SKELETAL STUDY AND WORK PRACTICE INVOLVING *plastic bags* AND RETAIL WORKERS

Shop Distributive and Allied Employees Association
South Australian Branch

A study prepared for Zero Waste SA
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Researchers

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Note: This document was prepared on behalf of Zero Waste SA to inform and assist the retail industry in adapting to the changes brought about by the phase-out of single use plastic shopping bags. Opinions provided in the document are not necessarily those of Zero Waste SA and the information in the document should be used only as appropriate to the purpose of the study.

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Executive summary

The indicative study coordinated by the Shop Distributive and Allied Employees Association, commissioned by Zero Waste SA and detailed in this report, examined the potential impacts of a ban on the use of high density polyethylene (HDPE) single-use plastic shopping bags on employees and their worksites within the retail sector.

The present system, with a mix of plastic bags, green bags and others, is efficient, relatively safe and convenient to all parties. However, plastic bags are a pollutant and it is desirable to remove them, though there will be many imposts.

The study used three forms of investigation: literature search, a survey of members and a workplace analysis. This report highlights the level of manual handling risk and the psychological risk involved in the change process.

Workers showed a very high level of support for the removal of the plastic bags and for a green bag or paper bag alternative, despite their awareness of the implications of the change.

The recommendations of this report are presented in three sections:

> change process for introducing the ban on plastic bags
> design and care for replacement bags
> design for changes to the workplace.

The National Standard on Manual Handling (2007) is recommended as the mechanism by which change is introduced. The report goes on to recommend that there be:

> a 6–12 month period of change
> an industry wide coordination committee established
> a standard bag size
> a redesign of checkouts
> an extensive workplace training and public education campaign.

At the workplace level, the report strongly recommends the use of OHS committees as a mechanism for change, even though this would require a significant effort to increase participation numbers from their present low base. The use of OHS committees would focus the existing good will to the change and ensure that the ‘checkout’ can become a means of promoting change.

Introduction

In August 2007, Zero Waste SA agreed to support an indicative study coordinated by the Shop Distributive and Allied Employees Association (SDA) on the potential impacts of a ban on the use of high density polyethylene (HDPE) plastic shopping bags on employees and their worksites within the retail sector. This document is the report of that study.

The study agreed to undertake:

1. a study of retail workplaces to develop principles of workplace design and strategies that will minimise the risk of injury and inform a draft code of practice

2. a survey of employees in the retail industry affected by the plastic bag ban, again with the outcome of delivering strategies that will minimise the risk of injury and facilitate the change process.

The study examined the potential of a ban on the 'singlet' or single-use HDPE bags only. Many stores use the thicker, softer and, presumably, more expensive low density polyethylene (LDPE) bags specifically for taking home clothing, manchester and similar goods. These bags have the advantage of providing advertising and so far have not been as noticeable in the waste and pollution stream.

The research

The three methods of research used in this study had the aim of practically assisting the retail workplace to prepare for a significant impending change, the elimination of plastic bags. The two areas of focus were the psychology of the workplace (how people think, might think and the stresses and strains that will result) and the physical issues in working within any new arrangements. A key concern was the workers' occupational health and safety (OHS).

Context

The initial area of research, establishing the context, examining research literature (Appendix 1) and addressing the issue of the plastic bag and manual handling, concluded that any research work would need to consider that:

> the core area of concern was lifting and the contributory factors were the elements of fatigue, static loads and repetitive movements as well as the psychological impact of the stress of change and customer/public perceptions and comments
> any design process would need to look to eliminate or minimising any lifting
> an effective implementation process needs participation by employees, through either OHS representatives or committees, so they can help generate the organisational cultures able to adapt to new work safety demands
> a relatively smooth and effective transition would be accelerated by workplaces using the demonstrated commitment of workplace participants to the positive values inherent in achieving acknowledged environmental benefits.

In sum the change process should be managed to ensure that the ecological solution (banning the bags) results in positive work practices and experiences.

Survey

A survey was used to elicit the views of workers and uncover their willingness to change to a new bag system, as well as find 'on ground' solutions to problems that might arise with the change.

The survey was undertaken in two steps: an initial study testing the questions and then a survey of as many retail workers as possible. Out of 2000 responses, 1000 were randomly selected to reduce the logistics of the task (Appendix 2).

The respondents were a good cross section of the industry. The majority were under 25 (56%), casual and part time (82%), team members (71%) and most in stores and sales (84%). Interestingly, 93.6% recorded no workplace activity such as active OHS representative or delegate.

Most respondents saw the end of plastic bags as a state government responsibility.

The survey uses this material to outline a strategy for change (Appendix 2, Part Three).

In sum, the survey reveals that most workers are highly supportive of recycling and conservation measures. Commentary in the open questions was overwhelmingly in favour of a change from plastic bags and strong support for their replacement by 'green bags'.

The survey also outlined the negatives. Many were worried about the state of the replacement bags, the attitude of customers and the potential for back injuries, particularly as many recorded very high rates of use of plastic bags – an average of 908 a day.

There was also a high rate of use of green bags – an average of 375 a day, indicating a change process is underway.

Workplace analysis

The third aspect of the research was a workplace analysis (Appendix 3). Workplaces were visited and observations were made of the work procedures and practices. Workers were interviewed and, where possible, so were operational managers.

A wide range of sites was visited. The researchers found management interested, accommodating and willing to participate in a study they saw as worthwhile.

The workplace study confirmed much of the survey and literature research, in particular, the need to tap into the values of workers about recycling, the desire by those in workplaces to have a change, and their concerns about injury and customer opinion.

The research found that the average plastic bag capacity was 6 kg and confirmed the preference for the green bag as the replacement bag. The workplace study found a problem with the use of plastic bags for carrying goods, such as fresh meat and fish, as no alternative exists, and a need to consider the issues of fresh food obtained from the delicatessen.

Workers and management in the shops foresaw a need for a 6–12 month phase-out process.

National Standard for Manual Tasks

As the intent of the research was to be practical, the framework for presenting the material needed to be similarly useful. The system of National Standards and Codes for industry was accessed because of the research criteria of: having a clear structure, being applicable across all sectors of the industry, having a capacity to be enforced and being relevant to OHS.

The relevant Standard is the newly adopted National Standard for Manual Tasks, which was declared by the Australian Safety and Compensation Council (ASCC), in accordance with section 6 of the Australian Workplace Safety Standards Act 2005 (Cwlth), on 22 August 2007. It has the objective of reducing the incidence and severity of musculoskeletal disorders to workers performing manual tasks.

The Standard places an obligation to comply on those:

> persons who design, manufacture or supply items or workplaces
> employers or persons with control of workplaces
> employers or persons with control of work
> workers or employees. (ASCC 2007)

Discussion

This study has examined the views of the workers and found them overwhelmingly in favour of ending the use of plastic bags. They are willing, if not eager, to assist in the process. The assistance granted by the industry in accessing workplaces and in informing the researchers indicates clearly that the managers and employers share the workers' outlook.

The study looked at the parameters of change. This will help workplaces meet the expectation that "those with an obligation to comply will be able to take account of:

> the probability (likelihood) of the hazard or risk occurring;
> the degree of harm arising from the hazard or risk;
> the state of knowledge about the hazard or risk and ways it may be removed or mitigated;
> the availability and suitability of ways to remove or mitigate the hazard or risk; and
> the cost of removing or mitigating the hazard or risk." (ASCC 2007)

The study reveals that there is a strong likelihood of a hazard occurring. The study received anecdotal information from managers that present workplaces have low injury rates from handling plastic bags, probably because the retail workplace has come to be designed and has evolved around the use of plastic bags.

Plastic bags can carry some 6 kg each. The survey reveals that in some cases workers shift almost 1000 bags a day, or 6 tonnes of goods. That there are low injury rates for such movements is significant. It also points to two foreseeable risks of substitute bags; an increase in weight and volume per load and an accumulative increase in weight leading to injury.

The potential for harm can be quite significant. The present workplaces have been designed for the plastic bag. A replacement means the introduction of a new movement and a new system of managing a new bag. This will change load shifting patterns and weight stress. It will also, unless carefully controlled, lead to greater weight per load and thereby a significant increase in the degree of injury and stress.

This stress is not just physical but psychological as well. An almost universal fear of workers was the pressure they would be under from irate customers because of the change in regime. The workers highlighted potential negative and destructive reactions by those reliant on the plastic bags for shopping and domestic use. They also highlighted the dangers and stresses of policing of hygiene and related matters as reusable bags become the norm.

The solution promoted by workers was to have simple designs to any replacement bags, with a strong preference for the existing green bags, and with mandatory instructions for the care of the replacement bags being imprinted/attached to each bag so that hygiene and other risks can be addressed.

The findings of the survey outline a strategy for workers to cope by having the public educated and made aware of the legislation and proper signage – thereby removing blame for the change from the immediate worker, who will no doubt suffer some odium but not as much as the signs that say it is the legislation that is responsible.

This exchange of knowledge (consultation) is needed at the workplace. The National Standard for Manual Tasks places an obligation on a person with control "to consult workers who undertake manual tasks, health and safety representatives, and, as far as reasonably practicable, other duty holders about matters affecting health and safety related to manual tasks". (ASCC 2007)

The study and survey highlight the absence of OHS representatives and committees and consequently, a strong recommendation is made that a concerted campaign must be undertaken to move the industry into having more OHS representatives and committees. In this way the National Standard imperatives – that a person with control of work must provide workers with appropriate information, training and supervision – will be rapidly and effectively attained. It will also permit workers to meet their obligations to perform manual tasks safely, "as far as they are able and with respect to manual tasks, to take reasonable care of their own health and safety and the health and safety of others in the workplace." (ASCC 2007)

Summary of findings of the study

The following table summarises the study findings and aligns them against the National Standard's risk management process, and checklist and other tools for addressing manual handling (ASCC 2007).

Risk management process	The study identifies
Step 1: Identify hazardous manual tasks that have given or may give rise to musculoskeletal disorders to workers handling a person or an animal, or using an item, a system of work, or a workplace during a manual task.	The hazards are: 1. replacement bags and their hygiene 2. replacement bags and their capacity and weight 3. accumulated weight of the new movements 4. new movements needed to lift, shift and pack the new bags 5. abuse by the customers 6. stress of change itself 7. changes in work routine to accommodate new bags 8. physical impediment caused by integrating many current checkout designs with the plastic bag
Step 2: Assess the risks posed by hazardous manual tasks. The risk assessment must take account of the following direct risk factors:	
i. the posture of the worker	Unless a new checkout or counter system is designed, the posture will remain much the same but the worker's movements will be different and thus present a risk.
ii. the forces exerted by the worker and on the worker by the item person or animal	The cumulative increase in weight per bag over a day will see greater forces. The firmness of the new bag will create different stresses.
iii. speed of movements by the worker	The rhythm of packing, shifting and lifting will change. The bags may be heavier and more awkward (they will not 'give' and thus pose new strains).
iv. exposure of the worker to vibration	not applicable
v. the duration and frequency of the task	This will change. The duration may be shorter for big loads and this will create a larger load more frequently and thus a greater strain. There may be greater fatigue.

Risk management process	The study identifies
Step 3: Eliminate the risks or, if this is not reasonably practicable, minimise the risks of musculoskeletal disorders arising from hazardous manual tasks so far as is reasonably practicable by implementing risk control measures.	
a. The method used to minimise the risks must take account of the interaction or potential interaction between the direct risk factors and the following factors that contribute to risk or a source of risk: i. the layout of the workplace	Presently there is a counter in many small shops and a checkout in most large and medium shops. With small loads, the use of alternatives to plastic bags will pose little change beyond some awkwardness – yet even a small movement can result in large or persistent injuries. With large loads at peak hour work, the risks become more manifest. The flow of work will need to be monitored with more breaks, more variety and some mechanism for assessing the weight in the bags. The study suggests that a flat moving surface would be best to permit packing of the bags. In many checkouts this would mean the new bags would be put onto a hook, filled and then moved along a surface for the customer to pick up. The worker should not be lifting a full bag. To fully integrate the changes into the workplace, it is recommended that an OHS representative per store, or better an OHS committee, is involved in any change process.
ii. the work environment	The issue here is the customer. Those surveyed think that many will resent the change as it will inconvenience them. Over time they will adjust. There is a need for immediate protections for the worker – by signage, an education campaign and intervention by supervisors. Another would be training in handling the customer and complaints.

Risk management process	The study identifies
iii. the characteristics and locations of any relevant item iv. work organisation and the system of work.	The size and shape of goods vary, a refresher course in packing and handling is recommended. Greater intervention by supervisors in customer relations at the start of the change process will be needed and greater involvement by 'on the ground' practical bodies such as OHS committees.
b. One or a combination of the methods listed below must be used to eliminate the risks or, if this is not reasonably practicable, to minimise the risks so far as is reasonably practicable by: i. altering the workplace where the manual tasks are being carried out	Recommendations are to: > design flat moving packing areas > use weight limiting or indicating devices > introduce scanning guns where possible as an adjunct to the present systems to permit distance scanning of large/heavy objects.
ii. altering environmental conditions, including heat and cold, and vibration where the manual tasks are being carried out	It is always a good practice to have optimum environmental work conditions but removing plastic bags should not affect this aspect.
iii. altering the work organisation and system of work used to carry out the manual tasks	This is the reason for the study in that a working system is to be replaced by another and so specific interventions must occur that anticipate issues rather than respond to them.
iv. modifying items used in manual tasks or substituting other items	This is the reason for the study in that a working system is to be replaced by another and so specific interventions must occur that anticipate issues rather than respond to them.
v. using aids designed to assist in carrying out manual tasks; or	The modification of checkouts has been suggested. The imposition of a weight and load restraint is also recommended.
vi. providing information, training, instruction, and supervision in a task-specific method for performing a manual task, personal protective equipment, or the combination of these	There is a need for greater OHS training for all levels in the industry, greater OHS committee structures and more representatives. Packing and handling information and training would also assist.
c. The methods used in vi. should be used as the sole or primary means of controlling the risk only where it can be demonstrated that it is not reasonably practicable to achieve risk control by the use of i. to v. above.	The risk is cumulative and can be made more manifest when under pressure or through faulty and unhygienic bags. An ongoing system of monitoring and awareness will be required. Empowering of workers to act will assist the controls.

Risk management process	The study identifies
Step 4: Monitor and review risk control measures on an ongoing basis to ensure they:	
a. have been implemented	
b. continue to work to eliminate or minimise the risks of musculoskeletal disorders so far as is reasonably practicable	Again the role of OHS committees in such work cannot be over stated.
c. do not result in new hazardous manual tasks.	A lot of the issues will evolve as the change is implemented and so 'on ground', 'hands on' intervention will be needed.

Conclusions

Banning the use of plastic bags in the retail industry will pose some significant manual handling risks.

Of the alternatives available, the 'green bag', which appears most favoured, is heavier, carries more and is of a different design and structure to the existing plastic bags.

The change to a new system will pose risk to workers, both physical and psychological. This is understood by the workers.

The present system of plastic bags has been integrated into work practices and domestic consumption and any change needs considerable education and training effort by all parties.

There is considerable goodwill toward the idea of replacing a known pollutant with a more environmentally sound practice. This should be built on to make any change process a success.

There will be costs involved in the change over, not the least a potential loss of efficiencies, a transfer cost of the new bags to the customers and a need to alter work practices and workplace designs.

The survey found an expectation that the state government would play the lead role in ending the use of plastic bags by providing an appropriate legislative and mandatory framework.

If the state government does legislate to end the use of plastic bags then there will be a need to have a universal process of assessing risks in the workplace and a concerted effort at making the change process uniform and equitable.

The report concludes that all stakeholders need to be involved in the process of change. At the workplace level the National Standard for Manual Handling (ASCC 2007) using OHS committees or representatives is recognised as the appropriate vehicle to facilitate this process.

At a state-wide level, it is concluded that the stakeholders will need to coordinate their input to obtain the desired outcomes and a task force is suggested as the means to achieve this outcome.

Recommendations

The recommendations of this report are presented in three sections: (A) change process for introducing the ban on plastic bags, (B) design and care for replacement bags and (C) design for changes to the workplace.

A. The change process

That a strategy of change be developed that encompasses a partnership by all stakeholders; that a task force of key company and industry players with a sunset clause of 12 months be resourced; and that the task force is briefed to initiate and support industry to adopt and implement the following recommendations:

1. **Implementation and consistency**
   a. the National Standard for Manual Handling be adopted as the preferred approach to meet compliance
   b. the phase-in period be 6 months with a 12 month target set for any exemptions to end
   c. a 'give away' of replacement bags along with a suitable promotion campaign be used to initiate the new bag system

2. **Principles to the process of change (see survey, Appendix 2)**
   a. the communication strategy of the survey be adopted
   b. the strategy to address customer reactions to change process as outlined in the survey (Don't Bag Me) be adopted

3. **Education and training**
   a. the public be educated as to the use of new bags, the need to respect the workers and the positive outcomes of the change
   b. training be expanded at all levels of manual handling and OHS with an added element addressing the anticipated workplace stress to occur through customer reactions
   c. refresher courses be offered in packing, manual handling and load control
   d. a package be designed to train the checkout operator to promote the change

4. **Workplace commitment**
   a. OHS representatives and committees be actively promoted and supported; and a special brief be assigned to assist the change from plastic bags
   b. the shared workplace belief systems in recycling, conservation and ecological responsibility be actively and positively reinforced

5. **Signage**
   a. prominent signs outlining the legislative requirement and informing the public of actions they can/should take be installed

B. Design of bags - The alternative to the plastic bag

It is acknowledged that the industry may not wish to have a single mandated manufactured bag, and may choose to provide a store or company-wide alternative. Despite this issue of choice, and recognising that the current 'green bag' is universally popular, it is strongly recommended that the industry be mandated to adopt a standard format for the replacement of the existing plastic bag such that:

1. **The dimensions of the current 'green bag' be retained**
2. **The bag size for food supermarkets be limited to carry a maximum of 6 kg**

3. **Principles for the bag:**
   - > the bag be made from firm strong woven material
   - > the bag have:
     - > a strong material loop one side to attach to a hook at counter
     - > a strong easy gripped handle for carrying
     - > a firm rectangular base 30 x 20 cm to sit on the stand for easier packing and a height of 33 cm
     - > clear washing instructions attached to the reusable bag
   - > insulated bags have the same internal dimensions as a standard recyclable bag
   - > a smaller version of the bag be available for bottles and cans (to allow for their weight).

4. **Bag care instructions and recyclable bag reuse:**
   - > the instructions and standards conform to health regulations and be indelible on each bag; a damaged bag or a bag that cannot loop to a hook cannot be reused
   - > bags that are mouldy/soiled/stained in any way or contain decaying food or any solid material, not be used
   - > bags that are 'smelly', have a decaying odour/urine or other noxious smell or any chemical residue, not be used.

C. Design of workplace

That agreed checkout and workplace design principles for processing goods be adopted such that the overall design standards for the checkout worksite include bag holding systems to permit ease of packing and flat moving surfaces to permit the flow of the full bags to customers who can then lift the bags. It is recommended that design is such that:

1. **Worker involvement in moving bags and goods be reduced by:**
   a. using conveyors where possible to move purchases to the sales person
   b. using carousels or conveyors or have the customer lift the filled bags to the trolley
   c. having a single flat surface for the area where the bag is filled and moved away from the filler
   d. ensuring filling and movement of bags are a straight line
   e. providing the counter at a height of the standard bench
   f. providing scanner guns to permit scanning of heavy or awkward objects in trolleys

2. **Lifting and shearing when packing bags and moving goods be limited by:**
   a. positioning the bag filling point in front of and square to the body of the worker
   b. designing the layout of the checkout to permit workers to change between right and left side serving so as to give job rotation and/or to mix left and right serving stations in a worksite
   c. integrating 'touch screens' that identify heavy items so the items remain on the shopping trolley

3. **Support of the bags is maximised to minimise worker lifting and movement by:**
   a. providing a support frame to hold the recyclable bags such that the bag is 'hooked' to permit it being held open when packing and slid off when full
   b. designing the hook(s) and support frame so that it is adjustable in height through 15 cm to allow for tall or short people
   c. providing a flat platform to make for easier packing and continuous surface so when full, removal does not require lifting

4. **An accessible point is made available to purchase replacement bags.**

Appendix 1. The context – Plastic bags and manual handling

Introduction

The following material is an overview of recent moves to address plastic bags as a pollutant and of material concerned with manual handling in the workplace.

Definition

A light weight plastic carry bag is defined as a single-use light-weight plastic (HDPE) bag designed for the general carriage of goods by consumers, commonly referred to as 'singlet bags' (and does not include non-handled cross-contamination/ barrier bags). (ANRA 2006)

Background

In the period of the automation of the 'checkout', the retail industry introduced one-off plastic bags to replace paper and other forms of containers for goods purchased by customers. The bags were highly successful; not only were they convenient for the consumer, they also permitted an increase in the efficiency of the checkout and provided a means of involuntary weight limits and other occupational health and safety (OHS) measures.

In sum:

"The current (light-weight) plastic shopping bag is well suited to its task – it is cheap, lightweight, resource efficient, functional, moisture resistant, allows for quick packing at the supermarket and is remarkably strong for its weight. The production of 6.9 billion plastic shopping bags consumes approximately 36,850 tonnes of plastic, or 2% of total plastics produced in Australia each year. This is a small percentage of the total amount of packaging consumed in Australia each year, which is estimated to be around 3 million tonnes. It has been estimated that plastic shopping bags make up 2.02% of all items in the litter stream, however, they pose real ecological impacts and hazards and as such need to be effectively addressed along with other components of the litter stream."(Nolan ITU 2002)

These hazards led to agitation for change and a maze of reports and committees (e.g. Hyder Consulting. 2006; Nolan ITU. 2002; Department of the Environment and Heritage. 2002b). In these reports a preoccupation with ecological and consumption statistics is common and can be summarised thus:

> Australians use over 10 million plastic bags a day with almost half of these bags provided by non-supermarket retailers such as newsagents, discount stores, pharmacies, fruit and vegetable shops, liquor stores and take-away outlets.
> Plastic bags suffocate, disable and kill thousands of marine mammals and seabirds worldwide each year. When the animal dies and decays, the plastic bag is free again to repeat the deadly cycle.
> It only takes 4 grocery trips for an average Australian family to accumulate 60 plastic shopping bags.
> Australians throw away about 7150 recyclable plastic bags a minute, with 429,000 recyclable plastic supermarket bags dumped in landfill every hour.
> Plastic bags are an extremely visible and unsightly component of litter items collected. Their persistence means that the number of bags in the environment will increase over time. Currently, local and state governments around Australia spend more than $200 million per year picking up litter.
> Plastic bags are considered to be a 'free' commodity but the cost to households of $10–15 per year is added to the price of goods that they purchase.

Further, a study conducted by the Environment Protection Authority in South Australia (McGregor Tan Research 2003) found that 94% of South Australians considered the current use and disposal of plastic bags to be a problem to the environment.

The build up in community concern saw the Australian Government's Environment Protection and Heritage Council (EPHC) commission a series of reports (including: Hyder Consulting. 2006; Nolan ITU. 2002; and, Department of the Environment and Heritage. 2002b) and then accept

a code of practice framed by the Australian Retailers Association as a voluntary means to reduce the use of plastic bags.

The EPHC agreed to a participation target of 90% for supermarket/retail chains and 25% for smaller retailers and a reduction target for major supermarkets for the number of plastic bags to fall by 25% by the end of 2004 and 50% by the end of 2005. The outcomes were endorsed by the major retail groups who committed in excess of $50 million to meet the targets. By the end of 2005, supermarkets had achieved a 41% reduction in use of plastic bags. Overall, a reduction of 34% from 2002 to 2005 had saved 2 billion bags from being produced. (ANRA 2006)

This voluntary effort was acknowledged but governments throughout Australia sought to accelerate the process. This was intensified during the 2007 Federal election when the opposition (now government) environment spokesman Peter Garrett said Labor would ban bags if a phase-out didn't work (The Daily Telegraph 17 August 2007). He repeated the call on 10 January 2008 as a government minister (Sky News Australia, 10 January 2008).

The models

Four models are emerging to address the issue of managing and/or eliminating the plastic bag:

1. **Voluntary codes** – The Australian National Retailers Association (ANRA) is the key protagonist for adopting and promoting voluntary codes. This approach has dominated thus far. The targets have not been met, despite a 3 billion reduction in bags and ANRA (2006) has conceded that consumer behaviour has not changed significantly to permit the goals being attained.

2. **The levy** – A levy on the use of each plastic bag is a scheme that has been running in Ireland for almost a decade with a significant impact on the use of the plastic bags. However, unlike Australia, Ireland has no other significant environmental recycling system and plastic bags represented in excess of 15% of litter (barely over 2% of Australian litter waste). A levy scheme is opposed by the Plastics and Chemical Industries Association, ANRA and Clean Up Australia. The plan, to be introduced to Victoria in 2009, mirrors the Ireland scheme and the revenue – predicted to be around $100 million a year initially – will be retained by the retailers.

3. **Litter laws** – This approach postulates that plastic bags are only part of the problem and should be dealt within other litter laws. The approach has been promoted by the Productivity Commission arguing that the 1% of plastic bags that did end up as litter was not worth the cost of a specific strategy. The approach has yet to be tried and is opposed by many environmental groups, particularly Planet Ark.

4. **Banning** – South Australia is to ban plastic bags as of January 2009. Environment Minister Gago stated that the South Australian Government was committed to a phase-out of single use plastic shopping bags and urged the EPHC to ban these bags from 1 January 2009. In contrast, the Taiwan Environmental Protection Administration lifted a 4.5 year ban on retailers offering customers light-weight plastic carry bags in March 2006 because evidence showed that the policy did not work and it provoked significant public discontent. ANRA is against the use of any mandatory measures such as carry bag bans or levies because it "would impose significant financial penalties on retailers which will be inevitably passed onto customers with the cost falling most heavily on those who can least afford it. There will also be health and safety risks associated with a multitude of types, sizes and composition of alternative bags. These risks will be borne by the tens of thousands of retail store staff and by millions of customers." (ANRA 2006) Clean Up Australia Chairman Ian Kiernan supports the ban arguing that "a levy was not enough to make Australia bag-free and that a levy is another tax.".

The fifth option of a new type of biodegradable bag has yet to make its appearance in Australia. Only appropriately tested materials should be used to make biodegradable bags. Zero Waste SA regards Standards Australia as the best qualified organisation to determine testing procedures and criteria. Australia Standard AS4736-2006 *Biodegradable plastics - Biodegradable plastics suitable for composting and other microbial treatment* sets out the requirements and procedures to determine the compostability of plastics.

South Australia - The ban

In South Australia, a Plastic Bag Phase Out Task Force was convened by Zero Waste SA, the body charged to ensure that a ban can be implemented in South Australia with minimal impact on the community and retailers. As an initial activity, the task force approved the terms of reference for a market research program to evaluate community and retailer needs in relation to the phase-out. The market research found that, generally, the South Australian community accepted the need to stop using single use plastic bags and considered that once they have been banned, shoppers and retailers will quickly adapt.

However the Shop Distributive and Allied Union (SDA) as a member of the Task Force argued that not all partners to the change process had been considered fully in the research. The effects of the workplace changes on the attitudes and work practices of employees had not been properly considered. The SDA sought, and obtained, a grant to coordinate an indicative study of the impact of the ban on retail workers and their workplaces. The SDA argued that the ban's impact would concentrate at the checkout and equally, the workers at the checkout were the front line for selling any change.

The SDA research

The SDA study investigated the checkout as a workstation and the attitude of employees to a ban on plastic bags. It examined the changes to key manual handling work practices caused by the substitution of the present light-weight plastic bags by another container system. In many retail outlets, the checkout is designed to have the plastic bag integrated into the process of handling the product. In the simplest of terms, the goods are moved to the worker by a conveyor; the worker scans each product and places them into a plastic bag. The bag is held in a designed section of the checkout. Once full the bag is lifted out, replaced and the filling continues.

The strength of the bags determines the weight that can be placed in the bag and thereby limits the lifting by the worker. Similarly once full, the bag determines the rate of work, as a pause is needed to remove the full bag.

The types of work are basically repetition, shearing, lifting, and dealing with static weights and continuous work in one space.

These are manual handling issues.

Added to the change process will be the attitude of the customers and the workers. If the changes are not well received by employees, the stress of change will induce greater injuries and discontent. If the customers are upset by the loss of the convenience of the bags, they will vent their frustration on the workers.

Further, the substitute containers will need consideration, they will need to reflect the manual handling limits of the workers and hygiene and other considerations.

The study of the SDA will thus address the issue of the changes to manual handling and employee perceptions of the change.

Perceptions of change

The attitude of employees to change and their role as 'sellers' of change to customers is of critical significance to the success of any plastic bag ban. ANRA acknowledged the important contribution of employees when it noted that its voluntary proposals rested heavily on the shoulders of the employees by making one of its six objectives to "Train checkout staff to build and maintain awareness of, and support the promotion of alternatives". (ANRA 2006)

Before the SDA proposal there was no specific research into employee perceptions of a ban on plastic bags. There had been a study of customer perceptions in a report commissioned by Zero Waste SA and produced by KPPM Organisational Strategists (2007). The study used qualitative and quantities research on waste management and recycling behaviours of the South Australian public to provide benchmarks for Zero Waste and to test public attitudes to the proposed ban.

The report found that South Australians were willing to change and required a simple and positive informative promotion campaign delivered in focused manner to enable them to appreciate the need for change.

The report recommendations focused on the mechanisms by which the message could be promoted to the general public and employees are part of the general public. However, the report did not address the specific needs and perception of the employees.

This neglect of the employee role has a long pedigree. When the largest body of employees in Australia (the public service) underwent change, it was noted in a review: " ... what is striking about this literature is the almost total absence of labour, with almost no discussion of what such developments might mean for the social relations of public sector production and provision" (Fairbrother 1997).

Yet it is almost an automatic conclusion to any management sponsored research that employee behaviour is arguably one of the greatest determinants in workplace safety. Why are employees not more empowered to prevent such accidents? Such behaviours reflect the values of employees which form the base of organisational culture that encompasses the values, beliefs and customs of the organisation, including the vision shared by employees or, "the way we do things around here" (Callan 2007).

In sum, "employee involvement in decision-making over OHS is not simply critical to the effective management of OHS but is also an integral part of enhancing productivity and quality at the workplace" (Bluff 2005).

Given that employee values and attitudes have such a significant impact on the success of change, it could be expected that the reports to the Irish Parliament (Dail Eireann), the only national body to address plastic bags in a substantial manner, would consider the impact on the workplace and employees. Reviewing the reports on the debates and questions addressing the implementation of a levy on plastic bags reveals that the major preoccupation of the Irish Parliament was on the income that the levy generated, how it was spent through the environment fund and compliance with the collection of the levy. The major role of government has been to carry out verification checks on the accuracy of returns and pursuing accountable persons who failed to deliver.

The reports reveal that the number of bags taxed rose from 85,889,387 (in 2003) to 116,563,674 (in 2005) {Questions 14 June 2006} while compliance had fallen from 79% (2002) to 53% (2003) {table 2.16 Environmental Levy Compliance Rates Committee of Public Accounts 2003}. Yet such material does not provide any lead on the change process or its success, nor on the role of employees or the impacts on their work. If anything it reveals that revenue has risen so more plastic bags are being used.

Manual handling and workplace design

In its opposition to any mandatory change in the use of plastic bags, ANRA argued that the lack of knowledge about alternatives to plastic bags and increased costs would fall heavily on the employees in the industry.

"There is currently very little research into the economic and community cost that would be imposed by a regulatory ban. Until such time as this type of research is available and understood it is too early to decide that a regulatory ban is the only solution. ANRA members believe that a regulatory mandatory total singlet bag ban is not a commercially realistic or environmentally effective method to control the incidence of singlet bags in the environment and would involve significant cost to consumers and taxpayers to implement, monitor & enforce. A ban or a levy places this significant cost burden on families and negatively impacts on retail workers occupational health and safety and store and customer health and hygiene , because they would have to manage a range of heavier, dirty or clumsy alternatives. Until such time that a proper Regulatory Impact Statement (RIS) process is completed it cannot be assumed that a phase-out or ban is the only environmentally effective, public health approved and commercially viable option. More rigorous research is required before any form of regulation is imposed." (ANRA 2006)

Effectively the ANRA position is a concession that significant changes can be expected to the manual handling practices at the workplace. If these changes create a negative reaction from employees, or indeed, are introduced by a disgruntled work force, anticipating injuries, the change process may well result in failure.

The documentation on manual handling and OHS is vast but studies addressing the task of a checkout in the retail industry (manual handling) are not. *A Guidance Note for Manual Handling in the Retail Industry 1992* (NOHSC 1992) provided almost the sole source of practical information available to the industry until recent times. The work is a basic guide that addresses the more common strategies for meeting manual handling challenges such as weight, height, transfer and so forth. It is of no specific assistance to the development of principles of design for a worksite soon to be changed by the removal of a key tool – the plastic bag.

This does not mean that research has not been conducted on manual handling. A comprehensive study of the literature by McDonald and Evans (2006) concluded that cumulative work related musculoskeletal disorders (WMSDs) stem from workplace situations where there is "a substantial mismatch between one or more of a wide range of workplace factors and one or more personal factors".

Reviewing extensive literature, the report comments that: "Excessive physical demands of various kinds can be directly injurious, while excessive demands of other kinds can result in injury by increasing the risk of hazardous personal states due to excessively high labels of fatigue and/ or stress." In relation to this study, the key hazardous job demands highlighted by the report are physical characteristics of task performance that is the checkout activities of handling static and dynamic loads, awkward or sustained postures, and repetitive movements (McDonald and Evans 2006).

It was also noted that "The current failure to assess and control psychosocial hazards as part of WMSD risk management within high-risk sectors was identified as a particular problem" (McDonald and Evans 2006). That is, if management does not address the reasons for change and the impact of change, the degree of the injuries and their debilitating effects will be intensified.

This is a significant risk, as the change from plastic bags will be all embracing and as the report notes, "Risk is likely to depend on the total dose to which workers are exposed" (McDonald and Evans 2006).

Adding to the risk, and thus the value of the SDA study is the observed trait throughout the literature that "sustained postures and static loads are sometimes included on checklists but they are seldom assessed; and

the situation is even worse in the case of risk due to high angular velocity of trunk bending and rotation which is rarely mention on checklists" (McDonald and Evans 2006).

The report concluded that most understanding of manual handling issues is too narrow, too reliant on inadequate tools for risk assessment and hazard identification and that "managers knowledge of, and understanding of, occupational health and safety risk management principles appear to be generally poor" (McDonald and Evans 2006).

Within the literature review was a reference to research into muscular skeletal injury – the a Principles of safe design for work (ASCC 2006) The work was developed to "support the priority – eliminate hazards at the design stage" (ASCC 2006a) within the National OHS Strategy 2002–2012.

This strategy has five priority Principles of Safe Design

1. Persons with control – persons who make decisions affecting the design of products
2. Product lifecycle – safe design applies to every stage in the lifecycle from conception to disposal
3. Systematic risk management – the application of hazard identification, risk assessment and risk control
4. Safe design knowledge and capability – demonstrated or acquired control over design
5. Information transfer – effective communication and documentation do design and risk control between all persons involved in the lifecycle. (ASCC 2006a)

The design principles also incorporate five Ergonomic Principles

1. The user – their characteristics, physical, psychological, behavioural capacities, skills, knowledge abilities
2. Job and task characteristics – what is required including decision making, work organisation and time
3. The work environment – the work area, space lighting, noise and thermal comfort
4. Equipment design – the hardware needed to perform the work
5. Work organisation – patterns of work, fluctuation in load, timing of work, interaction demands, broader industry and economic influences. The focus of safe design is on the hardware ergonomic principle (ASCC 2006a).

Critical to the success of Safe Design model was the presence of an information exchange model for information between employees and persons with control of the workplace (ASCC 2006a).

This exchange will assist in dealing with the injuries caused by manual handling which is the "lifting, lowering, pushing, pulling, carrying or otherwise moving, holding or restraining any animate or inanimate object; repetitive actions; and sustained postures". (NOHSC a 2005: iii). These actions operate in an environment constructed by the workplace and workstation layout.

The cost of such injuries in 2002 was 41.5% of all compensation claims or $7.126 billion (NOHSC b 2005:5) with Retail and Wholesale trade as contributing 16.2.% of all compensated claims in 2003 (WRMC 2006: fig 7. Incidence rates of compensated claims) In that year such injuries were $3,234 higher than other claims. (NOHSC c 2005:4)

Employees through the postures they adopt, the forces they exert, and the repetition they practice, as well as the speed and the amount and type of vibrations they absorb also play a role. This role can be diminished by designing safer work items and systems of work (NOHSC a 2005:15) and by employee consultation and training.

This is in accordance with the legislative and regulatory imposts on workplaces in South Australia.

These regulations reflect the current style of Australian OHS legislation, which is principally structured around general duties and process-based standards, with some use of specification and performance-based standards. (Bluff 2005)

"The general duties are very broad, requiring duty holders to take all (reasonably) practicable measures and entailing considerable uncertainty about both the measures to protect OHS and the standard of care to be achieved. Process-based provisions, such as requirements to identify hazards, assess and control risks, simply offer a process to follow in the pursuit of OHS and provide no clarification either about the standard of care or the measures to protect OHS. The fourth type of standard, performance-based provisions, currently used sparingly in Australian OHS legislation, also have an element of uncertainty. They may be measurable performance targets (such as exposure standards for noise or hazardous substances), or descriptive performance outcomes which specify the outcome of the OHS improvement or the desired level of performance. In either form performance-based standards leave open the question of what concrete measures should be taken to adequately protect OHS." (Bluff 2005)

An acknowledged contributor to workplace injury is fatigue. (ASCC 2006b) Work related fatigue is "a complex matter derived from muscular exertion, prolonged attention, and attention to repetitious stimuli, prolonged repetitive or complex tasks" (ASCC 2006b). It is addressed by rest and by positive experiences. If an individual is negatively stressed, or older and so stressed, the employee is more prone to fatigue and resultant injuries (ASCC 2006b).

In 2004, SafeWork SA produced pamphlets addressing manual handling – stressful postures, storage, repetitive work, lifting and handling goods, and a fact sheet on back injuries. The guides stress the need to analyse risk, develop a risk minimisation plan and take action. The key tasks are to modify the object, modify the work layout and to rearrange materials flow so as to change actions, movements and forces as well as to undertake training and education.

Concluding this brief review is a study conducted by Jenny Henty, Director Zero Waste Campaign, and Environment Victoria (Henty 2007). This concise report assessed the time taken by a checkout operator to pack a set number of items into HDPE bags and into reusable (polypropylene) bags. The study used methodology that had been developed by the Allen's Consulting Group. The relevant conclusion for this study was that the efficiency of packing improved with the number of items, that is, the worker moving more items into a more resilient and heavier bag.

This may mean more profit for the company but in terms of OHS, it may mean greater manual handling stress and injury. In many ways it sums up the conflict between the desire to obtain a sustainable/profitable solution to an acknowledged environmental problem and the safety needs of the employees, who ironically, will both provide the solution by adopting and implementing the solution and will be part of the consumer mass in search of environmental solutions.

Conclusions

The conclusions to this review are that:

- the core area of concern is lifting; contributory factors are the elements of fatigue, static loads and repetitive movements as well as the psychological impact of the stress of change and customer/public perceptions and comments
- any design process would need to look to eliminate or minimising any lifting
- an effective implementation process needs the participation of employees, through either OHS representatives or committees, so they can help generate the organisational cultures able to adapt to new work safety demands
- a relatively smooth and effective transition would be accelerated by workplaces taking advantage of the demonstrated commitment that workplace participants have to the positive values inherent in achieving acknowledged environmental benefits.

Appendix 2. The survey

Introduction

The SDA commissioned Mr Marcus Tomlinson, psychologist, to undertake a survey of workers in the retail industry.

The survey was designed to elicit the views of workers and to uncover the willingness to change to a new bag system, as well as to find 'on ground' solutions to the problems that arise with the change.

The survey was completed in two steps, an initial study tested the questions and then a survey of as many retail workers as possible was undertaken.

This major survey was posted or distributed to over 10,000 shop and distributive workers throughout South Australia. Of the 2000 responses, 1000 were randomly selected because of the logistics of the task.

The survey forms were accompanied by a brief note that outlined the project and urged a response. In the covering note the term recyclable bag was used to describe the reusable or 'green bag'. It also appears in the survey questions in a similar manner.

The survey had three parts:

> Part one: Quantitative analysis, descriptive statistics
> Part two: Qualitative analysis, open-ended questions
> Part three: Marketing and advertising strategy – Strategy platform

To focus the research, a reference was made to the Australian Bureau of Statistics picture of the industry. This ensured that the survey would capture a known sample structure of the industry. The ABS described the industry as follows.

Full-time/part-time employees

The estimated total number of retail employees (excluding working proprietors and partners), Australiawide, at 30 June 1999 was 1,046,773 persons. The majority of employees (600,163 or 57% of all employees) worked part-time and 43% worked full-time. Most (66%) part-time employees were female. Part-time employees dominated in take-away food retailing (77% of all employees), supermarkets and grocery stores (67%), and toys and games retailing (61%).

Of the 446,610 employees who worked full-time, 267,274 (60%) were males. In the motor vehicle retailing and motor vehicle services industries full-time male employees (105,917) outnumbered full-time females by the order of five to one. The industries where full-time females clearly dominated overall full-time employees were pharmaceutical, cosmetic and toiletry retailing (77% female) and clothing retailing (74%).

Employment distribution by sex

Of the total retail employment as at 30 June 1999, 54% were female and 46% were male. The industries with the greatest proportion of female employment were fabric and other soft good retailing (84%), flower retailing (82%) and clothing retailing (81%). Those industries with the greatest proportion of male employment were tyre retailing (89%) and smash repairing (84%).

Results

In both surveys, the respondents aligned to the ABS picture with minor variations. The sample size was 1000 shop and distributive workers.

Part One: Quantitative analysis, descriptive statistics

Background information

Age		**Employment relationship**	
Under 18	24.5%	AWA	33.3%
18–25	31.1%	Contract	20.6%
26–45	23.6%	Enterprise agreement	46.3%
46–55	12.2%		
55+	8.4%		
Employment status		**Employment level**	
Casual	43.6%	Manager	4.1%
Part-time	38.7%	Supervisor	12.4%
Full-time	15.1%	Team leader	11.7%
Contract	2.3%	Team member	71.6%
Area of employment		**Workplace activity**	
Deli	9.1%	OHS rep.	3.8%
Stores	51.6%	Delegate	2.6%
Distribution	6.7%	None	93.6%
Sales	32.4%		
Years employed		**Gender**	
with present employer	4.7 years	Male	27.6%
in the retail industry	6.8 years	Female	72.4%

Existing plastic bags

	Yes	No
Do you pack and lift plastic bags as part of your normal work duties?	59.7%	40.3%
Are you aware plastic bags are considered a pollution problem?	98.5%	1.5%
Are you aware plastic bags may be banned by law in 2008 in South Australia?	66.9%	33.1%
Are you aware that the ban on plastic bags may result in the compulsory use of recyclable bags at work?	81.6%	18.4%
How many plastic bags would you lift in a day?	908 bags	

Recyclable bags

	Yes	No
Do you pack and lift the new recyclable bags?	48.6%	51.4%
Would you consider refusing to lift a bag because it is too heavy?	62.1%	37.9%
Have you ever been injured at work as a result of lifting a heavy bag?	11.3%	88.7%
Have you ever refused to pack a recyclable bag because it is too dirty or unhygienic?	27.3%	72.7%
How many recyclable bags would you handle a day?	375 bags	

Attitudes to recycling

	Yes	No
I recycle cans	96.1%	3.9%
I recycle glass jars	89.3%	10.7%
I recycle bottles	96.9%	3.1%
I buy clothes or furniture at garage sales	24.0%	76.0%
I buy clothes at second hand shops	30.2%	69.8%
I have a compost bin or pile or a worm farm	38.5%	61.5%
I grow vegetables at home	41.8%	58.2%
I have a rainwater tank(s)	80.1%	19.9%
I look for/buy recyclable goods and products	48.6%	51.4%

Part Two: Qualitative analysis, open-ended questions

Your comments

In a few words describe how you feel about the banning of plastic bags in your workplace?

> Minimal effect on workplace
> Pollution problem
> A good idea; great idea; about time; great; good
> Unhygienic bags – cockroaches and cat urine
> Customers will get angry with us
> A bit upset about it
> Recyclable bags should be more available and cheaper e.g. 20 cents
> Dirty bags – ringworm and spider bite; plastic bags cause too much pollution
> Helps mother earth; good for environment
> The recyclable bags don't fit on the bag frames; hard to work with and heavy to lift
> Green enviro bags should be free of charge to customers
> Saves the animals
> I prefer to pack a recyclable bag
> People with dirty bags pose a health risk
> Bag racks need to be redesigned to accommodate all sorts of recycled bags
> Some of us older workers have spinal problems thanks to retail work
> Public will not like it; customers will complain
> Green bags too difficult and slow to put on the packing frame
> We need to ban plastic rubbish bin bags as well
> Green bags are heavier to lift
> I don't pack bags on the frame; on the other side of checkout, then I don't have to lift
> Plastic bags dangerous for health
> I will wear plastic gloves to handle unhygienic bags
> I don't really enjoy handling unclean bags
> Union should spend more time on OHS issues
> Customer backlash could be a problem
> Silly to an extent
> Could be difficult for larger items

The dominant themes for this question were:

> high level of support for banning plastic bags as being environmentally sound idea
> dirty and unhygienic bags seen as a real problem for the health of the worker; gloves should be used to pack unhygienic bags
> public backlash, anger at having to buy and bring own bags; this is a very real fear and will need special attention in the design of marketing program to minimise this response
> bag racks of poor design and a risk to backs; being addressed by Dr Mills.

What do you think should replace plastic bags?

> Green environmentally friendly bags (green bags)
> Paper bags – can be mulched and recycled
> Biodegradable bags
> Something that can be kept clean
> Cloth or paper bags
> Material bags
> Canvas bags
> Standard-sized bag that can be fitted to a frame
> Something like a chiller bag
> Washable bags
> Baskets
> Calico/material bags
> Cardboard boxes
> String (net) bags
> Home shopping trolleys
> Restackable plastic box containers that fold up
> Smaller green bags
> Cotton bags
> Hemp bags

The dominant themes for this question were:

> although the green bags were the most frequently mentioned option, other ideas were mentioned frequently as well
> the next most popular alternative was paper bags, followed by cardboard boxes; a canvas bag also was

mentioned with some frequency as an alternative
> the most frequent request for green bags was a standard size, which could be kept clean (washable) and perhaps a smaller version for bottles and cans.

In a few words, how do you feel your customer will react to having to supply their own bags at the checkout?

> Pretty annoyed
> Annoyed at first; they will get used to it
> Most do it already
> Most people won't supply their own
> Heaps will complain about it
> They'll get used to it
> Some won't like it
> Angry and inconvenienced
> Anger and confusion at first
> Better for the environment
> Initial anger
> Will take it badly
> A lot will complain
> Most won't mind
> Some will find this irritating
> Complain and get grumpy
> Angered by the change
> Some will be okay but many won't
> Very annoyed and angry
> Frustrated and badly
> They have no choice
> Complain about the cost of new bags
> Will hate it
> Some are too lazy to bring a bag; most will be angry
> Most will forget to bring bags with them
> They will be pissed because they have to buy bags
> A lot of customers will be cranky and complain
> Some customers think it's our job to supply plastic bags
> Always forget their green bags in the car
> Pissed off; they feel the store should supply them
> Some will make a fuss
> Some will say it is ridiculous

The dominant themes for this question were:

> for people already using green bags there should be minimal problems
> for people who still use plastic bags there is an anticipated backlash – anger, frustration, inconvenience
> the cost of new bags seems to provoke a problem.

What will change in your work and workplace because of the ban on plastic bags?

> Not a lot
> We need to know what we will pack items in
> A lot – my job is focused on the use of plastic bags
> Will get abusive customers and bags harder to pack
> Heavier as they won't want to purchase bags
> More back injuries
> An increase in customer complaints and abuse
> People will be more cranky
> More efficient packing
> Slow service down and increase number of customer complaints
> Fast food – nothing to pack items in
> Increase in bag weight leading to back injuries
> A lot of people will be angry about it.
> Customers should be prepared
> Customers will forget to bring bags – we will lose customers
> A decrease in service
> Who knows they don't talk to us
> We will have to use paper bags
> Customer confusion
> Have to redesign bag frames
> Grumpy customers having to buy own bags
> More effort, confusion and slower service
> Longer lines at checkouts
> Unhappy and abusive customers
> More back injuries
> Less customers

The dominant themes for this question were:

> more back injuries due to heavier bags
> a decrease in service standards and speed
> bag frames needing to be redesigned
> loss of customers.

What do you think needs to be done to make the introduction of plastic bags successful?

> Advertise it at the store and slowly introduce them
> Start in supermarkets and move slowly into other stores
> Someone with an environmental knowledge
> Advertising on television and posters
> Checkout operators should let people know
> Warning and slowly apply it
> Advertise; make the green bags free
> More publicity
> Give plenty of warning
> Slow change over
> Pamphlets and flyers
> Short promotion to encourage people to change over
> Progressive advertising campaign
> Clear signage at checkouts
> Educate the customers
> Change bag stands
> Encourage people to change
> A letter to every household in the state
> Make the new bags cheap

The dominant themes for this question were:

> the need for a marketing/advertising campaign to announce and introduce the change in bag usage (most frequently mentioned theme)
> a campaign conducted over a month or two to give the consumer enough warning and time to acquire the replacement bags
> checkout operators want to be part of the campaign in advising the customers of the changes and how to accommodate to them
> checkout operators want a gradual and easy change to the new standard and minimisation of anger toward them as the frontline workers having to implement the change.

Who should do it?

> The government
> State government
> Store managers
> The retail stores
> The checkout operators
> Mr Rann

The dominant themes for this question were:

> it is a state government responsibility (overwhelming response)
> there is also a place for store managers to help introduce the change to customers as a very positive pubic relations exercise that will minimise customer store change due to the new bag introduction
> checkout operators want to be a part of this process – clear and well communicated point of sale promotional material needs to be distributed and explained by the frontline workers.

Any other issues/comments?

> I hope this goes through to stop global warming
> Dirty, smelly fur coated bags
> Plastic bags should just be banned in supermarkets
> If a customer does not bring their own bags do we refuse the sale?
> Let's have more customers with manners
> Free paper bags for vegetables
> The union should get out to the stores and speak to the staff
> Give away a free bag when you spend over a certain amount
> More abuse by customers

The dominant themes for this question were:

> obvious apprehension of how the change to new bag technology will be handled at the point of sale
> the mechanics of how to deal with customers complaints, anger and especially lack of bags after the sale need to be addressed before the campaign begins

> standard operating procedures will need to be written by the stores for these situations.

Part Three: Marketing and advertising strategy; strategy platform

Communication problem

> The introduction of the total ban on plastic bags will bring about a negative reaction from customers at retail outlets.
> Our job is to ensure that the cashiers etc. at retail stores are not the brunt of verbal attack from customers.

Objectives

> To ensure that the public at large is aware of the benefits of the Government's decision.
> To arm the cashiers etc. with the wherewithal to counter any such attack.
> To remind people to bring their own recyclable bags when they go shopping.

Distinctive features

> The ban on plastic bags is environmentally good for people today and in the future.

Target audiences

> Shoppers in general
> Employees at retail outlets

Positioning

> The banning of plastic bags will make certain of my future, your future and all our children's future, because it will eliminate the environmental damage that plastic bags cause.

Message strategy

> Constantly remind shoppers to bring their own bags
> Provide materials to assist cashiers

Execution

> A strong media campaign: press, television, radio and outdoor posters.
> The message will be simple: "Don't forget your bags!"
> And for cashiers: T-shirts and badges (big) with the statement: "Please, don't bag me!"
> We will encourage outlets to include the messages on their direct marketing flyers and in their advertising.

Supporting actions

> If viable, we should encourage outlets to either provide FREE recyclable bags for a short period or at least make them cheaper!
> This will not only encourage customers but will provide the cashiers with an opportunity to be actively involved.

Television scenario

> We see a typical cashier in a supermarket, she turns to camera. At various points she holds up recyclable bag and/or a carryall.
> She says, "The government's ban on plastic shopping bags is really going to make a difference.

Some days I would pack over 1000 plastic bags!

By banning them we all will help the environment, for you, me and future generations.

Please remember to bring your shopping bags with you and most of all

Please, don't bag me!!"

Appendix 3. Worksite study

The SDA commissioned Dr Colin Mills to visit selected worksites that would represent a cross section of the industry. He attended the sites after a negotiated clearance with the corporation or owner. The major sites were closely studied; others were the subject of observation.

These major sites were:
> Foodland Henley Beach
> Foodland Castle Plaza
> Coles Mt Barker
> Woolworths Stirling
> Terry Clark small store Mt Torrens
> hardware outlet
> Target Marion

At the sites Dr Mills:
1. discussed with the store manager (and shop owner):
   > general principles associated with the change to recycled bags
   > their understandings of possible difficulties in implementing, education and public acceptance
   > experience of the store with injury related to the checkout counters and the use of bags
2. discussed with immediate manager concerned with the checkout operations:
   > current practice
   > changes including ergonomic considerations and the recyclable bag
3. discussed with experienced checkout operator :
   > current practice
   > their concerns about recyclable bags
   > their concerns about hygiene
4. discussed with compensation manager:
   > experiences of claims derived from bag handling
5. observed and monitored the checkout in operation

Results: The reusable bag ergonomic and health considerations

General

Most customers do not bring bags. Many customers have purchased re-usable bags but forget them "I left them in the boot"

Several major supermarkets have a policy for the fast lane, less than 3 items and for tobacco products – no bags are offered

Used cardboard cartons are available in a limited number of supermarkets but were said to represent potential hazards:
> fire
> potential for vermin to breed

Most large supermarkets have 'touch screens' that identify larger packaged heavy items allowing the item remain on the shopping trolley. It does not require a bag and was not lifted by the sales person.

Large supermarkets encourage the purchase and use of recyclable bags.

The time recommended for implementation varied between 3 and 12 months. The time for change, in bag orders and for education about change, by store and government is almost unanimous – 6 months.

Some suburban stores in suburbs where older population and a high proportion of migrants, foreshadow the difficulty in transition for older customer and migrants.

One major supermarket chain had a previous incentive scheme – with 2 cent reduction from the total purchase when a 'brown bag was reused' This policy lapsed.

The bag size for food supermarkets should be limited to carry a maximum of 6 kg. This recommendation was nearly unanimous, the variation 5–6 kg.

Ergonomics

The process of packing and movement.

A customer presents purchases to the counter either to left or right of the sales person, depending on the checkout desk configuration. Many large stores change between right and left to give job rotation.

Large stores use conveyor to move purchases to the sales person.

The recyclable bag is placed on a hook in front of the sales person behind and below the counter. A loop sewn into the recyclable bag attaches to the hook.

The hook and its support stand should be adjustable in height by 15 cm allowing for tall or short people.

The recyclable bag should be supported on a flat platform, to make for easier packing. When full the bag is lifted from the hook, moved left or right to a platform level with the bag base. It should not require lifting.

The bag can be moved by carousel, conveyor or lifted by the customer to the trolley or simply carried away.

The counter height should be a standard bench height.
Ergonomic principles:

- minimise lifting of all bags by shop assistant
- minimise reaching by shop assistant
- minimise bending or twisting by shop assistant
- control bag size to limit total bag weight to a maximum of 6 kg.

The reusable bag

The current green bag was universally popular and its dimensions should be retained.

The principles for the bag:

- firm strong woven material
- strong material loop one side to attach to a hook at counter
- a strong easy gripped handle for carrying
- a flat firm base 30 x 20 cm
- bag height 33 cm
- clear washing instructions attached to the reusable bag
- firm rectangular base to sit on the stand for easier packing.

Insulated bags should have the same internal dimensions as standard recyclable bag.

Inspection of reusable bags

Bag hygiene and maintenance are important. It was a unanimous recommendation the government specify hygiene standards for bags.

Recyclable bag reuse

Principles – Do not use:

- torn bags
- bags with broken handles
- bags with broken hook loops
- mouldy bags
- bags soiled by:
  - recent meat juice stain
  - decaying food
  - spilled sauces
  - sticky residue
  - animal excreta
  - animal urine
  - animal hair
  - soiled solid material
- bags with decaying odour
- bags with urine or other noxious smell
- bags with chemical residue.

The delicatessen

Delicatessens sell processed meat and foods which have liquids or juices likely to permeate other foodstuffs packed in recyclable bags.

There is a strong case to retain impervious plastic sheets for wrapping:

> prepacked meats
> processed meats and fish
> small fruits likely to be squashed.

Non-food items

Other stores (large variety stores, clothes stores and those that sell toys, kitchen ware and other non-food items) use plastic bags in a variety of sizes.

Many items are prepacked by the manufacturers and do not require further packaging.

Large items can be transported in the manufacturers packing but recyclable bags are used for:

> sales promotion
> multiple smaller items
> multiple purchases and large items (by agreement could be collected from a parcel pick-up point to avoid the need to carry purchases and therefore a bag).

Consideration of short-term exemption for lay-by

The lay-by system uses a labelled bag for one to multiple purchases which are wrapped, coded and stored until purchase is completed.

There is a case for delaying elimination of these plastic bags while alternative bags for use in 'lay-by' are researched.

Alternative recyclable bags for non-food items

> Calico bags of various sizes
> String bags (potentially troublesome as corners or items can project from them and could damage the item or injure passers-by)

Health consideration

The health risk from manual handling can be reduced by:

> ergonomic design of checkout counter
> careful design of recyclable bag and good handle
> limit and size of recyclable bag which limits the weight
> good training program and procedures
> good OHS policies.

References

ANRA (Australian National Retailers Association). 2006. Plastic carry bags: working towards continuous environmental improvement. A report incorporating Group One Retailers' Report under the Australian Retailers Association Code of Practice for the Management of Plastic Bags dated 9 October 2003 (the ARA Code). Environment Protection and Heritage Council, Canberra.

ASCC. 2006a. Guidance in the principles of safe design for work. Australian Safety and Compensation Council

ASCC. 2006b. Work related fatigue –A summary of recent indicative research. Australian Safety and Compensation Council.

ASCC. 2007. National Standard for Manual Tasks. Australian Safety and Compensation Council.

Bluff, L. 2005. The missing link – Regulating occupational health and safety support. National Research Centre for Occupational Health and Safety Regulation, Australian National University, Canberra.

Callan , V. 2007. Leadership and organisational culture change: Trust, power and cultural values. Four Seasons Seminar Series, The University of Queensland Business School.

Department of the Environment and Heritage. 2002a. Plastic shopping bags – Analysis of levies and environmental impacts.

Department of the Environment and Heritage. 2002b. Plastic shopping bags in Australia.

Department of the Environment and Heritage. 2004. The impacts of degradable plastic bags in Australia.

ERDC. 2005. Plastic Bags, The Fifty Third Report of the Environment, Resources and Development Committee of the South Australian House of Assembly.

Fairbrother, P. 1997. The Australian Federal Public Service: A model for change? Working Paper No. 52. National Key Centre in Industrial Relations, Monash University, Melbourne.

Henty, J. 2007. Supermarket bag packing: A comparative time trial. Zero Waste Campaign and Environment Victoria, Melbourne.

Hyder Consulting. 2006. Plastic retail carry bag use 2002–2005 Consumption report. Department of the Environment and Heritage, Canberra.

Hyder Consulting and Centre for International Economics. 2006. The Hyder Consulting 2005 Report, costs and benefits for the Australian plastics industry of phasing out single use carry bags.

Irish Parliament (Dail Eireann). 2002–2007. Reports of Diospoireachtai Parlaiminte (Parliamentary Debates).

KPPM Organisational Strategists. 2007. Plastic Bags Phase Out Market Research Project. Zero Waste SA, Adelaide.

McDonald, W and Evans, O. 2006. Research on the prevention of work related musculoskeletal disorders Stage 1 – Literature Review. Australian Safety and Compensation Council

McGregor Tan Research. 2003. The future of plastic carry bags in South Australia – A ban or levy. Environment Protection Authority, Adelaide.

Nolan ITU. 2002. Plastic shopping bags – analysis of levies and environmental impacts. Final Report. Department of the Environment and Heritage, Canberra.

NOHSC. 1992. A guidance note for manual handling in the retail industry 1992 (NOHSC: 3014). National Occupational Health and Safety Commission.

NOHSC. 1990. National Code of Practice for Manual Handling (NOHSC: 2005 (1990)). National Occupational Health and Safety Commission.

NOHSC. 2005a. National Code of Practice for the Prevention of Musculoskeletal Disorders (MSD) from Manual Handling at Work. Draft. National Occupational Health and Safety Commission.

NOHSC. 2005b. Manual Handling, Public Discussion Paper Draft Regulation Impact Statement (Manual Handling and National Code of Practice for the Prevention of Musculoskeletal Disorders from manual handling at work. National Occupational Health and Safety Commission.

NOHSC. 2005c. Draft Regulation Impact Statement. Draft National Standard for Manual Handling and Draft National Code of Practice fro the Prevention of Musculoskeletal Disorders from Manual Handling at Work. National Occupational Health and Safety Commission

Workplace Relations Ministers' Council Comparative Performance Monitoring Eighth Report November 2006 (WRMC 2006)

Senate Environment, Communications, Information Technology and the Arts Legislation Committee. 2003. Inquiry into the Plastic Bag Levy (Assessment and Collection) Bill 2002 [No.2] and the Plastic Bag (Minimisation of Usage) Education Fund Bill 2002 [No.2].

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