will not necessarily be implemented consistently in all jurisdictions* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe. Whichever legislative route was employed sufficient lead time to enable changeover to alternatives is advisable. Legal challenges are possible and could result in patchy coverage and significant extension of timeframe.* |

| OPTIONS | Pros | Cons | Timelines |
|---|---|---|---|
| Retailer administered levies implemented via some covenant-style mechanism, funds passed to government administered fund | *Environmental*<br>*Possible reduction in plastic bags*<br>*An increase use of alternatives*<br>*Funds available to benefit environment*<br>*Economic*<br>*Increase in funds*<br>*Lower administrative costs*<br>*Social*<br>*Retailers seen to be environmentally responsible*<br>*May be embraced by local communities* | *Environmental*<br>*Impact of alternatives*<br>*Economic*<br>*Costs increase for householders, retailers/small business and government*<br>*Social*<br>*Will not necessarily be implemented consistently in all jurisdictions*<br>*Lose ability to direct funds to projects of state or national importance* | *12 months is the shortest probable timeframe given the likely complexity of negotiating mechanisms and setting up trust funds.* |
| etailer administered and retained compulsory charge with minimum charge set via state based legislation. | Environmental<br>*Will decrease plastic bag use*<br>Economic<br>*No free riders*<br>*Retailers decide use of revenue raised (potential for industry led measures).*<br>Social<br>*Constitutionally safe – (absence of revenue raising function means unable to be characterised as a duty of excise).*<br>*May be embraced by retailers* | *Environmental*<br>*Impact of alternatives*<br>*Economic*<br>*Costs increase for householders, retailers/small business and government*<br>*Social*<br>*Will not necessarily be implemented consistently in all jurisdictions*<br>*Lose ability to direct funds to projects of state or national importance* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe. Whichever legislative route was employed sufficient lead time to enable changeover to alternatives would be advisable.* |
| Retailer administered levies (or charges) on a purely voluntary basis | *Environmental*<br>*May reduce plastic bag litter*<br>*Economic*<br>*Beneficial to retailers*<br>*Social*<br>*Retailers seen to be environmentally responsible*<br>*May be embraced by local communities*<br>*Constitutionally safe* | *Environmental*<br>*Most likely will not influence littering behaviour*<br>*Economic*<br>*Increased cost to retailers/small businesses for administration and accountability*<br>*Likely to increase costs to householders*<br>*It is likely that some retailers will not participate and will be in a position to undercut their competitors*<br>*Social*<br>*Not consistent across retailers and jurisdictions*<br>*Lose ability to direct funds to projects of state or national importance* | *Could be undertaken in a short timeframe.* |
| Mandated performance targets/reporting with sanctions | *Environmental*<br>*Reduction in plastic bag use – may abate litter*<br>*Economic*<br>*Needed data would be provided*<br>*Costs of regulation avoided*<br>*Social* | *Environmental*<br>*Targets may be on wrong aspects and cause other environmental impacts*<br>*Economic*<br>*Increased costs to retailers/small business*<br>*Checking industry performance may be difficult*<br>*Social*<br>*If unsuccessful could adversely impact on other recycling systems*<br>*May be subject to some scepticism if targets are not ambitious* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe. Whichever legislative route was employed sufficient lead time to enable changeover to alternatives is advisable.* |

| OPTIONS | Pros | Cons | Timelines |
|---|---|---|---|
| Strengthened Code of Practice | *Environmental*<br>*Possible reduction in plastic bag use*<br>*Economic*<br>*Retailers/small business could undertake actions within their capabilities*<br>*Could incorporate rigorous targets and measures which are publicly reported*<br>*Social*<br>*Awareness of litter issue continually reinforced* | *Environmental*<br>*Little litter abatement*<br>*Economic*<br>*Would increase costs to retailer/small businesses*<br>*Checking industry performance may be difficult*<br>*Free riders may gain a competitive advantage*<br>*Social*<br>*May be subject to considerable scepticism due to lack of progress with existing Code*<br>*Retailers may not be fully committed* | *Could be undertaken in a short time frame (once a revised Code of Practice is developed and agreed to by stakeholders). 4 months is a reasonable timeframe.* |
| Compulsory offer of alternatives to shoppers | *Environmental*<br>*Would influence appropriate shopping bag use*<br>*Economic*<br>*Retailers would possible sell more alternate bags*<br>*Social*<br>*Consumers provided with an opportunity to act responsibly* | *Environmental*<br>*Alternatives could impact adversely on environment*<br>*Economic*<br>*May cost consumers more*<br>*Social*<br>*Consumers made to feel irresponsible* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels*<br>*Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe.*<br>*Whichever legislative route was employed sufficient lead time to enable changeover to alternatives would be advisable.* |
| Compulsory messages on bags ("this product may kill a turtle") | *Environmental*<br>*Will decrease plastic bag use*<br>*May address litter issue*<br>*Will increase exposure to environmental issues*<br>*Source of litter may be identifiable if all had printing*<br>*Economic*<br><br>*Social*<br>*May make identification of litter sources easier and therefore local litter prevention activities more robust* | *Environmental*<br>*Could create overexposure and dilute message*<br>*Printing on bags may make them difficult to recycle*<br>*Economic*<br>*Cost of printing*<br>*Social*<br>*Hectoring – non-partnership*<br>*So many messages for consumers that they tune out* | *Implementation would be dependent on the passage of legislation either at Commonwealth or State/Territory levels*<br>*Commonwealth legislation would probably require 6 months to develop. If legislation was required in all states and territories, 12 months is the shortest reasonable timeframe.*<br>*Whichever legislative route was employed sufficient lead time to enable changeover to alternatives would be advisable.* |
| No Additional Measures – Status Quo | Actions set out in NPC action plans continue<br><br>*Environmental*<br>*Possible reduction plastic bag use*<br>*Possible reduction in litter*<br>*Economic*<br>*Companies able to undertake actions within their financial capabilities*<br>*Social* | *Environmental*<br>*Will not decrease plastic bag use*<br>*Will not decrease litter*<br>*Economic*<br>*Cost to litter abatement programs continues*<br>*Social*<br>*Politically risky* | *Not applicable* |