



ACR+ (the Association of Cities and Regions for Recycling and sustainable Resource management) is an international network of members who share the common aim of promoting the sustainable consumption of resources and management of waste through prevention at source, reuse and recycling. Currently, ACR+ has around one hundred members, mainly local and regional authorities as well as national networks of local authorities representing around 1,100 municipalities.



In November 2012, ACR+ extended its activities to include the Southern Mediterranean countries, the Balkan and Turkey, corresponding to the Union of the Mediterranean region. This extension, called ACR+MED, applies the same principles, aims and target groups as ACR+, while taking into account the socio-cultural and economic specificities of the region.

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WHY THIS REPORT?

Plastic bags are only 1-2% in weight of the municipal waste problematic. However, this issue is emblematic of the debate about sustainable consumption, about the need for a close-loop recycling society and about the need to react strongly against litter and marine litter especially.

Free plastic carrier bags are a symbol of a consumer-driven society. A restriction about this practice can have a “foot in the door” effect to educate the general public on other consumption eco-behaviours. A lot of LCA studies prove that the more the reuse option is chosen, the lower the environmental impact is. In any case, the wastage of plastic material is a non-sense and there are many possibilities to recycle plastic waste.

Uncontrolled disposal of plastic waste is unacceptable for aesthetic reasons but also for public health reasons. Marine litter is affecting more and more species of whales, birds and fish. Plastic bags are not the only item in marine litter but they represent an important part of this problem (at least 7% of marine litter items in the Mediterranean following an UNEP/MED POL report of 2009). Plastic bags accounted for 73% of the waste collected recently by trawlers along the Tuscany coast / ARPA-ARPAT-DAPHNEII (2011).

Already in 2008, Kit Strange wrote a first report concerning “Plastic carrier bags: national policies and practices” for ACR+. The present report is an update of the 2008 edition, adding a considerable number of policies and practices. The question of plastic bags has become a sensitive political issue in the recent years in the majority of countries around the world. In the European Union, a specific Irish tax launched the debate in 2002; more recently, the Italian prohibition of non-biodegradable bags has been an incentive for some European Commission initiatives.

For the countries bordering seas and oceans, the contamination of the water by waste – notably plastic bags - is already an old issue; but some recent studies have put emphasis on the major risks of “plastic soup”. Micro-plastics, and the chemical additives they contain, if ingested in large quantities by marine fauna may have a high potential for contaminating all the food chain – COM(2013)123final. Therefore, it is obvious that this topic is now on the table for the members of the ACR+MED network.

The aim of this report is an in-depth review of all the policies and practices currently implemented around the world in relationship with the plastic bags problematic. We try to give a clear overview of the different political options taken, including the arguments justifying the different choices.

We consider “plastic bags” as a very good case to implement the ACR+MED approach: “Integrated and Sustainable Management of Resources, Products and Waste”. In others words, we have to consider all the possible action steps in conformity with a waste hierarchy of at least five levels (reduction at source, preparing for reuse, material recycling and composting, energy recovery before waste disposal).

Probably, a mix of policy instruments is the appropriate choice to resolve the plastic bags problem. But this choice must also be directly connected with the specificities of the socio-economic and cultural context, existing at national, regional or local levels.

The first chapter of this report provides key data about the scale of the plastic bags problem, as well as a synthesis of the existing initiatives at EU and South Mediterranean area level. The last part of the first chapter explains in depth the commonly-used policy options such as: education and information instruments; economic instruments; command and control instruments; management and planning.

The second chapter is a summary of the findings from the ACR+MED Thematic Working Group on priority waste flows: plastic bags meeting held in Brussels on 25 March 2013.

The third and last chapter is a true “country by country” repertory of the political initiatives and practices developed for plastic bags:

- EU level and its Members States
- Others European Countries
- North Africa and Middle East
- Rest of the world

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CHAPTER 1: OPTIONS TO MANAGE THE PLASTIC BAGS

ISSUE

The objective of this chapter is to present an overview of the various policy options and instruments in place to address the negative impacts of the widespread use of single-use plastic bags. In this chapter, these policies and practices are presented by type of instrument, because this approach gives a better understanding of the wide variety of possibilities to tackle this problem.

WHY FOCUS ON PLASTIC BAGS?

Plastic bags are omnipresent, often free of charge, visually intrusive, persistent and often excluded from recycling schemes. They are a symbol of a consumer-driven, throw-away society, the environmental impact of their resource use and production phase is important and they often end up in landfill, or as litter.

Litter is nowadays perhaps the most important environmental impact associated with the use of plastic bags: plastic bags persist in the environment for a long time. Of particular concern is the emerging problem of marine litter of which plastics are by far the most abundant type, also known as “plastic soup”. Plastic bags are ranked 4th in the Top 12 of marine litter items in Mediterranean representing 70912 counts or 8,5% of the marine litter. Plastic bags are a nuisance for the entanglement of birds, presenting the 2nd highest counts, fishing lines being the first nuisance. Deep sea floor research off the French Mediterranean coast showed concentrations of 0 to 78 pieces of debris/ ha, plastic bags accounting for a very high percentage (more than 70%) of total debris.

BIO IS (“Assessment of impacts of options to reduce the use of single-use plastic carrier bags, 2011) estimates that in 2010, 98.6 billion plastic carrier bags were used in the EU, of which 89% were of the single-use type, the vast majority non-biodegradable. That is 198 bags per person! According to their estimates, only a very small percentage (6.6%) is recycled and 50% are either landfilled or incinerated without energy recovery. At EU level, BIO estimates that 4.6% were littered. That is 4.5 billion plastic carrier bags, of which 4 billion were of the single-use type. The problem is however more severe in developing countries with poor solid waste management practices, especially in countries where waste is often illegally dumped or abandoned in or adjacent to rivers or the sea.

Whereas nowadays twice as much municipal waste is currently produced in Europe as in the Maghreb countries (around 500 kg/capita/annum in Europe compared with 250 kg/capita/annum for the Maghreb countries), per capita waste production in the countries in the South and East has risen by 15% over the last ten years. Changing consumption patterns, largely as a result of imports and the importation of manufactured goods, is driving a change in waste composition. Municipal waste in the South and East of the Mediterranean currently contains twice as much organic waste than European dustbins. However, this discrepancy is changing with some categories such as plastics, showing an increase in the Mediterranean countries.

Above of this unsustainable trend in consumption patterns, these countries often suffer from an inadequate state of waste collection and treatment, with disposal in (often uncontrolled) landfills as still being practically the only method of waste disposal. Many towns only have unregulated dumps,

which have existed for decades for the disposal of all types of waste produced but whose capacity cannot keep up with current production.

In the Mediterranean Sea, the situation of marine litter and especially plastic litter has taken threatening dimensions. Despite all the efforts made on an international, regional and national level, there are clear indications that the marine litter is increasing. In July 2011, a Franco-Belgian research team announced the results of their research; there were almost 250 billion small pieces of plastic in the Mediterranean and an additional 500 tonnes of dissolved plastic litter on the surface of this sea.

This report will mainly focus on instruments put in place to reduce the use of plastic bags. This is coherent with the waste hierarchy, putting the priority on prevention. However, some instruments focusing on other steps in the hierarchy (like recycling) will also be presented.

Due to the transboundary nature of marine litter “good environmental status” required by the Marine Strategy Framework Directive cannot be achieved by action at local or national level alone. A sustainable marine litter management requires policies and measures aimed at effectively reducing marine litter at the source.

UPCOMING LEGISLATION AND INITIATIVES AT EU LEVEL

EU initiatives might in the future positively influence the problem of marine litter in the Mediterranean Sea. Currently, there is no EU legislation specifically targeting plastic waste in general or plastic bags in particular but the issue of plastic bags in the environment has received more attention in the last couple of years, most probably due to the rising problem of (marine) litter and because of the rising attention for resource efficiency.

In March 2011, EU Environment Ministers discussed the highly negative impact on the environment of single-use plastic bags. Austria, supported by a large number of member states, invited the Commission to analyze possible regulatory action against the use of plastic bags, given the highly negative impact on the environment of the mass of single-use plastic bags put into circulation annually within the EU. In fact, the item was put on the agenda by Austria as a reaction against the ban on plastic bags introduced by Italy (see *infra*). The Environment Council recognized that effective EU action is needed and the Commission was invited to analyze possible regulatory action with regard to the use of plastic bags.

Subsequently, from May to August 2011 the Commission ran a public consultation concerning the reduction of plastic bag use. The consultation both addressed options to reduce the use of plastic carrier bags and options to improve the requirements of biodegradability in the Packaging directive and the visibility of biodegradable packaging products to consumers. The consultation resulted in an overwhelming support for an EU ban: over 70% of the respondents voted in favor of a ban on the distribution of plastic bags with only 12% agreeing that current requirements on compostability and biodegradability in the Packaging Directive were appropriate.

At present, different possible policy options are considered in an impact assessment. On the basis of this ongoing assessment, the decision on a possible Commission initiative will be taken. The commission will publish in 2013 a green paper on plastic waste. This green paper will include policy options for all plastic waste, including plastic bags. The green paper was initially planned to be published in July 2012. The delay is probably due to the sensitivity in some member states towards certain of the policy options being considered regarding plastic bags, which include introducing taxes or charges or bans.

Furthermore, the Commission adopted on the 29th of November 2012 a new proposal for a 7th Environment Action Programme (EAP), entitled “Living well, within the limits of our planet”. The Commission's proposal will now be considered by the European Parliament and the Council of the

European Union. Once agreed, the new EAP will become EU law. Part of the Commission's proposal pays particular attention to marine litter and highlights concerns that the EU Member States may not actually achieve the Marine Strategy Framework Directive target to achieve good environmental status by 2020 "inter alia due to the presence of marine litter in Europe's seas". The proposal for a 7th EAP states the need for an EU-wide quantitative reduction target for marine litter.

INITIATIVES IN THE COUNTRIES OF THE SOUTHERN MEDITERRANEAN AREA, THE BALKAN AND TURKEY

As explained before, poor waste management practices make the problem of ever rising consumption of plastic bags even worse in the countries of the South and the Balkan, with the problem of marine litter in the Mediterranean Sea taking endangering sizes. Some countries have implemented measures to reduce the use of plastic bags but no figures exist on the actual reduction that these measures achieved.

Country	Ban	Tax	Other measure	None
Albania	Ban on using plastic bags as food packaging	Tax		
Algeria	Ban on black bags	Tax	Normalization of alimentary plastic bags - Operation "déplastiquage"	
Bosnia & Herzegovina		Tax (intended first semester 2013)		
Croatia		Charge paid to the Fund for Environmental Protection		
Egypt			(Red Sea Governorate) creation of employment for women creating cloth bags replacing plastic bags	
Israel	Ban on free bags		Subsidy for sale of reusable bags	
Jordan				x
Lebanon			ECO-BOARD initiative (recycle plastics into plastic panel boards)	
Libya				x
Morocco	Ban	Tax (intended from January 2014)	Nationwide awareness campaign	
Palestine				x
Serbia		Tax per ton except for biodegradable bags	Subsidy for production biodegradable bags	
Syria			Campaign and distribution of alternatives	
Tunisia			Voluntary agreement with the distribution sector Norms for paper bags	
Turkey			Initiatives from shopping malls	

IDENTIFICATION OF POLICY OPTIONS

There is a wide range of policy options put in place to address the negative impacts of the widespread use of single-use plastic bags. In this chapter, these instruments will be classified in the following categories:

- Education and information instruments (e.g. public campaigns)
- Economic instruments (e.g. charges, taxes) and voluntary approaches
- Command and control instruments (e.g. prohibition bans)
- Management and planning

An example where it is applied will be given for each instrument.

EDUCATION AND INFORMATION INSTRUMENTS

Several examples exist of education and information campaigns, in order to increase public awareness and to change consumer practices, phasing out disposable bag use. They focus either on the promotion of alternatives to plastic one-use bags or on raising awareness on the negative effects on the environment of throw-away bags.

PROMOTION OF ALTERNATIVES

In close cooperation with the Ministry and the Administration in charge of the Environment and the Luxembourg Trade Confederation, VALORLUX launched in January 2004 the ecobag operation in order to avoid as much as possible using one-way shopping bags and to save our natural resources. In that context was created the eco-bag, a reusable, ecological and handy shopping bag, combined with an important promotion campaign.

Since the launch of the operation, surveys have revealed a very significant notoriousness for this alternative: according to a 2005 consumer survey, 98.5% of the interviewed people know about the bag and 74% pretend they use it.

AGAINST

Remember to re-use your carrier bags: that's the simple message behind a campaign that was launched in 2009 by the Scottish Government and Scottish retailers. Research showed 92 per cent of people think reusing carrier bags is good for the environment but that 59 per cent forget their reusable bags and have to take new ones at the checkout. Based on the premise that an elephant never forgets, the campaign ran on TV and radio as well as in supermarkets and shops across the country. Twelve major retailers and almost 500 independent shops were on board, potentially reaching millions of consumers, making this the biggest high street campaign ever undertaken by the Scottish Government.

ECONOMIC INSTRUMENTS

Economic instruments make use of market mechanisms and provide an important approach to address the challenge of reducing the use of plastic bags. They range from taxes to subsidies or voluntary, market based approaches or other voluntary schemes.

PRODUCER RESPONSIBILITY SCHEMES

Extended producer responsibility (EPR) is a strategy designed to promote the integration of environmental costs associated with goods throughout their life cycles into the market price of the products. Effective implementation EPR can achieve two objectives :

1. design improvements of products (the EPR system should provide incentives for manufacturers to improve products and systems surrounding the life cycle of products); and,
2. high use of product and material quality through effective collection and re-use or recycling

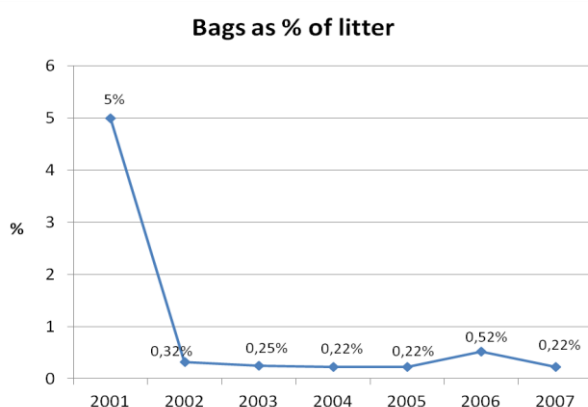
Design improvements can lead to both plastic bags being potentially less harmful for marine ecosystems, but more importantly, it can lead to an increase in the level of recyclability. Combined with an improved waste management system, this reduces the quantity of bags ending up in the oceans.

ECOTAXES

Ecotaxes are taxes or charges intended to promote ecologically sustainable activities. Charges and taxes are concepts which are often used in an interchangeable way. However, they are different: the term “taxes” is used when the revenues go to the general budget while the term “charges” is used when they raise revenues that are earmarked for a particular use or for particular activities and are not intended to reach the general budget.

There are many examples of countries that introduced taxes to reduce the use of single-use carrier bags: Bulgaria, Wales, Denmark, Hungary, Andalucía, France, Romania, Slovenia. Further away outside the EU, such taxes have been introduced in Albania, Algeria, Croatia, Serbia and are intended to be introduced in Bosnia Herzegovina and Morocco. However, the best and oldest example known is that of Ireland where the Government introduced a EUR 0.15 tax per bag in March 2002. The tax was increased to EUR 0.22 in 2007. In 2008, 26.6 million EUR was raised with this tax and yielded towards the Environment Fund, where it is being used for environmental purposes and to mitigate the damage caused by plastic bags.

Ireland casus



In Slovakia, there is no special tax on plastic bags, but producers and importers must pay a fee of EUR 0.17/kg to a national recycling fund, unless they recycle the plastic material.

In Belgium, a combination of a tax and a voluntary agreement had been applied: a packaging tax had to be paid for disposable packaging (including sacks and bags) put on the market. But before the



packaging tax was established, the retail sector had already planned to reduce the use of plastic carrier bags. This initiative (which has been hailed as a green success story by the retail sector) would probably not have had such a strong impact without the introduction of a packaging tax, or if this tax had been too low.

SUBSIDIES

In Catalonia (Spain), the Catalan Waste Agency (ARC) has subsidized more than 200 projects implemented by local bodies, non-profit organizations and universities for the reduction of thin-walled plastic bags.

In Israel, a subsidy has been introduced for the sale of reusable bags and in Serbia, a subsidy exists for the production of biodegradable bags.

VOLUNTARY APPROACHES

Voluntary initiatives launched by the retail sector exist in many countries. In the Netherlands, this engagement was formalized in a “packaging covenant” concluded by the Dutch Ministry for the Environment with the industry. One of the measures included in that covenant was an agreement of the supermarkets to stop giving away plastic carrier bags for free.

In the UK, WRAP (Waste Resources Action Programme) has brokered a series of voluntary agreements with the retail industry. The agreement set a target to reduce thin-walled carrier bags by 50% by spring 2009 using 2006 as a baseline. In the UK, one can also find carrier bag banks in more than 4500 supermarkets.

ECOLABEL

As mentioned before, the EU Ecolabel includes criteria for the use of plastic bags. An eco-labelling scheme is a voluntary informative instrument that aims to improve the environmental performance of products and services by providing easy-to-understand information to consumers. In a quite similar way, at national level, the German Federal Environmental Agency awards the environmental label ‘Blue Angel’ in Germany only to those bags consisting of at least 80 % recycled plastic material.

COMMAND AND CONTROL INSTRUMENTS

More and more countries and cities have introduced a prohibition ban on plastic bags or have considered their introduction and this number is still rising. Italy is the only EU Member State to have imposed a national ban on (non-biodegradable) carrier bags but an important number of non-EU countries have also put in place similar bans. It appears that less developed countries in particular favour bans and minimum thickness standards rather than market based instruments, most likely due to ease of enforcement, inadequate waste collection and treatment systems, and the need to address chronic litter problems.

Such bans can be differentiated into several categories:

- Bans that forbid certain types of plastic bags, certain applications or in certain conditions
- Totally forbidden plastic bags.



FORBID CERTAIN TYPES OF PLASTIC BAGS

In Italy, the only EU-Member State that has imposed a ban on plastic bags, the ban applies to the distribution and selling from January 1, 2010 of plastic bags for the transport of goods, which are not biodegradable (bags) or by this date would not fulfill the criteria laid down by EU legislation and approved technical standards. This deadline was subsequently extended to January 1, 2011. The ban caused a reaction on the part of producers who claimed the measure would be hindering the internal market.

In Morocco, a law which came into force January 1, 2011 prohibits the manufacture and import of non-degradable bags for local markets. Bags are also obliged to wear information on their composition, specifications and final destination. Earlier, in 2009, a ministerial decree had already banned plastic bags and bags with a thickness under 35 microns.

In Algeria, a regulation from 2005 imposed normalization of alimentary plastic bags. Certain standards had to be met and black plastic bags were banned, because of their content of heavy metals and other carcinogens.

In Tanzania, Uganda, South Africa and Kenya, ultra-thin plastic bags are prohibited. And in Hong Kong, it is forbidden to distribute plastic bags for free.

TOTALLY FORBIDDEN

Mali, Mauritania, Rwanda and Somalia in Africa, China in Asia; all are examples of countries that have introduced a ban on the manufacturing, importation and use of plastic bags.

In the United States of America, banning plastic bags has rarely been enacted into law at higher than local levels. A few small villages in Alaska, a small town and a county in Hawaii, a county in Iowa, four cities in California, and one other town in Washington have enacted bans on retail bags. Many other places have proposed or considered bans.

MANAGEMENT AND PLANNING

A last category of instrument covers the level of waste policy measures, including policy objectives and targets or the support to develop infrastructures for collection of for recycling.

POLICY OBJECTIVES FOR REDUCTION

In Portugal, a legislative proposal setting a progressive reduction target for the supply and consumption of thin-walled plastic bags at wholesalers and supermarkets by 2017, has been approved. The reduction targets are:

- reduction of 30% by 31.12.2012
- reduction of 60% by 31.12.2014
- Reduction of 90% by 31.12.2016

The measures to be promoted for this objective are: provision of biodegradable bags, provision of reusable bags at affordable prices, environmental awareness, adoption of economic instruments (charge) and collection of plastic bags for recycling.

INFRASTRUCTURES FOR COLLECTION OR RECYCLING

In some Member States (Germany, Spain), there is a national collection and recycling scheme in place, within the established green dot system.

In some less developed countries small scale recycling initiatives has been launched. For instance in Madagascar, a company called MADACOMPOST recycles plastic bags into construction material. This experience will be reproduced shortly in Lomé (Togo). In Lebanon, the ECO-Board initiative recycles plastics into thick plastic panel boards for technical/commercial applications.

OVERVIEW OF NATIONAL POLICIES ON PLASTIC BAGS

An overview of the current national policies on plastic bags around the world is given in the tables below. The countries are divided in four sections: European Union (EU), non-EU Europe, North Africa and the Middle East, and the rest of the world. A special colour and shading code is used, which is explained in Table 1.

Table 1: Explanation of colour and shading codes used in summary tables of key instruments used around the world

	This policy instrument is currently not in place.
	This policy instrument is being considered (bill proposed, draft law passed, ...).
	This policy instrument has been approved, but has not been implemented yet. The planned implementation date is specified in the additional information.
	This policy instrument has been implemented.
	The ban or tax only applies to non (oxo-)biodegradable/compostable bags (or the tax is lower for non (oxo-)biodegradable/compostable bags).
	The ban or tax only applies to thin plastic bags (or the tax is lower for thick reusable bags).
	Combination of the above two.
	The ban is a blanket ban on all plastic bags.

Table 2: Summary of key instruments applied to some plastic carrier bags in the European Union

Country	Ban	Tax	Voluntary	Additional information
Austria				40 bags pp/y. No ban, but looking at ways to reduce it. Pilot projects currently in place in large supermarkets replacing traditional thin bags for fruit and vegetables by biodegradable ones.
Belgium				98 bags pp/y. Green tax of EUR 3/kg. Voluntary agreement of retail sector not to hand out thin bags free of charge, some of which now only have thick bags. Wallonia intended to ban single-use bags.
Bulgaria				163-400 bags pp/y. Tax starting from EUR 0.08/pc in 2011 to increase to EUR 0.28/pc in 2014. As of Jan 2013: EUR 0.18/pc. Biodegradable and compostable bags, and bags thicker than 18 microns are exempt.
Cyprus				140 bags pp/y. Proposals to ban were rejected.
Czech Republic				150-300 bags pp/y. Nothing in the pipeline.
Denmark				80 bags pp/y. Eco-tax of EUR 3/kg.
Estonia				Legislative proposals on the table calling for a tax increase by EUR 0.20 bringing the total cost to approximately EUR 0.30 per bag.
Finland				80 bags pp/y. No legislation specifically targeting plastic carrier bags.
France				23(-79) bags pp/y. Eco-tax planned for 2014, not applied to biodegradable bags made with minimum 40 per cent renewable resources. The FCD retail federation aims to completely phase out thin-walled plastic bags by 2011.
Germany				65 bags pp/y. Bags are considered to be packaging and fall under the DSD system.
Greece				269 bags pp/y. No legislation specifically targeting plastic carrier bags.
Hungary				Reported tax in 2011, unconfirmed. Also an unconfirmed national recycling scheme.
Ireland				18 bags pp/y. EUR 0.15/bag passed on to the consumer, introduced in 2002. Increased to EUR 0.22/bag in 2007.
Italy				300 bags pp/y. Ban on non-biodegradable bags as from Jan 2011. New amendments in 2012 that set European standards for compostability (oxo-biodegradables no longer exempt).
Latvia				Bag distributors pay EUR 3.72/kg (bags <3g) or EUR 1.14/kg (bags >3g). There is also a separate environmental levy of EUR 0.02, 0.14 or 0.15 per plastic bag. Supermarkets now only offer carrier bags for a charge.
Lithuania				No legislation or planned legislation to ban plastic carrier bags. Most distributors voluntarily do not use plastic carrier bags.
Luxembourg				19 bags pp/y. Around 750 t/v. Series of agreements with Valorlux to reduce the quantity of thin plastic bags and promote reusable bags.
Malta				119 bags pp/y. Since March 2009 a fee has to be paid on all plastic bags, even biodegradable ones.
Netherlands				81 bags pp/y. Although no longer part of the Packaging Covenant, most retailers still don't give away bags free of charge (except for ultrathin ones). Packaging tax introduced in 2009 and abolished in 2013. New voluntary agreements to abolish free distribution of all plastic carrier bags.
Poland				Eco-tax drafted but abandoned in Jan 2010.
Portugal				MPs approved proposal for a 90 per cent reduction by 2017 target with intermediate targets of 30 per cent and 60 per cent.
Romania				252 bags pp/y. Since 2009, a tax of EUR 0.05 for each non-biodegradable bag. Reduced to EUR 0.025 in 2010, and made applicable to all non-renewable carrier bags.
Slovakia				No specific plastic bag tax, but producers and importers of plastics have to pay the fee of EUR 0.17/kg to the Recycling Fund unless they recycle the plastic material.
Slovenia				130-300 bags pp/y. Tax proposed for bags with different tariff depending on material, EUR 0.5 for >5% plastic, EUR 0.4 for >95% biodegradable, EUR 0.2 for >95% textile.

Spain		some regions		238-300 bags pp/y. Spanish waste plan includes provisions for replacing non-biodegradable plastic bags. Catalonia supports many reduction campaigns and 2 agreements on bags were reached. Andalusia and Cantabria have a tax on thin-walled non-biodegradable plastic bags.
Sweden				111 bags pp/y. Plastic bags are included within producer responsibility, and producers usually pass on the cost of collection and disposal to the consumers.
UK		some countries		128 bags pp/y. WRAP has brokered voluntary reduction plans. Wales and Northern Ireland have introduced a tax in 2011 and 2013. Scotland is considering the same and holding a consultation.

Table 3: Summary of key instruments applied to some plastic carrier bags in non-EU Europe

Country	Ban	Tax	Voluntary	Additional information
Albania	food			Since 2013, plastic bags used as food packaging are banned.
Belarus				No useful information could be found.
Bosnia and Herzegovina				320 bags pp/y. Tax of around EUR 0.05 for thin non-biodegradable plastic bags planned for the first half of 2013.
Croatia				233 bags pp/y. A tax of around EUR 0.26 is planned for 2013. Importers and manufacturers of plastic bags already pay EUR 201 per tonne as a charge for waste management since 2008.
Iceland				53 bags pp/y. Levy used for environmental projects.
Macedonia	See add. info			Free distribution of plastic bags banned in 2011. Bags with a thickness of minimum 21 microns are sold for around EUR 0.016 each. Total ban on non-biodegradables planned by 2013.
Moldova				No useful information could be found.
Norway				200 bags pp/y. A ban was considered, but not implemented. A tax was applied, then dropped. Consumers usually have to pay for plastic bags.
Serbia				A weight based tax for manufacturers and importers was proposed in 2012. EUR 220/tonne for conventional plastic bags, EUR 10/tonne when it has additives to make it biodegradable, no tax when fully biodegradable.
Switzerland				Proposal to ban single-use plastic bags approved in December 2012. Now up to the government to put the bag into action.
Ukraine				A draft law that bans all non-biodegradable plastic bags up to 20 litres, regardless of their thickness was published in 2012.

Table 4: Summary of key instruments applied to some plastic carrier bags in North Africa and the Middle East

Country	Bans	Taxes	Voluntary	Additional information
Algeria	black			180 bags pp/y. Black bags banned (without much success) since 2005. Tax of 10.50 DA/kg (EUR 0.01/kg) since 2009.
Egypt				No national measures. Ban in the Red Sea Governorate (2009), but reports that they are still used in supermarkets.
Israel				270 bags pp/y. Legislation to ban non-biodegradables and charge EUR 0.20 for biodegradables is undergoing Knesset readings.
Jordan				461 bags pp/y. Policy to reduce bag use is under consideration, probably via a charge.
Lebanon				Local actions though such as the distribution of reusable cloth bags with anti-plastic slogans.
Libya				241 million bags/y in Al-khums City. Reports of some awareness actions, organised by local NGOs in Benghazi and Misurata.
Morocco				30-89 bags pp/y. Ban on non-degradable bags since 2011. 1.5 per cent tax on manufactured and imported plastics and plastic products planned in 2014.

State of Palestine				No useful information could be found.
Syria				243 bags pp/y. Government campaigning to reduce bag use. A tax/charge is said to be likely to follow.
Tunisia				117 bags pp/y. Obligatory use of the label "Ecolef" on plastic bags. A large voluntary agreement was set up in 2012 between the Ministry of Environment and the retail industry.
Turkey				312 bags pp/y. Commission tasked with reducing plastic bag usage, without success so far. Ban and tax are being reviewed. Ban on one Aegean island: Bozcaada. Private and local initiatives.
UAE				253 bags pp/y. Ban since 2013 on all disposable plastic products (incl. plastic bags) that are not made from oxo-biodegradable plastic. Ban on printing on non-biodegradable bags already in 2010.

Table 5: Summary of key instruments applied to some plastic carrier bags in the rest of the world

Country	Bans	Taxes	Voluntary	Additional information
Argentina	partial			Draft national law to prohibit plastic bags, likely to result in gradual introduction of biodegradable bags. Mendoza province banned non-biodegradable bags in 2004.
Australia	Most states			178 bags pp/y (2007). Several states have introduced bans and gradual phasing-out is in place.
Bangladesh				100 bags pp/y before ban in 2002.
Bermuda				Proposal for a ban (2010).
Botswana				Ban on plastic bags <24 microns since 2007. Retailers charge prices ranging from EUR 0.02 to 0.035
Brazil			Some big cities	63 bags pp/y. Sao Paulo and supermarket voluntary accord (2012); later withdrawn. In Rio De Janeiro supermarkets have to offer at least one of three options to dissuade customers from using plastic bags: provide reusable alternatives, discount when bringing own bag, or a reward when returning 50 bags).
Canada				86 bags pp/y. No national initiatives although local initiatives include bans, phase-outs and education measures.
Chile				Draft law to ban non-biodegradable bags was introduced in 2008.
China				815 bags pp/y prior to ban in 2008. Plastic bags under 25 microns thick are banned. Handing out free plastic bags is prohibited as well, but shops may choose what to charge.
Ghana				No useful information could be found.
Haiti	black			Ban came into effect in 2012 and only black plastic bags are banned.
India				450 bags pp/y in Delhi. Nationwide ban on bags <20 microns. Many states have tighter requirements (<40, 50, or 70 microns) and some even a blanket ban (Sikkim, Kerala, Himachal Pradesh, Tamil Nadu, Rajasthan). Blanket ban in Delhi.
Japan				Nasova City targeted 60 per cent reduction.
Kenya				plastic bags <60 microns banned since March 2011.
Kyrgyzstan				Draft law approved in 2012 to ban import, production and sale of polyethylene bags. Now up for discussion. Reusable bags exempted.
Malaysia		1 day/week		417 bags pp/y. Nationwide charge (ban on free bags) one day a week. One state (Penang) started always applying a charge in 2011.
Mali				Since January 2013, the manufacture, importation, marketing, possession, and use of plastic bags is banned.
Mauritania				Since January 2013, the manufacture, importation, marketing, possession, and use of plastic bags is banned.
Mexico				384 bags pp/y in Mexico City. Banned non-biodegradable thin plastic bags.
New Zealand				61-375 bags pp/y. NZ Packaging Accord with industry in 2004.
Philippines				Phase-out of non-biodegradable bags within three years approved by the House of Representatives in 2011. 59 cities and municipalities are in various stages towards a ban, including Mutinlupa City (ban in 2011).

Rwanda				Ban on ALL plastic bags introduced in 2008.
Somaliland				Ban introduced in 2005.
South Africa				160 bags pp/y before ban. Ban on bags <30 micron introduced in 2003 together with environmental levy (EUR 0.04 for a 24-litre bag).
Togo				1570 bags pp/y prior to ban in 2011. Only oxo-biodegradable bags are allowed.
Uganda				Ban on all plastic bags since 2010. Earlier ban only prohibited thin bags
Uruguay				432 bags pp/y. Strategic Action Plan for Sustainable Management of Plastic Bags in place: targets set for reducing use (-40 per cent by 2015) and for recycling (100 per cent increase by 2015) – both compared to 2008.
USA	One state and several cities			310 bags pp/y in 2003. 2009 Bill in Congress to tax bags was never approved. Bans, fees and recycling requirements are widespread at the local level. First and only state-wide ban in Hawaii approved in 2013. LA became the biggest city in the USA to issue a ban in May 2012.
Vietnam				Eco-tax of EUR 1.79 per kg since January 2012. Recycled bags are exempt.

CHAPTER 2: OUTCOMES AND RECOMMENDATIONS

FROM THE WORKSHOP « PLASTIC BAGS » ORGANISED

BY BRUSSELS ENVIRONMENT (IBGE) AND ACR+MED

This workshop was organized in Brussels on the 25th of March 2013 and gathered representatives from more than 10 different countries from the southern Mediterranean area, the Balkan and Turkey. Its objective was to discuss what instruments exist to tackle and reduce the negative impact of plastic bags, to share experiences regarding plastic bags management and to formulate recommendations for the proper management of this waste stream.

The red line during the workshop was the conviction that plastic bags are a good case to implement the ACR+MED approach on “Integrated and Sustainable Management of Resources, Products and Waste”. This approach is based on the opinion that:

- actions need to be developed in conformity with the multiple R approach (Reduce, Reuse, Recycle)
- a mix of policy instruments is probably the most appropriate way to tackle the problem generated by the massive use of plastic bags;
- the specific local, regional or national socio-economic and cultural context needs to be taken into consideration;
- and that the issue needs to be studied taking into account all stakeholders involved.

In that respect, the first presentation, given by Bernard Merckx, representing Waste Free Oceans (WFO), an industry-led initiative with the aim of reducing floating marine debris on coastlines by 2020, was interesting. The plastics industry is starting up some actions for cleaning up floating marine debris and bring it back to land for recycling and sorting. To tackle the problem in the long term, they defend the idea that litter can be solved by adding value to end of life products and by increasing plastic packaging waste selective collection and recycling.

In the next session, experiences from several countries from the South were presented :

- In Tunisia, the strategy developed at national level focuses on a voluntary agreement with the retail sector. In parallel, a technical and environmental study on alternatives to one-way plastic bags is conducted and an awareness action is organized (“national day without plastic bags”).
- In Catalonia (Spain), the urban waste management program 2007-2012 (PROGREMIC) sets prevention objectives, including for single-use plastic bags for which a consumption reduction target of 50% needs to be reached in 2012 (compared to 2007 values). This target should be achieved through the establishment of voluntary agreements, including measures such as consumer awareness-raising and environmental guidance campaigns to encourage the reuse and recycling of bags or commercial policies promoting environmentally-friendly behavior among consumers, such as charging the consumer the cost of the bag if used or discounting the cost of the bag if the consumer does not use it.

- In Malta, an Eco-tax on plastic bags was introduced in March 2009 in order to reduce the waste produced. The tax is only perceived on plastic bags with handles and unfortunately led to a shift to the use of bags without handles and paper carrier bags.
- Representatives from Turkey, Egypt and Lebanon also presented the situation in their countries, heavily suffering from the negative environmental impacts of plastic bags due to poor waste management and illegal landfill practices.

In the last session, Barbara Dewulf from Brussels Environment gave an overview of the different instruments that exist to tackle the use of plastic bags and classified them into 4 categories: education and information instruments, economic instruments and voluntary approaches, command and control instruments and management and planning instruments.

After these introductory presentations, participants debated during the afternoon workshops 2 specific items in relation with the issue of plastic bags : one group discussed what are successful awareness and clean-up campaigns and one other group studied what a successful text model (for legislation, for voluntary agreements, ...) should include.

CONCLUSIONS AND RECOMMENDATIONS

ACR+MED recommendations to local and regional authorities for solutions to tackle the use and the negative impacts of plastic bags:

1. ACR+MED recommends all actors involved to develop actions in respect with the multiple R approach : the highest priority is to develop actions for the reduction at source, next preparing for reuse, material recycling and composting, energy recovery and only as a last resort waste disposal ;
2. At short term, ACR+MED considers the voluntary approach the most feasible instrument at local/regional level. Such a voluntary agreement with the industry should as a minimum contain actions led by industry on the “3R” – reduce, reuse, recycle and should also contain concrete proposals for giving support to local and regional authorities for instance for organizing awareness campaigns ;
3. In the long run and in order to be able to decrease drastically the production and consumption of plastic bags and their improper end-of-life disposal , ACR+MED encourages local and regional authorities to foster a debate with their national authorities on the introduction of bans or taxes, as such mechanisms can only be implemented at a national level. ACR+MED recommends national authorities to include representatives of local and regional authorities in any reflection on the introduction of such bans or taxes, as local and regional authorities are the first to bear the negative environmental impacts of plastic bags.
4. ACR+MED recommends that any introduction of a tax on plastic bags should be based on an assessment of the true environmental costs (including for local authorities) due to the production, distribution, disposal and littering of plastic bags and a recommendation on how to integrate these environmental costs into the price of plastic bags;
5. ACR+MED insists on the need for a transparent debate with all stakeholders on the proliferation and (ab-)use of biodegradability claims and truly believes that the issue of biodegradable plastics and bio-plastics needs much further investigation/clarification in order to secure resource conservation, to inform consumer correctly and to ensure their proper waste management;



6. ACR+MED adheres to the WFO recommendations to tackle littering and believes that local and regional authorities can be an important actor in the accomplishment of these recommendations:
 1. Improve and adapt plastics waste management facilities in urban/coastal areas and public/private beaches in order to avoid litter entering our waters
 2. Support beach clean ups, educational programmes and engage in Active and Passive “Fishing for Litter” programmes and support clean-up operations in currently polluted waters (rivers, seas and oceans)
 3. Improve waste water treatment and promote best practices to prevent micro and macro plastics and other sewage related debris entering our waters
 4. Increase harmonisation of freight reception facilities for waste in ports and develop innovative cleaning tools with a view to recovery and recycling
 5. Increase enforcement of environmental legislation and deploy appropriate economic instruments
 6. Promote resource efficiency through educational programmes and instigate collaboration between schools and universities on this issue
 7. Promote schemes which maximize the efficiency of waste collection and recycling
 8. Support public-private partnerships to create value out of the plastics waste streams
 9. Support appropriate legislative marine litter reduction targets to keep the movement going and ban plastic waste from landfills in Europe
 10. Raise awareness on marine litter by working together with all stakeholders, public and private partnerships

7. ACR+MED believes that it is important to recognize the high added value of the work done by networks of local and regional authorities in sharing experiences and good practices on the reduction and proper management of plastic bags and invites the European Commission to maintain financing opportunities for such networking activities through its decentralized cooperation programs.

CHAPTER 3: INVENTORY OF POLITICAL INSTRUMENTS

COUNTRY BY COUNTRY

MANAGING PLASTIC BAGS IN THE EU

Every year, the average EU citizen consumes approximately 198 plastic carrier bags, and most are used only once.¹ The total volume of plastic carrier bags produced in the EU-27 in 2010 was 1.61 million tonnes. The EU is currently considering whether to implement EU-wide measures to reduce the use of plastic bags, after member states complained about legal uncertainty over whether national bans are compatible with EU law.

EU FIGURES ON PLASTIC BAG USE

Using PRODCOM data, BIO Intelligence Service has calculated the total amount of plastic carrier bags used in the EU-27 as part of their *Assessment of impacts of options to reduce the use of single-use plastic carrier bags*, a study commissioned by the European Commission (2011).¹ As can be seen in Table 6, the weight has remained fairly constant over the last eight years at around 1.6 million tonnes. In 2010, it can be seen that a reduction in single-use non-biodegradable bags was accompanied by a rise in the use of multiple-use bags.

Table 6: Plastic carrier bags placed on the market in the EU-27 by type, 2010 (Mt). Source: BIO Intelligence Service

	2003	2004	2005	2006	2007	2008	2009	2010
Total plastic carrier bag	1,51	1,60	1,64	1,65	1,70	1,64	1,56	1,61
Single-use non-degradable	0,80	0,83	0,86	0,86	0,90	0,86	0,78	0,73
Single-use biodegradable	0,01	0,01	0,02	0,02	0,02	0,02	0,02	0,02
Multiple-use	0,70	0,76	0,76	0,77	0,78	0,76	0,76	0,87

From these numbers, the amount of plastic carrier bags used in 2010 for each type was calculated, see Table 7. Around 89 per cent of the 98.6 billion plastic carrier bags used were single-use type, mostly non-biodegradable. Based on an EU population of 500 million, this comes down to 198 bags used per person in 2010.

This number is in sharp contrast with the numbers given out in a press release by the European Commission in 2011, stating that 500 bags were used per person in 2008.² The most probable explanation is that the bigger number includes include all kinds of plastic bags (i.e. also garbage

bags, fruit & vegetable bags, freezer bags), as was suggested by European Plastic Films (EuPF, 2011), a sector group of the umbrella association European Plastics Converters.³

Table 7: Number of plastic carrier bags used in EU-27, 2010 (billions). Source: BIO Intelligence Service

	billions	%	Bags per person
Total plastic carrier bag	98,6	100	198
Single-use non-degradable	85,3	87	171
Single-use biodegradable	2,3	2	5
Multiple-use	11,0	11	22

Retail markets differ from country to country, as do the types of plastic carrier bags used, how they are distributed, and the policy framework in place at national and regional levels. Also, data are collected differently in each member state, if at all. Therefore, at member state level, estimates of per-capita plastic bag consumption vary widely, as can be seen in Figure 1.

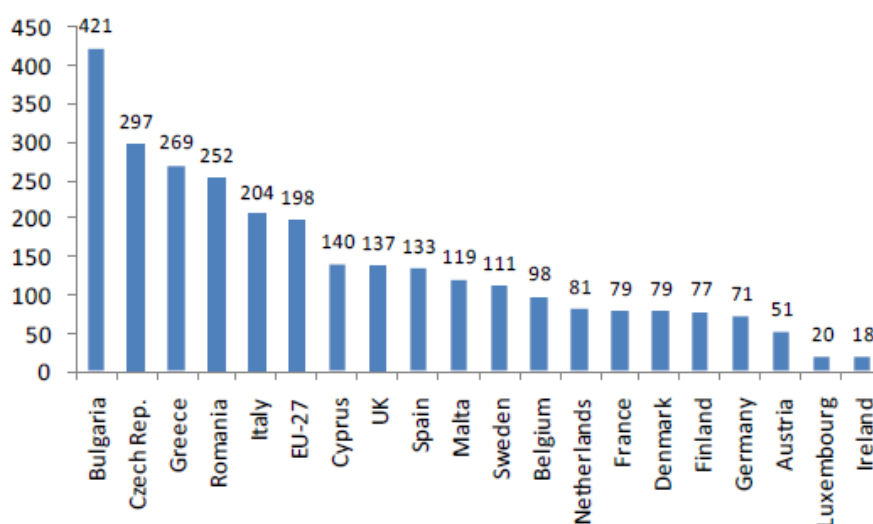


Figure 1: Number of plastic carrier bags used per person per year in selected EU member states and the EU-27. Source: BIO Intelligence Service

Plastic carrier bags accounted to around 0.7 per cent of the 251 million tonnes of municipal waste generated in the EU in 2008. Only a very small percentage (6.6 per cent) are recycled and 50 per cent are either landfilled or incinerated without energy recovery. At EU level, BIO estimates that 4.6 per cent were littered. That is 4.5 billion plastic carrier bags, of which four billion were the single-use type.



AUSTRIA

In Austria some 350 million plastic bags are used each year (ca. 7,000 t/y, or 40 bags pp/y). Austria has no legislation in place banning plastic bags; however, the Greens intend to promote voluntary agreements with supermarket chains (STRABAG Umwelthanlagen, 2011).⁴ There are neither national bans, taxes nor a national recycling scheme for plastic bags.

In general, according to Plastics Europe (2011), consumers are required to pay for plastic bags.⁵ Large plastic bags cost around EUR 0.25 in supermarkets while small ones are free. Fashion shops and various other stores offer plastic bags free of charge, although many use paper bags as well.

Viennese households generated about 510,000 tonnes of waste in 2010, containing some 2,000 tonnes of plastic bags (2011).⁶

According to a poll described in the Austrian Times (2011), most Austrians would support a ban on plastic bags.⁷ In that survey, Viennese researcher Karmasin found that 73 per cent of Austrians would back such a law, while only 24 per cent would not.

The researcher noted that the number of supporters of a ban on plastic bags was rising. In March 2009, only 64 per cent favoured a law prohibiting their use. Karmasin interviewed around 500 Austrians for weekly magazine Profil.

In January 2011, Austria's Environment Minister Berlakovich published a 'five-point plan' in a move to reducing the use of plastic bags, not only because of their oil, energy and water use, but also because plastic bags are mainly imported from outside the EU, thereby significantly increasing their carbon footprint. PlasticsEurope (2011)⁸ reported that he sought to verify whether it would be possible to change the EU Packaging & Packaging Waste Directive, in order to make national bans possible.

At a European level, the Austrian Government has also been active, adding a point on plastic bags to the Environment Council agenda of the March 14, 2011. Acknowledging that the Italian legislation banning non-biodegradable plastic bags was in breach of the European Directive on Packaging and Packaging Waste Directive, it called on the European Commission to investigate, among other things, the possibility to introduce measures against the distribution of carrier bags free of charge and the introduction of targeted measures for the avoidance of plastic carrier bags.⁹ The Commission is planning to release a green paper on plastic waste, which addresses these issues, in 2013.

MEASURES CONCERNING THE USE OF PLASTIC CARRIER BAGS - AUSTRIAN DELEGATION VIEW¹⁰

Plastics do not degrade for a long time, which make possible their multiple use, recycling and finally, if bags are incinerated, capture of the resulting energy. For the same reason, dumping into landfill and careless discarding of plastic bags should be prevented, to protect health as well as the environment.

Plastic carrier bags are classified as packaging under the current Packaging Directive (whether free of charge or paid for) and are therefore subject to the corresponding national transpositions of the Directive. Packaging that complies with the basic requirements of the Directive cannot be banned. Furthermore, waste management offers no possibilities to treat this kind of packaging differently from packaging consisting of other materials, since the Directive covers packaging of any kind.

A number of national initiatives to conserve resources and to leverage the principle of waste avoidance already exist within the European Union, aiming to reduce the use of plastic carrier bags to a minimum. They range from taxes on packaging and waste disposal (the costs of which the producers usually pass on to the consumers), through fees for plastic carrier bags (going for example to a recycling fund), to voluntary labelling of plastic carrier bags and labelling of biodegradable bags.

These measures are in some cases supported and promoted by media campaigns, e.g. for the use of reusable bags.

To make such measures as effective as possible, Austria invites the European Commission to analyse the following issues on a European level:

- Evaluation of existing regulations concerning plastic carrier bags in EU countries
- Possible introduction of mandatory labelling for (biodegradable) plastic carrier bags, with particular reference to mandatory labelling of materials
- Possible alternatives to the use of plastic carrier bags
- Introduction of targeted measures for the avoidance of plastic carrier bags
- Possibility of measures against the distribution of plastic carrier bags free of charge.

BELGIUM

On average, a Belgian used 98 plastic carrier bags in 2010.1 To decrease the use of thin-walled plastic carrier bags, Belgium has applied a combination of a tax and a voluntary agreement (2011).¹¹ There is no national scheme for recycling plastic bags in Belgium, according to PlasticsEurope (2011).¹²

There is the so-called packaging tax, which also applies to disposable packaging (Art. 381 of the ordinary law of 16 July 1993, reviewed by art. 157 of the law of April 27, 2007). Putting on the market disposable sacks and bags made of plastic, designed to transport goods bought in retail trade, will necessitate paying a packaging tax of EUR 3 per kg. This means a tax of almost EUR 0.01 per plastic carrier bag. Reusable and biodegradable bags are excluded from this tax, which is passed to the consumer at the point of sale.

Before the packaging tax was established, the retail sector had already planned to reduce the use of plastic carrier bags. Since then, the use of such bags decreased rapidly. In most shops, no free thin-walled plastic carrier bags are to be seen. Many shops have reusable bags or boxes for sale, in case clients have need of them. The goal of this initiative is to reduce the amount of thin-walled plastic carrier bags by 90 per cent by 2013, compared to 2003. In 2010, a reduction of 85 per cent was achieved. According to industry body IVCIE (2011), this voluntary commitment of the sector renders a ban superfluous.¹³

It is important to note that this initiative (which has been hailed as a green success story by the retail sector, in contrast to the strong opposition against the tax) would probably not have had such a strong impact without the introduction of a packaging tax, or if this tax had been too low.

The waste decree of the Belgian Walloon region (modified 22/3/2007) made explicit an intention to ban from 2010 onwards the use of one-way carrier bags in classified (i.e. subject to an environmental permit) retail outlets (Federplast, 2011).¹⁴

The ecotax gave additional incentive to the retail sector to stop the free distribution of one way carrier bags and to offer reusable and biodegradable bags for sale. A ministerial circular letter clarified that bioplastic carrier bags are excluded from this tax. Reusable bags are also excluded: the tax administration uses the film thickness as a criterion to define reusability.

Also, it is worth mentioning Belgium's laws on the use of the claim 'biodegradable' or '(home) compostable'. Products that claim to be either biodegradable, compostable or home compostable must comply with the relevant CEN and ISO standards, based on EN 13432 (as described in the annexes of the Royal Decree (RD) of 9 September 2008). The objective of this RD is to create a qualitative waste stream of compostable materials. Even more important in this context, packaging cannot claim to be biodegradable. This is meant to prevent littering. Since many people could understand 'biodegradable' as 'not harmful if thrown away in the environment', this claim could result in an increase in littering. These measures protect the Belgian market from unreliable claims such as, for example, *oxo-biodegradability*. Materials which are oxo-biodegradable apply to ASTM D6954 standard, but not to EN 13432 and therefore they do not comply with the requirements of the RD. Thus, only claims of compostability or home compostability are allowed on packaging.

BRUSSELS CAPITAL REGION

Brussels Capital Region waste plan aims to reduce household packaging waste by 4 kg/person/yr by 2013 and by 10 kg/person/yr (10,000 t/y) by 2020.¹⁵

Since 2004, FEDIS* had undertaken awareness-raising activities to limit the use of plastic bags. These were successful, as consumption of free thin-walled plastic checkout bags declined by more than two-thirds. By contrast, the number of reusable bags and other alternatives has risen strongly. The Brussels administration claims that the establishment in 2007 by the Belgian federal government of an environmental tax on checkout bags (July 2007) certainly contributed to this.

Given the results achieved in major retailers, it does not seem [to the Brussels administration] to be a high priority to take additional measures at this level. On the other hand, the effect of the tax on small businesses is more difficult to evaluate. Since 2004, Brussels Environment has conducted campaigns to promote reusable bags to small businesses; surveys indicate a slow progression in reusable alternatives.

Brussels Environment plans evaluate the results of its activities to combat disposable bags in small businesses and will evaluate the possibilities of further reducing, or even eliminating, distribution of disposable bags at this level.

BULGARIA

In 2011, Bulgarians used around 1.2 billion plastic bags per year, equating to 163 bags[†] per inhabitant.¹⁶ Following a proposal put forward by the Bulgarian Ministry of Environment in late 2010, a plastic bag tax was introduced in October 2011.

The Government declared that the aim of the tax is to 'stop the usage of lightweight PE bags as they are littering the environment, and to stimulate the usage of reusable bags'.¹⁷ The new legislation

* FEDIS is the spokesman for the trade and services in Belgium. Its members account for 11 per cent of GDP and employ some 400,000 people. In November, 2010, FEDIS changed its name to Comeos.

[†] Bio Intelligence Service reported an estimate of 400 bags per capita per year.



imposed a levy of BGN 0.15 (EUR 0.08) on single-use plastic bags with a thickness of up to 15 microns. Compostable and biodegradable bags were exempt from the eco-tax. The tax is expected to result in a reduction in plastic carrier bag consumption by 30 per cent.

The implementation of the tax is part of a longer term plan intending to increase the tax to BGN 0.35 (EUR 0.18) from October 2012, with a further increase to BGN 0.45 (EUR 0.23) in 2013, and a final increase to BGN 0.55 (EUR 0.28) in 2014. Originally, there was also the intention to extend the fee to all kinds of plastic bags in October 2012, regardless of their thickness. However, after protests from Bulgarian plastic bag manufacturers the week before the implementation, the government agreed to exempt multiple-use bags from the levy.¹⁸ As of January 2013, the first increase has been implemented and the tax now stands at BGN 0.35 (EUR 0.18). Major supermarkets now offer customers, for a small fee, the option of thicker plastic bags that may be re-used several times.¹⁹

The tax is paid to the Environment Ministry by those who provide the bags, and the charge is passed to consumers at the points of sale. Local businesses, however, complained that the proposed timescale is too short for manufacturers and retailers to adjust their operations.

A Bulgarian National Television (BNT) report (November 20, 2010)²⁰ showed people at markets using large number of plastic bags for their purchases, sometimes adding up to around a dozen for one shopping trip. Far more bags are used in cities than in small villages. The report said that in a year, an average Bulgarian uses about 270 plastic bags.

CYPRUS

Each year some 1,700 tonnes of plastic bags* are used in Cyprus, and supermarkets continue to hand out free plastic shopping bags.

In March 2008 discussions took place in the Cyprus House of Parliament regarding two legislative proposals (ECEBD, 2011).²¹ The first, that all plastic bags should be biodegradable and the second prohibiting supermarkets from giving away free plastic carrier bags. PlasticsEurope (2011)²² reported that these proposals were rejected.

LOCAL INITIATIVES

During a Thomas Cook-funded waste management conference in Nicosia, Cyprus in 2009, concerns were raised over plastic waste, both in terms of the amount of waste produced by hotels and the problem of plastic bag littering (Middleton, 2011).²³ These issues were addressed in a project with the following objectives:

- to reduce the use of plastic items in Thomas Cook (TC) target hotels in Paphos, through the delivery of an education and training programme
- to reduce the use of supermarket plastic bags by customers in TC self-catering properties in Paphos through the provision of reusable cloth bags.

REDUCING PLASTIC WASTE AT TC SELF-CATERING PROPERTIES

Five self-catering properties were selected for the project, based on their proximity to local supermarkets. A local producer supplied 4,500 reusable cloth bags and a card for customers was

* Another source (BIO Intelligence Service)¹ reported Cypriots use 140 plastic bags per person each year.



printed, to be stamped by supermarket staff whenever the bag was used. Customers who handed in completed cards to their rep at the end of the holiday would be entered into a prize draw to win a discount on their next holiday.

The 4,500 bags generated EUR 13,650 in income for a local producer in Larnaca. The bags were to be issued at the welcome meetings, together with the stamp card. However, many guests did not attend the meeting and so did not learn about the project. A change of strategy was required and the supermarkets were given the bags to offer them to customers. Of the 3,450 bags distributed, consultants estimated that the project prevented 41,400 plastic bags from going to landfill. This also resulted in cost savings for the supermarkets, with one owner reportedly saving more than EUR 60 in a single month.

CZECH REPUBLIC

The Czech Environment Ministry (2009)²⁴ reported that Czech stores distributed up to three billion plastic bags a year free of charge, amounting to 9,000 tonnes of plastics. Estimates of per capita consumption of plastic bags range from 150 to 300 per year.²⁵ Bio Intelligence Service (2011) reports that when supermarkets do not charge for plastic bags, they are treated as packaging waste and require a disposal fee of EUR 230 per tonne of plastic bags.1 When supermarkets do charge for the bags, no disposal fee is required.

In 2009, Czech environment minister Martin Bursik proposed a new law on waste intended to fix many shortcomings within existing legislation.²⁶ Among other things, the law would help reduce the amount of household waste going to landfill and simplify legislation. The Government wanted to encourage the separation of waste by proposing that local fees for waste collection be directly tied to the amount of waste produced. The new law would also tighten the requirements for landfill operations and increase the powers of regional authorities. From 2011 there will be a gradual increase in fees that landfill operators will have to pay for each tonne of landfilled municipal waste. The law would also ban plastic bags being given out for free at retail stores, but it would be up to retailers to decide how much they would charge per bag.

Small and medium sized companies (SMEs) dealing with waste would also receive financial support through tax breaks and reduced social security and health insurance costs. Mr Bursik also said his department was working with the transport ministry to promote recycling through public procurement, for example contracts to build noise screens from recycled plastic for motorways and railway routes.

TESCO CZECH LAUNCHES DEGRADABLE BAGS RANGE

In April 2010, Tesco Czech launched 'degradable' plastic bags, curiously described as intended 'to help reduce impacts on landfill sites'.²⁷ The term 'degradable' was not defined.

DENMARK

The Danish use around 80 plastic bags per person per year.1 A tax on carrier bags was introduced in Denmark in 1993.²⁸ The purpose was to prevent the use of one way carrier bags (paper or plastic). Customers were consequently encouraged to use textile bags or reuse carrier bags.

The mass-based tax rate which is applied in 2011 is:



- Paper - 10 DKK (EUR 1.34) per kg
- Plastic - 22 DKK (EUR 2.95) per kg

A supermarket will typically charge 3 - 4 DKK (EUR 0.40 – 54) for a carrier bag of plastic or paper.

Due to the introduction of the tax in 1993, the total use of plastic to make carrier bags fell from 18,750 tonnes in 1993 to around 7,750 tonnes in 1999. By 2009, this number had crept back up to around 8950 tonnes.¹ There are no precise numbers on the amount of carrier bags used, but it is estimated that the use of paper and plastic bags has fallen by two thirds.

The inclusion of a tax on paper bags as well ensured that the measure did not just lead to a switch to paper bags, which are said to be have an even bigger environmental burden based on LCA (as discussed in the introduction).

ESTONIA

Under the current legislation, plastic carrier bags are considered to be part of packaging so it is the duty of the producer to organise collection and arrange for recovery and recycling. If recovery and recycling targets are not met, the producer must pay a packaging tax for the amount it is below target. Bags are sold for around EUR 0.10 by retailers, so are not distributed freely.

Estonia was expected to introduce a new charge for plastic carrier bags over 20 cm x 30 cm starting from 2011.²⁹ According to the legislative proposal, the plastic shopping bags will cost three Kroons more (or around EUR 0.20 - from January 2011 Estonia adopted the Euro). The Estonian Parliament was expected to deliberate on the topic of an excise tax on plastic bags in 2011. The press speculated that retailers would not increase the price of plastic bags, but would add the tax to other goods. The plastic bag tax is meant to motivate buyers to prefer paper or textile bags.

FINLAND

According to Finnish Solid Waste Association (2011), around 400-500 million plastic bags are used each year in Finland (around 80 bags per capita).³⁰ Finland has not enacted any national legislation specifically targeting plastic bags. According to BIO Intelligence Service, 33 per cent of plastic bags are recycled in Finland.¹

Tampere Regional Solid Waste Management (2011) reports that there are several initiatives in place to reduce the use of plastic bags.³¹ Public institutions (and occasionally some private companies) provide free multiple use textile bags that can replace plastic bags.

Almost all supermarkets sell durable bags, paper bags and plastic bags. Multiple-use bags are more expensive than plastic bags. Some supermarket chains have collection points where customers can return their used plastic bags for recycling.

FRANCE

According to the government, 1.6 billion* plastic bags were distributed in French supermarkets in 2009 (see Figure 2, below). This had fallen by 85 per cent, from 10.5 billion in 2002.³² Plastic shopping bags are not yet banned in France; the idea was abandoned in 2010, after a Commission analysis said it would be illegal.³³ A proposal to introduce an eco-tax on thin-walled plastic bags in 2011 was postponed until 2014. The 2014 eco-tax would not be applied to biodegradable bags made with minimum 40 per cent renewable resources.

However, according to ORDIF (*L'Observatoire Régional des Déchets d'Ile-de-France*, 2011), the FCD (a Federation of retailers with 26,000 outlets and an aggregate turnover of EUR 170 billion) is said to have committed its members to completely phase out thin-walled bags by the end of 2011.³⁴ Non-members would be invited to follow the same approach. Carrefour aims to completely end free provision by 2012.1

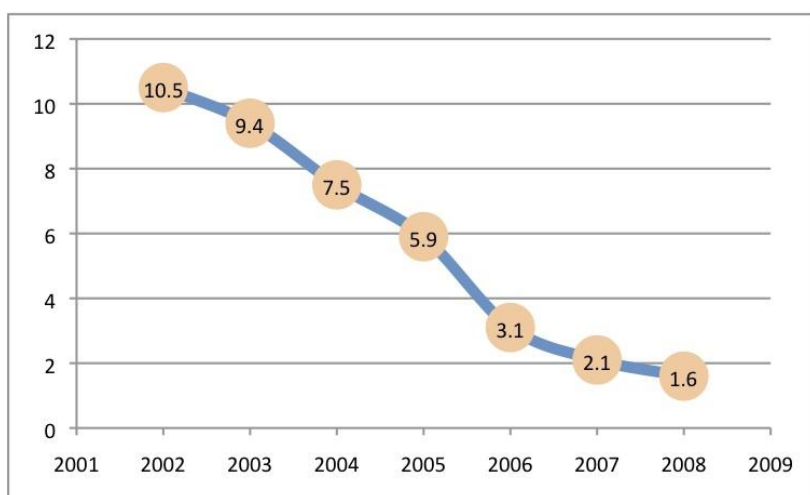


Figure 2: Number of thin-walled plastic bags issued in France, 2002 to 2008 (billions of bags/y)

In March 2010, the French Environment Ministry (*Ministère de l'Ecologie, de L'Energie, du Développement Durable et de la Mer*)³⁵ reported that supermarkets and hypermarkets had made a great effort to reduce the distribution of thin-walled plastic bags in favour of reusable solutions, such as flexible HDPE bags, woven PP tote bags and fabric bags.

CORSICA

As a local initiative in France, Corsica has ceased using non-biodegradable plastic bags since 2003. This is not a ban, but a voluntary agreement among the four retail networks on the island.

GERMANY

According to the Federal Environment Agency in Germany, 65 plastic bags are consumed per capita and year nationwide which leads to use of 5.3 billion bags per year or 10,000 per minute.³⁶ In Berlin alone, every year 227 million new plastic bags are used, resulting in 1.3 kg of packaging waste per capita every year. Plastic bags comprise around two per cent of Germany's consumption of plastics, and this topic is not seen as a significant issue.³⁷ Customers are required to pay for

*23 bags per person per year. According to BIO Intelligence Service estimates, the number is much higher, i.e. in the range of five billion (79 bags per person per year).1



plastic bags, and there is a national recycling scheme in place (within the established green dot DSD system).

The Germany Federal Environment Ministry declared (2006) that it is unlikely that there would be any local schemes and campaigns targeting plastic bags. These would be unnecessary, because all regions and local authorities have separate collection systems for packaging (organised by the DSD and their sub-contractors). In summary, in Germany lightweight bags used to be a waste and litter problem before 1991, but this is regarded as having been solved by the German Packaging Waste Ordinance.

GREECE

BIO Intelligence Service (2011)¹ reports that the average Greek uses around 269 plastic carrier bags per year, one of the higher numbers of the EU. Since 2001, general Greek legislation to reduce, reuse and recover packaging also extends to plastic bags. However, in 2008, less than one per cent of those bags used were actually recycled and recovered.

Plastic bag use is high in Greece because bags are distributed freely in nearly all supermarkets. Since 2008, some supermarkets have started offering reusable bags for a small price, but with limited success because thin plastic bags are still distributed without charge.

In 2007, supermarket managers were said to have responded positively to a bid by Athens' Mayor KAKLAMANIS to start replacing plastic bags with more environmentally friendly fabric equivalents or reusable heavy-duty plastic ones, according to Ekathimerini.com (2007).³⁸ The initiative, an extension of KAKLAMANIS' campaign to boost recycling, aims to reduce the amount of plastic bags being discarded. Initial talks with senior officials from supermarkets, including Metro, Veropoulos, Atlantis and A-B Vassilopoulos, were reportedly encouraging, though there is no information available on progress made since then.

HUNGARY

Little information is available on the consumption and management of plastic bags in Hungary, though it is reported (2011)³⁹ that there is an eco-tax and a national recycling scheme in place.

European voice notes retailers in Hungary have begun charging for plastic bags voluntarily.⁴⁰

IRELAND

Approximately 1.2 billion plastic shopping bags were provided to residents free of charge before the Irish Government introduced the EUR 0.15 per bag tax in March 2002. Per capita annual consumption of these bags fell immediately from 328 to 18 bags. The levy was increased to EUR 0.22 in 2007, by which time per capita consumption had crept back to 36 bags/y. The increased levy provoked a reduction to 29 bags per person in 2008 and 19 bags per person in 2010.⁴¹ As a result, Ireland is often cited as an example of the efficacy of a plastic bag tax.

It is worth mentioning that some people have put forward the hypothesis that not the increase in tax, but the lowering of purchasing power due to the economic crisis has led to the decrease in 2008, 2009, and 2010.

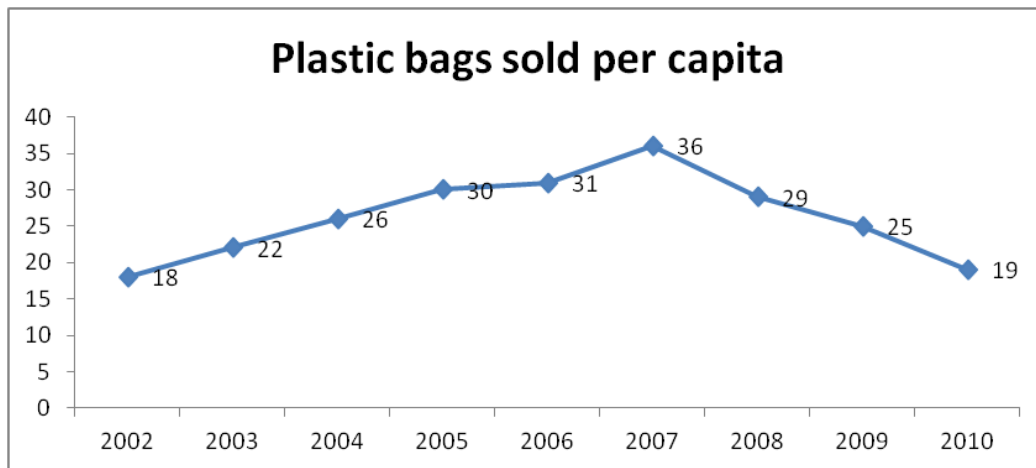


Figure 3: Plastic bags sold per capita according to Environment Fund Income.⁴¹

The environmental levy yielded EUR 23.4 million in 2009, which at EUR 0.22 per bag equates to perhaps 120 million bags/year.⁴² The Irish EPA (2004) reports that the levy resulted in a 90 per cent reduction in plastic bag consumption, where shops reported handing out about 277 million fewer bags than normal and raised EUR 3.45 million in its first three months.

On January 11, 2011, the Irish Government published the Environment (Miscellaneous Provisions) 2011 Bill.⁴³ The Bill provides, among other things, for greater flexibility in the setting of the plastic bag levy and the landfill levy. It also provides for the introduction of a levy on incineration. However, there are no plans to increase the plastic bag levy at present.

Consultants RPS (2011)⁴⁴ note that the story from Ireland on the Plastic Bag Tax remains positive. Gradual increases in the levy over the years the Irish public have rendered the plastic bag rarely used in supermarkets.

In 2008 the Irish Government (2010)⁴⁵ reported that the levy yielded EUR 26.6 million (increased from EUR 22.6 million in 2007) in revenue each year towards the Environment Fund, where it is being used for environmental purposes and to mitigate the damage already caused by the plastic bags.

Retailers who fail to implement the Levy Regulations correctly are liable on summary conviction to a fine not exceeding EUR 1,905 or to imprisonment for up to 12 months, or both or, on conviction on indictment, to a maximum fine of EUR 12.7 million, or to imprisonment for up to 10 years, or both. A system of daily fines applies where an offence continues to be committed after conviction i.e. up to EUR 254 per day for a summary conviction, or up to EUR 127,000 for conviction on indictment.

The environmental tax in Ireland has been widely documented because of its success and exemplary status. Several studies have gone more into detail on the implementation and effects of the tax, including a study by the School of International and Public Affairs of Columbia University prepared for The Oceans Conservancy.⁴¹ In that study, the authors identified four elements that could possibly explain the successfulness of Ireland's policy compared to other places:

1. It is a national policy in a small and developed country, which indicates that law enforcement is relatively simplified or solid.
2. All businesses were subject to the regulations so consumers were forced to pay the tax on plastic bags wherever they decided to shop.

3. The policy was effectively explained and marketed both to consumers and retailers months in advance. The consequence was awareness and acceptance, which possibly resulted in an overnight decrease of plastic bag usage.
4. The entire tax was collected by the Revenue Commissioners and put into an Environment Fund. The logic is that plastic bag users must pay for the effects they later have on the environment and for waste management. It also creates awareness in the population about the reasons of creating such a policy.

LITTER

The Irish Department of the Environment (2007) noted that the primary purpose of the plastic bag levy is to reduce the consumption of disposable plastic bags by influencing consumer behaviour, and that the levy has been an outstanding success.

The most recent survey data available for 2010 (The Litter Monitoring Body, 2011)⁴⁶ shows that plastic bags constitute 0.24 per cent of litter pollution nationally compared to an estimated 5 per cent prior to the introduction of the levy (Figure 4).

The plastic bag levy was increased from EUR 0.15 to EUR 0.22 in July 2007 in a further bid to reduce littering. There was a decrease in plastic bags as a percentage of the National Litter Composition from 0.32 per cent in 2008 to 0.24 per cent in 2009.

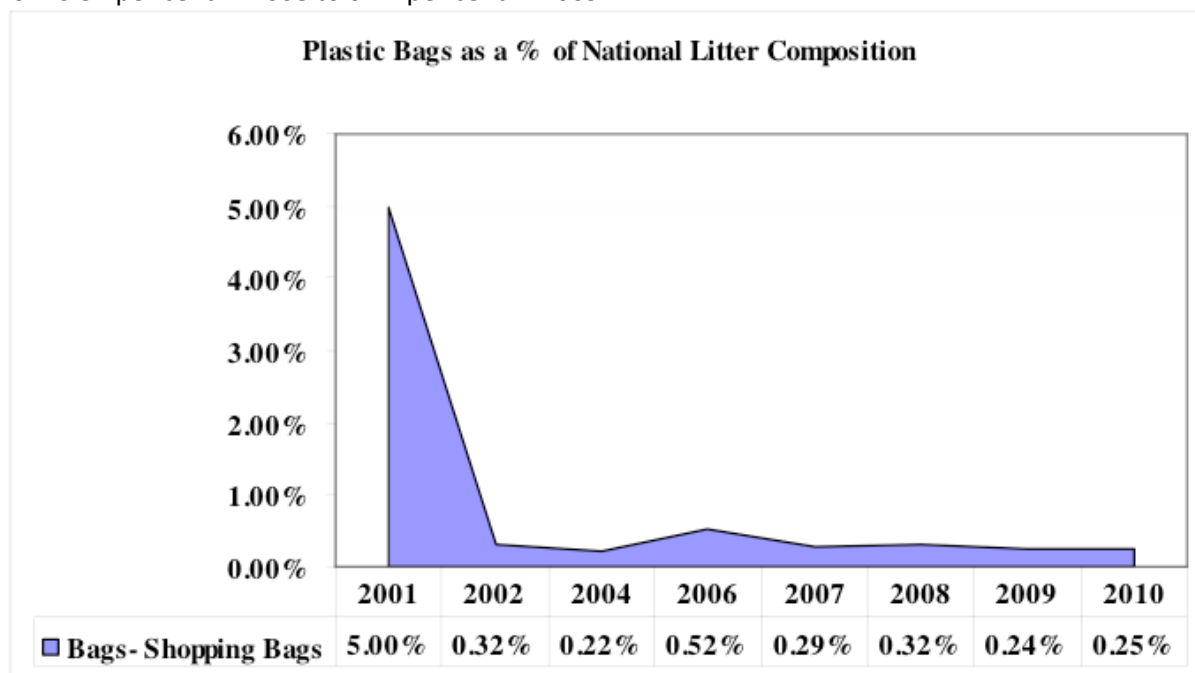


Figure 4: Plastic bags as percentage of national litter composition in Ireland.⁴⁶

Costs of administration of the levy were very low, amounting to about 3 per cent of revenues, because it was possible to integrate reporting and collection into existing Value Added Tax reporting systems. Response from the main stakeholders: the public and the retail industry, was overwhelmingly positive. Central to this acceptance has been a policy of extensive consultation with these stakeholders.



ITALY

In January 2011, Italy became the first EU Member State to impose a ban on non-biodegradable bags. Prior to the ban, a total of around 220,000 tonnes of plastic bags (around 20 billion bags, over 300 per capita) were used each year, accounting to around one fifth of the total European consumption.

Amsa SpA (2011)⁴⁷ provided the following information on recent developments on the new law banning plastic bags in Italy. Article 1 (Sections: 1129, 1130 and 1131) of the *Legge Finanziaria 2007 (No. 296 of December 2006)* contained a ban on distribution and selling from January 1, 2010 of 'plastic bags for the transport of goods which are not biodegradable (bags) or by this date would not fulfil the criteria laid down by EU legislation and approved technical standards' with the goal of 'reducing emissions of carbon dioxide in the atmosphere, strengthen the environmental protection and support agro-industry in the field of bio- materials'. This deadline was subsequently extended to January 1, 2011 with *D. L. No 194/99*.

The ban on the bags entered into force on January 1, 2011 but has caused a reaction on the part of producers. The result was an appeal to the Parliament by the associations of plastics processing companies (European Plastics Converters and Unionplast). According to these associations, the measure would not be valid because it breached the 2004 EU directive on packaging. Under the law EU states cannot prohibit packaging that satisfies the legislation's requirements on reusability and recyclability. A similar ban France had planned was abandoned after an analysis suggested it would be illegal under the directive. Moreover, the law had not been notified to the European Commission according to the 98/34 procedure, a fundamental step for a measure with such an impact on the internal market.

In March 2011, the Italian court confirmed the legality of the plastic bag ban. In the same month, Austria asked the commission to look into the legality of national bans because of confusion over what is allowed by the directive and what is the best method to cut plastic bag waste. It wanted clarification before introducing a ban. A month later, Italy properly informed the European Commission on the new legislation by officially notifying DG Enterprise of its "draft law prohibiting the marketing of non-biodegradable shopping bags".⁴⁸

The position of the Commission in this matter is still unclear. Indeed, it appears that the legality of Italy's decision may not be challenged, although an infringement procedure has been opened for the non-notification aspect. This has become both a legal and political issue, with EU Environment Commissioner, Janez Potocnik, stating at the outset of the Environment Council in March 2011 "It is clear that current trends in the plastic packaging industry are not sustainable: the production and use of disposable bags have exploded and the effects are all too evident in our environment and, in particular, in our seas. We will start a broad discussion that examines all options, including the possibility of an EU-wide ban of this type of plastic bag".

In January 2012, a new Italian decree strengthened the Italian plastic bag ban, and in accordance with the "polluter pays" principle, imposed EUR 2500-EUR 25,000 sanctions on those who violate the law.⁴⁹ Deemed as "Extraordinary and Urgent Measures for the Environment," the decree was issued on January 25, 2012, and amended previous plastic bag laws to also require that single-use disposable bags meet and follow European standards for compostability (EN 13432:2002). An important distinction is that EN 13432:2002 does not allow for Oxo-biodegradable plastic.



AWARENESS CAMPAIGN

In February 2011, waste company ACEA launched an information/awareness campaign on separate collection and sustainable consumption (ACEA, 2011).⁵⁰ The project encourages people to choose reusable bags. Each citizen was offered a reusable bag called 'RIBORSA ACEA'. This reusable gift is made in the Piedmont region from 100 per cent recycled PET bottles. The project involved 47 municipalities and 150,000 inhabitants. Free distribution of 70,000 bags was expected to have been achieved between February and May 2011.

LATVIA

On September 18, 2007, in the meeting of the Latvian Cabinet of Ministers, Regulations from the Ministry of the Environment (entitled *Modification of the Natural Resources Tax Rule*) were accepted (Latvian Government, 2007).⁵¹ To encourage a reasonable use of plastic bags, the draft regulations proposed to impose a tax per kg depending on material and thickness.

Bio-plastic, paper, wooden, and other natural fibre packaging would have the lowest tax rate, LVL 0.15 (EUR 0.21) per kilogram.⁵² The rate for Oxo-degradable plastic is LVL 0.45 (EUR 0.64) per kilogram pack, while for conventional plastics it is LVL 0.65 (EUR 0.93).

BIO Intelligent Services (2011)¹ reports that an environmental levy for plastic bags has been introduced in 2009, amounting EUR 0.02, 0.14 or 0.15. In 2010, the law was amended again to prevent the use of carrier bags without handles to avoid the environmental levy.

In addition, there is a separate legislation on the matter of distributing plastic bags. Bag dealers, regardless of whether those bags will be charged a separate fee, have to pay taxes as well. For bags weighing less than 3 g each (1,000 bags weighing less than 3 kg), this tax is LVL 2.6 per kg (EUR 3.72), for bags weighing more than 3 g each it is LVL 0.80 (EUR 1.14) per kg.

The Baltic Times reported in 2008 that the most noticeable action taken by businesses was a sudden ban on free plastic bags. Grocery stores no longer provide free plastic bags.⁵³ Now they offer cloth bags for sale. People are said not to object to paying the extra 5 santims (EUR 0.07) for a plastic bag.

The largest Latvian commercial chains offer a wide range of bags. The standard selection includes small and large plastic bag, as well as at least one eco-friendly alternative: reusable shopping bags, bags made from bio-plastics, paper bags and cardboard boxes. For several years, the stores have bags with TDPA additives (totally degradable plastic additive, oxo-degradables). Critics of these oxo-degradable bags, such as SIA Green Belt marketing manager Lyme Jekšīņa, argue that they are still the same harmful plastic polymers, that the additive only aids in the initial degradation, and that they are unsuitable for processing.

A Maxima Latvia spokesman boasted that Maxima's policy on plastic bags saved 35 tons of conventional plastic waste every month.

LITHUANIA

No useful information on national policies on plastic bags in Lithuania was found during the research phase of this report. BIO Intelligence Service reports most distributors voluntarily do not use plastic carrier bags.¹

It is unclear how many plastic bags are used annually in Lithuania. Trade Network Norfa spokesman Darius Ryliškės said Norfa alone sells about 1 million plastic bags in Lithuania per month. He added

that their demand remains stable.⁵⁴ According to Diena, Super market chain Maxima sells around four million bags (60 tons) per month.⁵⁵ In the same article, it is estimated that plastic bags account for about 10 per cent of the landfill content.

Multiple-use bags in Lithuania are still not a common phenomenon, but it is promoted in the shopping centres. For instance, Rimi Shopping Centres sell three types of eco-friendly shopping bags, and sell paper bags since 2003. They are easy to recycle, but whether this is done is not ensured by the supermarkets. As part of the action, a tree was planted in celebration of every 1,000 paper bags sold.

According to Grynas, Large retail chains selling bags earn 450,000 Lithuanian Litas (EUR 130,000) a month or 5.4 million a year (EUR 1,564,000); for Grynas a good reason for customers to reuse their bags.



LUXEMBOURG

Between 2004 and 2007 the number of thin-walled bags used in Luxembourg fell from 60 million to 9.5 million, a decline of more than 85 per cent, because of a large-scale promotion of woven PP “eco-bags”.⁵⁶

The authorities estimate that between 2004 and 2007, some 428 tonnes of waste plastics were prevented through a reduction in the consumption of thin-walled bags.



The management of packaging and packaging waste in the Grand Duchy of Luxembourg is determined by the Grand-Ducal Regulation of 31 October 1998, as amended. A number of successive voluntary agreements (2004-2006, 2006-2008 and 2008-2012)^{57,58,59} were signed between the Minister of Environment and the organization Valorlux, to promote reusable bags.

LUXEMBOURG ECO-BAG PROJECT

Luxembourg's 2010 national waste plan (*Plan général de gestion des déchets*) describes the national eco-bag project, launched by Valorlux in January 2004 to minimise the distribution of thin-walled plastic bags.⁶⁰ From 2004 to 2007, 1.9 million eco-bags (woven PP) were placed on the market, thereby avoiding the supply of 50 million thin-walled bags.

Overall the project was deemed a success at national level with a use rate of 51.5 per cent by 2007. Damaged eco-bags are replaced free of charge. Between 2004 and 2010, VALORLUX and participating retailers had sold about 4.5 million eco-bags in the Grand Duchy.⁶¹ Valorlux plans to extend the project to other trade sectors, such as bookshops, bakeries, butchers and pharmacies). Until January 2007, Eco-Bags were sold in supermarkets in parallel with the free distribution of thin-walled bags. Thereafter, the distribution of free thin-walled bags ceased (but they could be purchased for EUR 0.03. According to Valorlux (2007)⁶² the Eco-bags were sold for EUR 1, though from January, 2007 the price was cut to EUR 0.80.

Figure 5 (2010)⁶³ below shows the significant impact which the campaign had on the use of thin-walled plastic shopping bags.

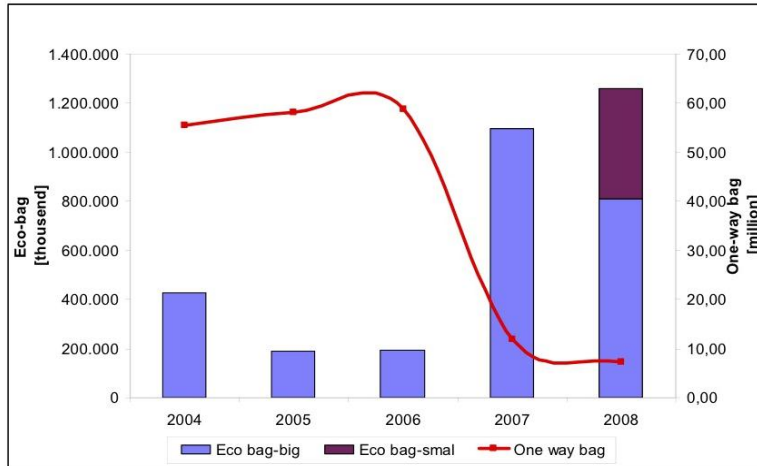


Figure 5: Trend data in bag use within the six major supermarket chains in Luxembourg (2004 - 2008)⁶³

Valorlux (2011)⁶⁴ reports that smaller Eco-bags have been available since 2008. More manageable, small eco- bags are better suited for purchases in corner shops. These are available at a price of EUR 0.60.

MALTA

Every year, 40 million plastic bags are used in Malta, around 95 bags per person. As part of his 2009 budget, Maltese Prime Minister Lawrence Gonzi introduced a plastic bag tax of EUR 0.15 in addition to VAT (EUR 0.03), coming into effect on March 1, 2009. The tax applies to all plastic bags, irrespective of their biodegradability, and is passed on to the consumer at the point of sale. Only the transparent, no hands, small bags given with bread and food from the counter can be dispensed for free.

Unlike a similar eco-contribution measure introduced in 2005 - which had failed in its aim for lack of enforcement and other reasons - this regime does not differentiate between the conventional bags and those produced with environmentally-responsible degradable and biodegradable material. The same eco-contribution will have to be paid on any of the materials.

The scheme is enforced by the 40 enforcement officers of the VAT Department. Retailers were given two months (Jan-Feb 2009) to get rid of their stocks. Whoever produces or imports plastic carrier bags has to print on each side of bag the name and address of the person registered under the Eco-Contribution Act, the registration number and the batch number of the consignment. Shopkeepers have to punch in the plastic bags, one by one, on the fiscal receipt.

Offenders face a fine of not less than EUR 1,000, going up to EUR 2,500 and possible temporary closure of the establishment for repeated offences.

RECEPTION OF THE TAX

The move was met with criticism on the basis that it would be defeating the objective of the scheme (to promote greener alternatives to the traditional plastic bag).⁶⁵ But Chris Ciantar, the permanent secretary within the Resources and Rural Affairs Ministry, defended the blanket contribution saying that there is no international standard on degradable and biodegradable materials. He stressed that the tax was not a revenue generator but a measure to discourage people from using these plastic bags and opt for reusable bags instead. Vince Farrugia, director-general of the General Retailers and



Traders Union (GRTU), added that retailers and traders in Malta spent EUR 3.5 million each year on the free issue of plastic bags in Malta.⁶⁶

Retailers also complained that the government had rushed to introduce the new tax without proper consultation, forcing them to dispose of the plastic bags they ordered before the Budget speech was read out.

According to a survey by The Malta Independent held one day after the introduction of the tax, it did not make shoppers and shop keepers refrain from using plastic bags.⁶⁷ Plastic bags which have no handles seemed to be replacing the conventional plastic carrier bags. This was specifically because no eco-contribution charge was imposed on plastic bags without handles even if some are more durable than plastic carrier bags.

Even though the earlier eco-tax of 2005 is considered a failure due to a lack of enforcement, a decrease of five million plastic bags was recorded in the first five months of 2005 according to the Ministry of Rural Affairs and the Environment.⁶⁸

THE NETHERLANDS

According to research by the University of Wageningen, Dutch use between 26,000 and 32,000 tonnes of carrier bags per year and carrier bags constitute 0.9 per cent of municipal solid waste.⁶⁹ In January 2009, a packaging tax with a variable tariff dependent on the material was introduced, but it was abolished again in January 2013 and replaced with a voluntary agreement between the Ministry of Infrastructure and Environment and the retail sector.⁷⁰

The tax, which imposed a tariff of EUR 0.4339/kg on plastic packaging (including plastic bags), and a tariff of only EUR 0.0733/kg on bio-plastic packaging,⁷¹ was heavily criticized because supermarkets directly passed on the tax to the consumers. Eventually, not the retail sector, but the consumers were charged with the costs of managing the packaging waste, which was not intended.

In the new voluntary agreement,⁷² manufacturers, importers and distributors of packaged products ensure that they will pay the cost of collection and recycling of plastic packaging over the next ten years. The agreements with the packaging industry and the resulting obligations represent a value of approximately EUR 1.5 billion in ten years. The funding system guaranteed by the companies is primarily intended to compensate municipalities for the collection of packaging waste. Furthermore, the industry ensures EUR 20 million per year to tackle litter. The companies continue to pay for the ongoing campaign *Nederland Schoon* (Netherlands Clean). In addition, the retail industry will fund a Knowledge Institute of Packaging that will formulate and implement the coming years' sustainability agendas. Measures that the industry already committed to are:

- increase the content of recycled material in new PET bottles,
- reducing PVC use in packaging,
- **abolish free plastic carrier bags in supermarkets,**
- less material used in plastic packaging,
- use less plastic wrappers,
- research on separate collection of beverage cartons.

A study by research bureau IVAM found that Dutch supermarkets sell around 420 million plastic bags per year, and that another one billion bags are handed out for free by other retailers.⁷³ This number is in the same ballpark as the estimate of BIO Intelligence Service (81 bags per person per year).¹



PACKAGING COVENANT

In the early 1990s the Dutch Ministry for the Environment concluded a packaging covenant with industry. One of the measures included in that covenant was an agreement by the supermarkets to stop giving away plastic carrier bags for free as from July 1991. This was implemented. When the first covenant expired this agreement was omitted from the second packaging covenant, which was concluded in 1997.

However, most supermarkets did not change their policy and to date they do not give certain types of plastic carrier bags out for free, which stimulates people to bring their own. Customers are typically required to pay approximately EUR 0.20 for (thick) plastic bags. Ultrathin plastic bags on the other hand are very often still handed out for free at the checkout, although there have been some agreements recently that intend to abolish this practice (*vide infra*).

There is no quantitative evidence of costs or benefits of the covenant in the Netherlands. Plastic bags end up in waste and go mainly to energy recovery. It is not considered an area for which separate policy action is required.

VOLUNTARY AGREEMENT BY THE CENTRAL BUREAU OF FOOD TRADE

In 2011, all supermarkets part of the Central Food Bureau of Food Trade (CBL, *Centraal Bureau voor levensmiddelenhandel*) agreed to no longer hand out translucent ultrathin undershirt-shaped plastic bags (*hemdtasjes*)* at the check-out for free, unless customers specifically ask for it.⁷⁴ Customers now have the choice to specifically ask for a free thin plastic bag, buy a thicker more durable plastic bag for around EUR 0.25, or bring their own means of carrying their goods. According to CBL, the measures will save 500,000 kg of plastic per year. A short supermarket survey after the implementation of the voluntary agreement revealed that the use of the *hemdtasjes* was reduced sixteen-fold.⁶⁹

POLAND

The Polish Environment Ministry had prepared a *Draft Act on the Management of Packaging and Packaging Waste*, which was subsequently abandoned in 2010.⁷⁵ This instrument would have provided for the introduction of a recycling charge of PLN 0.20-0.40 (EUR 0.05-0.10) to be paid by the customers per plastic bag.

Green groups in Poland strongly criticised the government's decision to drop the proposal.⁷⁶ Revenues from the tax would have been used to support the collection of packaging waste as well as awareness campaigns. In material documenting the proposed changes, the government explained the plan had not been 'sufficiently thought through'.

PORTUGAL

Portuguese MPs have approved a legislative proposal setting a 90 per cent reduction target for the supply and consumption of thin-walled plastic bags at wholesalers and supermarkets by 2017. There are intermediate targets of a 30 per cent and 60 per cent reduction by 2013 and 2015.

* Very thin, transparent, weak plastic bags on roll that are handed out for free. Thicker, more durable plastic bags



According to MP António Leitaó Amaro, the long transition period will allow smaller retailers to adapt to the law's requirements. Compliance is assessed using figures supplied by Portuguese Green dot company SPV.

Income from fines for non-compliance will finance projects aimed at raising awareness among consumers. An accompanying law establishes a minimum discount of EUR 0.05 per EUR 5 spent in large supermarkets for customers who do not use plastic bags. The law was published in December 2010 and was due to come into force three months later.⁷⁷

The draft [*Projecto de Lei nº 466/XI/2ª: Medidas destinadas à redução da utilização de sacos de plástico, Palácio de São Bento, 13 de Dezembro de 2010 - Draft Law No. 466/XI/2 th: Measures to reduce use of plastic bags - São Bento Palace, December 13, 2010*] set out a series of targets:

Reduction Goals (baseline year = 2007)

- reduction of 30 per cent by 31 December 2012
- reduction of 60 per cent by December 31, 2014
- reduction of 90 per cent by December 31, 2016

Replacement measures to be promoted:

- provision of biodegradable bags
- provision of reusable bags at affordable prices
- environmental awareness of employees and consumers to promote the use of alternatives to plastic bags that are environmentally responsible
- promotion of environmental awareness campaigns among consumers, aimed at the separation of waste at source and the appropriate referral within the existing legal systems management
- adoption of one of the following economic mechanisms to encourage a reduction in the use of plastic bags:
 - levying a charge for the supply of plastic bags
 - applying a discount on the price of goods sold to consumers desisting entirely from taking free plastic bags.

Plastic bags are collected with other packaging materials for recycling.

ROMANIA

According to industry reports, in 2009 Romanians used around 45,000 tonnes* of plastic bags.⁷⁸ In the same year an eco-tax (GO 25/2008) was applied to shopping bags made of non-biodegradable materials. The level of this tax was 0.2 lei per bag (EUR 0.05), irrespective of the size or quality of

* At 8g per bag, this equates to over 5 billion bags, which is in line with 2008 statistics from the Ministry of Environment (<http://www.wall-street.ro/articol/Start-Up/130968/100-000-de-euro-din-sacose-din-panza-naturala.html>) and estimates from BIO Intelligence Service (252 bags per person per year).¹



the bag. In 2010 the eco-tax was cut to 0.1 lei/bag (EUR 0.025) and made applicable only to shopping bags made from non-renewable sources.

The tax is to be paid by the manufacturers or importers, but retailers have the legal obligation to inform consumers about this tax and about the bio-degradable or non-biodegradable character of the bags.⁷⁹ The economic logic behind this mechanism is that manufacturers will pass on a part or the entire cost of the eco-tax to consumers by increasing the price of plastic bags. Customers will therefore be discouraged to buy non-biodegradable plastic bags, and retail chains will be stimulated to sell biodegradable bags. The money collected is directed to funding environment projects.

The biodegradable character of the materials is established through an evaluation regulated through *Law no. 608/2001* regarding the conformity of products.

There is no data available to quantify the decline in use, though the Romanian Association of Solid Waste Management (2011)⁸⁰ reports that according to unofficial sources the decrease was between 6 and 10 per cent.

SLOVAKIA

There is no special tax on plastic bags in Slovakia, but producers and importers must pay a fee of EUR 0.17/kg to a national recycling fund, unless they recycle the plastic material.⁸¹

BIO Intelligence Service reports some food stores (Billa, Hypernova, and Kaufland) no longer give out plastic bags for free, but sell them.¹

SLOVENIA

According to environmentalist Mateja Matos, Slovenians use 250 to 300* plastic carrier bags per capita per year.⁸² In December 2010, there were proposals in Parliament for legislation to introduce a tax on plastic bags.⁸³

The tax would stand at:

- EUR 0.50/pc for bags made from at least 5 per cent plastic material
- EUR 0.40/pc for \geq 95 per cent biodegradable
- EUR 0.20/pc for \geq 95 per cent textile

If the tax is approved and implemented, then the charges will be borne by consumers at the point of sale. The initiative, proposed by environmentalists and two coalition MPs was backed up by Environment Minister Roko Zarnic and the Ministry of Finance. As of January 2013, no new developments concerning the proposed legislation could be found.

Several local initiatives have been organised to raise awareness about plastic bag littering. For example, during the 2011 European Week for Waste Reduction, workshops were given in Ljubljana on how to make sleeping bags, at which 15 homeless people learned how to make a sleeping bag out of plastic bags.

* Other data suggest an adult Slovenian resident uses 130-150 plastic bags per year. Source: <http://www.slovenia.si/en/slovenia/country/environment/bag-on-bag-project/>



SPAIN

*Instituto para la Sostenibilidad de los Recursos (2011)*⁸⁴ reports that, in Spain, consumption of plastic bags is around 100,000 tonnes per year. Assuming an average weight of 7 g per bag, this equates to perhaps 14 billion bags per year, or a per capita consumption of 300 bags/y.* In 2011, a draft law proposing the phase-out of non-biodegradable plastic bags, was approved by the Spanish Parliament.

The controversial *Ley de Residuos y Suelos Contaminados*, intended to transpose the EU Waste Framework Directive, requires conventional single use plastic bags to be withdrawn from the market within a given timeframe.⁸⁵ The following schedule for replacing thin-walled (single use) plastic non-biodegradable shopping bags will apply (using 2007 as a baseline):

- by 2013, replacing 60 per cent of the stock
- by 2015 replacing 70 per cent of the stock
- by 2016 replacing 80 per cent of the stock
- in 2018 replacing all of the stock

This excludes those bags that are used to contain fish, meat or other perishable foods, as no equivalent alternative for plastic bags has yet been found.

From January 1, 2015 any bags distributed will need to bear a message concerning their environmental impacts. The content and format of these messages will be determined by the Minister for Environment and Rural and Marine Affairs.

Historically, Spain has been considering many options to cut down on plastic bag use. According to the ENDS Report (2011),⁸⁶ the Spanish government had long toyed with the idea of taxing the use of plastic bags, but its 2008 waste plan opted instead for 'voluntary agreements with agents in the packaging and distribution chain' to cut bag use. Some large supermarket chains now either charge for plastic bags (Dia) or pay a small amount back (around EUR 0.10) if the customer does not take any plastic carrier bags (Eroski Group).

Industry reports that plastic bags are collected as household recyclables through Spain's Green Dot System, Ecoembes.⁸⁷ The Spanish plastics industry has promoted the use of reusable plastic bags according to Spanish UNE standard (by AENOR, on PE reusable shopping bags). The UNE document includes technical requirements and environmental parameters such as water consumption, etc.

NATIONAL AWARENESS CAMPAIGN

During 2005-2008, Cicloplast, an NGO involved in environmental protection, organised a nationwide awareness campaign in order to evaluate citizens concerns about plastic bag problems. The campaign focused on several parts: media campaign, large shopping centres and commercial centres, prevention campaign for schools, and useful material handed to local environmental organisations.⁸⁸

* Which is in accordance with other sources that speak of 238-300 plastic bags/y, although one source, BIO Intelligence Service, provides a much lower estimate of only 133 bags/y.¹



According to a Pre-waste* Best Practice Fact Sheet, knowledge about plastics bags reuse and specific recycling requirements increased from 2005 to 2008 by 31.5 per cent. In 2004, 43 per cent of the Spanish population was unaware of the existence of the yellow container destined for plastic recycling (including plastic bags). In terms of participation, 33 large shopping centres and commercial centres participated in the campaign and over 50,000 persons were offered information and advice by the staff of the projects at the Cicloplast Information stand. More than 8,000 consumers participated in a survey regarding the consumers' behaviour regarding plastic bags. Plastic bag consumption decreased by 11 per cent in 2008, after a continuous growth of around 3.2 per cent in previous years. In 2009, it decreased another 13.5 per cent. The economic recession of 2008 will certainly have played part in this reduction as well, but it is unclear to what extent.

CATALONIA

Area Metropolitana de Barcelona (2011)⁸⁹ reports that during 2007, people in Catalonia used 2.3 billion disposable plastic bags. This amounts to 45 million bags a week, i.e., 908 bags per year to each household. Virtually every Catalan uses one disposable plastic bag each day throughout the year. Moreover, plastic bags represent 0.43 per cent of total municipal waste generated in Catalonia.

Catalan Waste Agency (2011)⁹⁰ reports that, since 2004, the Catalan Waste Agency (ARC) has subsidised more than 200 projects implemented by local bodies and not-for-profit organisations for the reduction of thin-walled plastic bags.

Since 2006, the ARC has met with representatives of the Catalan and Spanish distribution chain, such as the Catalan Board of Food Distributors (CEDAC), the Retail Confederation of Catalonia (CCC), the National Association of Major Distribution Companies (ANGED) and the Association of Spanish Supermarket Chains (ACES), among others, with the aim of reaching a voluntary agreement to prevent the generation of thin-walled plastic bags.

In 2008, two separate Bag Agreements were signed. The first was on February 18, 2008 with the Bon Preu Group, through which it agreed to a 20 per cent reduction of thin-walled plastic bags in its 110 supermarkets. It is worth pointing out that by the end of the agreement period the reduction target was easily surpassed. On October 6, 2008, a second agreement was signed with the Xarxa Farma association. In this case the reduction target was 10 per cent in 2009 and 20 per cent in 2010, across its network of 200 pharmacies. The 2009 target was met and the 2010 result is currently being estimated.

2009 CATALAN BAG AGREEMENT†

On July 28 2009 there was an agreement between the Government, retailers and manufacturer in Spain and Catalonia. The signatories of this act were the Waste Agency of Catalonia, the Association of Chain Supermarkets Españolas (ACES), the National Association of Large Distribution Companies (ANGED), the Spanish Association Distribuidoras, Autoservicios and Supermarkets (ASEDAS), the Spanish Confederation of Commerce (CEC), the Confederation of Commerce of Catalonia (CCC), the Council of Food Distributors of Catalonia (CEDAC), PIMEC il'Asociación Spanish Manufacturers of Plastic Bags (AEFBP).

* Pre-waste is a three-year European Interreg IV project (2010-2012) whose aim is to help cities and regions to improve their waste prevention policies.

† *Pacte per la Bossa* (Barcelona, July 28, 2009).



The Agreement established a framework for collaboration between the Catalan public administration and businesses in the aforementioned sector with the goal of reducing the consumption of thin-walled plastic bags by 50 per cent by 2012 (currently being estimated) compared to 2007 consumption figures, with an interim target of 30 per cent by 2009.

In 2010, the ARC produced a study on the consumption of plastic bags in Catalonia, assessing compliance with the interim target. The study shows that that interim target was met, with a figure of 227 bags per person per year, representing a 30.4 per cent reduction compared to 2007 data.

The agreement entails the setting up of a technical committee composed of representatives of the signatory organisations and of the Catalan Waste Agency. The principal mandate of this committee is to follow up the actions and measures implemented by retailers to meet the reduction targets. As organisations formally sign up to the agreement (on an individual or collective basis), measures are specified to reduce the distribution of plastic bags in retail outlets. By signing up to the agreement, organisations agree to meet the set targets, but retain the freedom to choose how to do so.

To date, the main distribution groups in Catalonia have formally signed up to the Bag Agreement, along with a majority of small retailers.

ANDALUCIA AND CANTABRIA

Surrounded by a bitter controversy, Andalucia and Cantabria have set up taxes on single-use plastic bags that shops give to their customers when they make a purchase.⁹¹ In the Community of Cantabria the tax was established from January 1, while in Andalucia it has come into operation on 1 May (after a six-month moratorium granted by the Board to the premises due to recession). Shops are now obliged to charge their customers EUR 0.05 for each single-use plastic bag they use. In Andalucia, the tax is intended to be raised to EUR 0.10 in 2012.

Biodegradable and reusable bags are excluded from the tax, as are thin-walled bags for certain specified products. While it was approved by the regional government in July 2010 as part of an emergency deficit reduction and fiscal sustainability law (*Decree-Law 4/2010*), 'the measure is not designed to raise money but to improve sustainability and to protect the environment', according to the Andalusian government.⁹²

With a population of more than 8.3 million and an average annual personal consumption of 280-300 plastic bags, Andalucia could raise up to EUR 100M in 2011 and twice that in 2012 from the tax.

SWEDEN

Swedish citizens use around 111 plastic carrier bags each year.¹ The Swedish Government does not attach particular importance to plastic bags, simply including this stream within producer responsibility, making producers responsible for the collection and disposal of their discarded products. A Government spokesperson noted (2011)⁹³ that in Sweden neither is there a ban on plastic bags, nor are there any plans to introduce any.

Swedish supermarkets pass the costs of disposal on to the consumers, and plastic bags typically cost EUR 0.17-0.30.¹ More expensive (EUR 0.50) plastic bags with the logo of an NGO or a local sports team, where that organisation receives 50 per cent of the proceeds, are reported to be quite popular.



On December 30, 2010, Swedish retailer Hemköp declared it was the first in Sweden to offer plastic bags made of renewable material.⁹⁴ The bags are manufactured from a 'green' polyethylene, (the raw material is sugarcane). Plastic bags made of green polyethylene result in 70-75 per cent less CO₂ emissions than ordinary plastic bags. The new bags were set to be available at all Hemköp stores in 2011. The material has the same properties as petroleum-based polyethylene and can be recycled in the same way.



UNITED KINGDOM

According to official figures released by the Waste and Resources Action Programme (WRAP), shoppers in the UK used close to 8 billion single-use bags in 2011, or 128 per capita, a rise of 5.4 per cent on the previous year.⁹⁵ In the UK there are no state-wide mandatory targets for plastic bags, however, a national charge on a carrier bags has been introduced in Wales and Northern Ireland, with Scotland considering the same.

In Britain, the Climate Change Act, enacted in 2008, allows for the introduction of waste reduction schemes, and for powers to require a minimum charge for thin-walled carrier bags in England.⁹⁶ The powers in the UK Climate Change Act for provisions of charges for thin-walled carrier bags extend to Wales and Northern Ireland – who have recently introduced charges – as well as England, but not to Scotland.

PLASTIC BAG DEBATE

In recent years, a debate around the relative environmental impacts of these lightweight carrier bags and their alternatives has emerged. Alongside discussions of which materials to ban or tax, industry showed scepticism towards the claim that sales will survive a ban or tax and feared for the survival of their industry.⁹⁷ However, since 2012, after seeing the successful introduction of a charge in Wales, and Northern Ireland and (likely) Scotland following suit, the introduction of a plastic bag tax across the UK seems to become more likely.

In September 2012, the London parliamentary Assembly agreed unanimously on a motion that calls on the UK Department of Environment, Food and Rural Affairs (Defra) to, “enact reserve legislation, part of the Climate Change Act 2008 that would force retailers to introduce a levy on all single-use plastic bags.”⁹⁸ In the same month, a survey found that over half of English adults think that a 5 pence charge is not unreasonable for England, and that 75 per cent would cut down on their bag use if one was introduced.⁹⁹

Even though environment minister Richard Benyon pledged to make a decision on a charge for single-use bags in England before the end of 2012, no decision was taken in 2012, and – according to Defra – there is no firm timetable for action. Defra commented it was currently assessing the Welsh plastic bag tax, which has been in operation for a year, before making a decision on the issue.¹⁰⁰

Green groups criticized the government for failing to come up with a decision in 2012, despite its pledge to do so, and slammed the plastics lobby for preventing the charge being introduced. They publicly regretted “why a charge is not happening in England, when there are such definite benefits to it, and a growth in consumer support, and support for the charge in England being on parity with that in Wales before it was introduced”.

VOLUNTARY AGREEMENTS AND THE EVOLUTION OF PLASTIC BAG USE IN THE UK

UK agency WRAP (UK's Waste Resources Action Programme) has brokered a series of voluntary agreements, the most recent one being between the Scottish Government, Defra the Welsh Assembly Government and the Northern Ireland Department of the Environment with the British Retail Consortium (BRC) and its supermarket members. Participating retailers in 2009 were Asda, Co-operative Group, Marks & Spencer, Sainsbury's, Somerfield, Tesco and Waitrose. The agreement set a target to reduce thin-walled carrier bags by 50 per cent by spring 2009 using 2006 as a baseline. This target was narrowly missed with a 48 per cent reduction achieved for the UK, from 11 billion to under 6.5 billion bags per year. In July 2009, an agreement to monitor carrier bag use in 2010 was made.

Bag use (thin-walled bags) per person in 2010 ranged from 7.6 to 8.9 bags per person per month (in May 2010) - roughly 100 bags per person per year. Annual trend data shows continued reductions in bag use - by weight and numbers until around 2009, after which a bag use started to rise slightly again, as can be seen in Tables 4, 5 and 6 below (WRAP, 2010).¹⁰¹

Table 8: Numbers of thin-walled bags (by UK nations)

	Number of single use bags (millions)			Per cent reduction	
	May 2006	May 2009	May 2010	2006-2009	2006-2010
UK	870	452	475	48	45
England	718	372	391	48	46
Scotland	78.4	39.6	43.2	49	45



Wales	53.2	27.1	26.6	49	50
N. Ireland	19.8	12.2	14.5	48	27

Table 9: Weight of thin-walled bags (by UK nations)

	Weight of single use bags (tonnes)			Per cent reduction	
	May 2006	May 2009	May 2010	2006-2009	2006-2010
UK	7,196	3,161	3,337	56	54
England	5,952	2,614	2,752	56	54
Scotland	636	269	293	58	54
Wales	434	192	187	56	57
N. Ireland	169	83	102	51	39

Table 10: Average weight of bags

	Average weight of single use bags (g)			Per cent change	
	May 2006	May 2009	May 2010	2006-2009	2009-2010
All bags	9.9	9.3	8.3	-6	-11
gauge PE bags	8.3	7.0	7.0	-15	0
PE bags for life	17.5	22.9	22.4	31	-2



Newer figures from WRAP show that carrier bag use in supermarkets continued to rise from 2010 to 2011, rising 5.4 per cent during that period (from 7.6 billion a year to nearly eight billion).¹⁰² Retailers have blamed the recession, saying families have changed their shopping habits and are doing more smaller shops every week – often using public transport. The figures were a disappointment to the government, which backed a voluntary scheme to cut the use of throwaway bags.

Broken down, the 2011 figures reveal stark differences across the UK. In Wales, use fell by 22 per cent (compared to 2010), thanks to a 5 pence charge introduced in October 2011 (*vide infra*). But in England use rose by 7.5 per cent, Northern Ireland saw a 8.1 per cent rise.

In 2011, the British Retail Consortium (BRC, 2011)¹⁰³ announced that stores which collect plastic bags for recycling will also accept clean plastic film packaging in the same facilities, thanks to an agreement between the country's biggest supermarkets and the On Pack Recycling Label (OPRL) scheme.

Carrier bag banks can be found at more than 4,500 supermarkets. The thin plastic, also used around multipacks of cans and household goods such as toilet rolls, makes up 43 per cent of all plastic household packaging and weighs in at 645,000 tonnes every year. By comparison, plastic bottles account for 32 per cent - 480,000 tonnes. Thin plastic film is fully recyclable but until now most people have had no means of recycling it. By combining this stream with plastic bags for recycling, it is likely that recycling rates for both will rise as the public becomes accustomed to the new behaviour option.

Many supermarkets have launched initiatives to reduce the distribution of their thin-walled plastic bags. WRAP (2011)¹⁰⁴ has reported on these, which include trials undertaken at Tesco and Waitrose, described in the following sections.

CASE STUDY: TESCO

Since the launch of Tesco's Green Clubcard Points scheme in August 2006, shoppers have significantly reduced the number of plastic carrier bags used. This has removed more than three billion bags from circulation and has rewarded customers with points for reusing their bags.

Plastic bags have now been removed from view in all Tesco stores and are only made available if the customer needs them. The retailer has also installed plastic bag recycling units inside its stores. To reinforce this messaging Tesco has introduced signage both in store and in car parks to remind their shoppers to reuse their carrier bags. In addition, the company stocks a range of reusable bags and launched a limited edition designer range of reusable bags. Each bag was made from nine recycled plastic bottles with 50p from every sale going to Marie Curie Cancer Care.

The online arm of the company (Tesco.com) offers a bag-less delivery option and rewards customers with extra Clubcard Points if they choose to have their shopping delivered without carrier bags. Currently around half of customers choose this option.

CASE STUDY: WAITROSE

Between March and May 2008 Waitrose trialled a number of initiatives in four of its branches. The aim was to reduce the number of thin-walled plastic bags given away and involved:

- Removal of bags from view at main checkouts

- Asking customers without their own bags if they would prefer to purchase a £ 0.10 'bag for life'
- Asking customers at basket checkouts if they needed a bag.

Waitrose monitored the impact on the number of transactions, any increase in sales of their 'bags for life' and the decrease in the number of thin-walled carrier bags given away. As some customers use thin-walled carrier bags as bin liners, impact on the sales of bin liners was also measured to see if a reduction in thin-walled carrier bags would lead to an increase in sales.

During this three month period, sales of 'bags for life' rose by approximately 1,100 per cent which then after four or five weeks started to fall, indicating that customers were reusing them. The number of thin-walled carrier bags issued fell between 45 and 60 per cent and there was no impact on trade or the sale of bin liners. Waitrose also collected customer feedback and found that customers were happy to reuse their bags but often forgot to bring them from the car into the store. Therefore the company introduced prominent signage at the store entrance as a reminder to customers.



These successful trial initiatives formed Waitrose's national carrier bag strategy and have now been implemented across all 213 stores.

SCOTLAND

Shoppers in Scotland use one billion carrier bags each year.¹⁰⁵ In June 2012, the Scottish Government launched a three-month consultation on a range of proposals that will include phasing out free carrier bags. A report on the results of the consultation is scheduled for 2013.

The proposals are similar to the system brought in by the Welsh Government in October 2011. The consultation covered the following proposals:

- A requirement for all retailers to charge
- This will include all thin gauge/disposable carrier bags, regardless of material
- Setting the minimum charge at £ 0.05

According to the government, a 5 pence tax would cut the numbers by 80 per cent and could raise £ 5 million, which would be donated to charities. If this proposal goes through, Scotland will be following Wales and Northern Ireland in forcing shoppers to pay for plastic bags. Bags will only be given out free (and many supermarkets already charge for bags) in England.

EARLIER ACTIONS

The Scottish Government launched a campaign in 2009 to help retailers halve the amount of bags they hand out. Based on the premise that an elephant never forgets, the campaign ran on TV and radio, as well as in supermarkets and shops across the country. Research showed that 92 per cent of people think reusing carrier bags is good for the environment, but 59 per cent claim to forget their reusable bags and have to take new ones at the checkout.

Twelve major retailers and almost 500 independent shops participated, potentially reaching millions of consumers, making this the biggest high street campaign ever undertaken by the Scottish



Government. The Government's approach is based on the expectation that the consumer will also be the ultimate beneficiary of a reduction in bag use, with local authority waste management costs being reduced.

The Climate Change (Scotland) Act 2009 includes a provision that allows Scottish Ministers to make legislation requiring retailers to charge for bags.¹⁰⁶ More specifically, Ministers may require retailers to:

- charge for carrier bags supplied at the place where the goods are supplied for the purpose of enabling the goods to be taken away or delivered
- apply the net proceeds raised by such charges to the advancement of environmental protection or improvement or to any other purposes that may be reasonably regarded as analogous.

In Scotland, retailers have made clear, and Government has accepted, that work should focus on carrier bags generally and not only on plastic bags. Whilst plastic bags are worse in terms of litter, paper bags are worse for the environment (as more resources are needed for their production and transport).

WALES

On 1 October 2011, Wales became the first country in the UK to charge for carrier bags, with a charge £ 0.05 being levied not only on those given out in supermarkets, but also clothes, book and other stores. According to Keep Wales Tidy*, plastic bags comprised 2.7 per cent by weight of litter in Wales before the introduction of the carrier bag charge.¹⁰⁷

The charge means all retailers must charge customers £ 0.05 for each single use carrier bag. There are some exemptions for small paper or plastic bags used to package items such as loose food, seeds and plants.

HISTORY OF THE CHARGE

In 2009 the Welsh took home on average 273 carrier bags per household (more than 400 million thin-walled bags in total) from the major supermarkets alone.¹⁰⁸ The Welsh Assembly Government believed a five pence charge would be high enough to encourage people to change their shopping habits, but not so high that it would deter impulse shopping or place a significant burden on shoppers who have forgotten their reusable bags.

In the summer of 2010, the Government was contemplating a charge of £ 0.07 (EUR 0.08) per bag, but reduced this to £ 0.05 (EUR 0.06) by the autumn. The idea of the charge was not simply to make people pay for carrier bags, but to encourage shoppers to make use of the bags they already have. To encourage shoppers to re-use bags, the Assembly Government gave away free jute bags to the public. To receive a bag, people were invited to email their top tip for remembering to take a bag when shopping.

In a study for the Welsh Assembly Government, AEA (2009)¹⁰⁹ listed a number of recommendations for the design of a national charging scheme. These were strongly influenced by the Irish experience, which had been a success until then.

* <http://www.keepwalestidy.org/>



Recommendations included:

- an extensive country-wide awareness campaign, using a variety of communication channels to ensure the system and its objectives are understood
- early consultation of stakeholders, particularly retailers
- retail staff may need training to respond to customer queries or complaints
- regional support lines should be established for both customers and retailers
- bag specifications should be the same as those defined in the Irish legislation, though extended to include bags made from paper
- initial charge to be set around £ 0.10 to 0.15 (EUR 0.12-0.18) per bag
- the charge is to be passed on to customers, and shown on till receipts
- the charge is to be collected from retailers either using the system of VAT returns or through separate return to a designated body.
- enforcement should rest with local authorities
- money raised is to be used for projects focused on sustainability in Wales
- the body or bodies chosen to allocate the money should exist already, removing the need for additional administration.

RECEPTION AND RESULTS OF THE CHARGE

Welsh Government research published nine months after the introduction of the charge shows it has helped to change behaviour significantly.¹¹⁰ Those who took their own bags on their last supermarket trip increased from 61 to 82 per cent six months after the compulsory fee came into force. The distribution of free carrier bags also fell dramatically – by up to 96 per cent in some retail outlets. Support for the tax has also increased to 70 per cent from 59 per cent, according to research by Cardiff University, which monitored attitudes to plastic bag use just before and six months after the introduction of the charge. The research, which used figures provided by retailers and the British Retail Consortium, also found that opposition to the charge had dropped to just 17 per cent. People generally said they are willing to pay a five pence charge if the money goes to charity.

A year after the introduction of the charge, charity organizations The Royal Society for the Protection of Birds (RSPB) and Keep Wales Tidy had received a combined EUR 1 million as a result of the charge.¹¹¹

NORTHERN IRELAND

It is estimated that 250 million single use carrier bags are used in Northern Ireland every year.¹¹² On 14 January, 2013, Northern Ireland's Assembly approved the idea of introducing a £ 0.05 charge for single use carrier bags in shops and over the internet. It will come into effect on 8 April 2013 and the proceeds of the charge will be forwarded to the Department of Environment to fund "environmental programmes and activities."

The charge will apply to plastic bags, but also to single use carrier bags made of paper and plant-based material like starch because, "other alternatives to plastic bags can be equally damaging to the environment." Services, like shoe repair and launderettes, will not be subjected to the levy. In addition, the levy will not apply if the goods are not sold, for instance if a single use carrier bag is used for promotional or free items such as catalogues, samples and leaflets. Some bags are

exempted based on the grounds of hygiene and food safety, the protection of both goods and consumers, and confidentiality in relation to prescription medicines.

Environment Minister Alex Attwood said he hoped to see an 80 per cent reduction in the use of carrier bags as a result of the levy. The Minister has also proposed that should the levy prove a success, he would increase the charge to £ 0.10 and extend it to include low cost reusable bags by April 2014.

Things got moving in June 2011, when Mr Attwood revived plans to introduce a bag tax that were withdrawn in the last assembly after protests from retailers and environmentalists.¹¹³ Originally, a £ 0.13 charge was planned – the equivalent of the EUR 0.15 charge that the Republic of Ireland started with in 2002 – but this was later lowered to £ 0.05.¹¹⁴ The Minister said he recognised that consumers will need time to change their behaviour and adjust to bringing their own bags when they shop, and he therefore proposed to discount the charge to five pence in the first year, when the levy will only apply to single use carrier bags.

MANAGING PLASTIC BAGS IN NON-EU EUROPE

ALBANIA

Shqip Top Channel (2011) reported Albanians used 1,500,000 plastic bags [per day].¹¹⁵ A national ban on using plastic bag as food packaging in Albania was implemented in January 2013.¹¹⁶ Food products that have contact with plastic-bag packaging, such as bread, cheese, meat, butter and sausages, will have to be sold in paper bags.

The National Food Authority has also called for a citizen-awareness effort and that manufacturers of certain heavier-weight plastic bags will have to pay a fee. The measures were taken because there was no control in Albania whether the plastic bags, mostly made from recycled plastic bags, were certified for containing these food products.

The Ministry of Environment had planned a draft decision for limiting and then banning the usage of plastic bags in 2011. Originally, it was planned to ban the production and importation of non-degradable bags by September 2012, and to implement a total ban in all trading units by January 2013. In 2012, it became clear that the ban would be limited to plastic bags used as food packaging.¹¹⁷

There is a tax on Plastic Packing in Albania fixed at:¹¹⁸

- a) 2 leks (EUR 0.0144) per piece for packing with capacity over 1,5 litres;
- b) 1 lek (EUR 0.0072) per piece for packing with capacity 1,5 litres or less than 1,5 litres.

BELARUS

No useful information on national policies on plastic bags in Belarus was found during the research phase of this report. It is reported that plastic bags account for 7-9 per cent of all municipal waste.¹¹⁹

BOSNIA AND HERZEGOVINA

Plastic bags are used extensively in Bosnia and Herzegovina (BiH), as they are freely distributed in supermarkets and owners of commerce stores do not offer alternatives. The monthly



consumption of plastic bags amounts to about 100 million pieces.¹²⁰ Only one per cent of the plastic bags are recycled.

In December 2012, it was announced that the Centers for Civic Initiatives (CCI), together with the Ministries of Environment in the Federation of BiH (the FBiH) and the Republic of Srpska (RS) had developed a project that aims to reduce the use of plastic bags.¹²¹ The project proposes to impose a fee on thin plastic bags (<20 microns), which would reduce the use of plastic bags. The goal is that customers at the supermarket cash register pay 0.10 BAM (EUR 0.05) for shopping bags, which have so far been free of charge. Money raised from the payment of plastic bags would be given to the entities' (FBiH and RS) funds for environmental protection, where it will partly used for the production and promotion of biodegradable and reusable bags. The fee is intended to be implemented in the first half of 2013.

CROATIA

Croatian consumers use around 8,750 tonnes* of plastic bags each year.¹²² In May 2012, the Ministry of Environmental and Nature Protection announced the introduction of an obligatory charge for plastic bags, through a rulebook concerning the new Waste Act.¹²³ The fee has not been established, but a charge of two Kuna (EUR 0.26) per piece was suggested, which would be paid to the Fund for Environmental Protection and Energy Efficiency Fund, and would be intended for the realisation of projects that help improve the environment.

Environment Minister Mirela Holy stated that the rules on packaging and packaging waste should apply from January 1, 2013, after adopting the Waste Act. The ministry assured that Croatia is not planning to prohibit the use of plastic bags, but will introduce benefits to discourage their use and ultimately reduce the load on the environment. The decision came after relentless campaigning of environmental organisation Animal Friends Croatia, which collected over 27,000 signatures.¹²⁴

Under the present regulations, importers and manufacturers of plastic bags must already pay 1,500 kuna (EUR 201) per tonne as a charge for waste management. The regulation came into effect in 2008, when plastic bags were officially considered as packaging and subject to a type-of-material based deposit fee. There is no national recycling scheme for plastic bags.

ICELAND

Around 16 million bags were sold in 2004 (in a population of around 300,000, equating to an annual per capita consumption of 53 bags). There is a EUR 0.20 levy on lightweight plastic carrier bags since 1995.

In Iceland there is no national regional or local regulation in place regarding the distribution, disposal or recycling of plastic bags. Nevertheless, since Iceland is an EFTA member, legislation such as the Packaging and Packaging Waste Directive also apply on its territory, and plastic carrier bags are thus considered as packaging in Iceland.

The revenue from the levy is used for a number of projects, most of which have an environmental focus. The pay-for-your-plastic bags policy has allocated nearly EUR 7 million since it was introduced in 1995.¹²⁵

* At 8.75 g per bag, this is around 233 bags per person per year.



MACEDONIA

Macedonia has revealed that it intends to implement a total ban on plastic shopping bags, prompting a switch to biodegradable bags by 2013 (2011).¹²⁶ The Balkan republic of Macedonia already outlawed the issue of free plastic bags by retailers and markets in January 2009.

Since 2009, shops have either charged for them or provided paper bags instead. Plastic bags of a 14 micron thickness, with a carrying capacity of at least 5kg (about 11 lbs) can be purchased by customers for around one Macedonian denar (EUR 0.016) each. A review of this order in early 2009 showed a reduction of the use of plastic bags by retailers of up to 82 per cent as compared to numbers from November 2008.¹²⁷ The review also showed that there was a need to increase the minimum thickness for the bags used to carry heavier items and so starting in May 2009, the thickness for such bags is 21 microns. In 2011, the reduction of plastic bag use stabilised at a 40-50 per cent decrease (compared to pre-2009).

It is reported that a change to the production of 'green' recyclable plastic bags will not present major difficulties for the 25 companies that manufacture plastic bags in Macedonia.

MOLDOVA

At the time of writing, no information on plastic bag use or relevant national policies in Moldova could be found.

In May 2012, the *Hai Moldova* (Let's do it! Moldova) project gathered 111,276 volunteers, which is over 3 per cent of the total population, for a national cleanup day.¹²⁸ The organisers reported that 697,694 plastic bags were collected during the one-day event. Let's do it is a yearly national cleanup day action that originated in Estonia in 2008. In Moldova, the first edition took place in 2011, and it was an immediate success with around 113,000 volunteers showing up.

NORWAY

Norwegians used about 1 billion* plastic shopping bags in 2008 (around 200 bags per person).¹²⁹ The bags account for about three per cent (15,000 tonnes) of the total amount of plastic waste, and approximately one per cent of all household waste. Mepex Consult AS reported that consumers must pay for carrier bags in Norway's grocery sector, normally around NOK 0.70 (EUR 0.10).

Altogether about 18 per cent of all the plastic carrier bags are recycled as material while ca. 52 per cent undergo energy recovery and ca. 29 per cent is sent to landfill (2008 figures). The introduction in 2009 of new restrictions on waste disposal has reduced the volume of residual waste and therefore the number of carrier bags ending up in landfill. All residual waste in Norway is now incinerated with heat recovery, and most of the plastic bags are energy recovered.

Some shops use biodegradable bags. ICA (a Swedish chain also present in Norway) started this a number of years ago, other chains are planning to do the same. This is encouraged by the NGOs, but many also point on the problems when these bags are mixed with the conventional plastic bags recycling. Also, in Norway, only a small proportion the waste is composted, so there is very little need for biodegradable bags.

* Fruit bags, garbage bags and other "bags on roll" not included.

In 2008, a number of political initiatives, national and local, proposed to ban plastic carrier bags in Norway. In March 2008, Environment Minister Erik Solheim appeared on television with such a proposal, after which the ministry instructed the Pollution Control Authority (SFT) to undertake a review of the issue.¹³⁰

The report, commissioned by SFT and carried out by Norconsult, declared that plastic carrier bags are an 'insignificant' environmental problem and should not be banned.¹³¹ Around 60 percent of the billion or so plastic carrier bags used annually are reused to dispose of household waste, and 22 percent is used as packaging to bring empty bottles, metal, glass and clothes to recycling points. Therefore, very few bags end up littering the countryside in Norway, and there is only an 18 per cent "overuse" of plastic bags. SFT noted that all the indications are that plastic bags, from a lifecycle perspective, outperform paper bags on an environmental level. In addition, the report stressed the difference of Norway's situation with other countries, such as limited littering problems, the use of thicker LDPE bags, a take-back system for all types of plastic packaging including plastic bags, and the use of carrier bags in advanced sorting at source systems.

The Norconsult report was partly based on a study by Mepex Consult AS that was conducted during the same period. The Mepex study, commissioned by the Plastretur (The material company for plastic packaging, operated by Green Dot Norway) and its stakeholders*, concluded that a ban on plastic carrier bags would not only be a drastic measure in relation to their actual environmental impact, but also illegal under the EU Packaging and Waste Directive. The study also said a ban could lead to less flexibility and a loss of efficiency in the distribution and use of bags in sorting at source in many Norwegian local authorities.

The outcomes of the SFT report eventually lead to a rejection of the proposed ban on plastic carrier bags.

PREVIOUS TAX

The Norwegian Resource Centre For Waste Management & Recycling, notes (2011)¹³² that when plastic shopping bags were introduced in Norway in the 1960s, they were free of charge and were welcomed by the public. After several years, the authorities found that consumption had ballooned, and decided to introduce a tax. This resulted in a massive drop in consumption. Waste collectors complained, having been used to handling waste in plastic bags instead of loose waste (this was before wheeled containers and container lifts on the collection trucks were introduced, so there was more manual handling of waste). Giving in to this pressure, the tax was removed, and citizens reverted to placing their waste in shopping bags. Shops began to charge small sums for the bags, but the cost was so low that it offered no deterrent.

SERBIA

According to European Environment & Packaging Law (2012), each Serbian citizen uses at least 250 plastic bags annually – at least one with every store purchase.¹³³ Most end up in landfill as waste bags. Others litter the countryside. Research findings and measurements conducted by the Faculty of Technical Sciences Novi Sad and the Department of Environmental Engineering found that the presence of plastic bags in the municipal waste landfill in Novi Sad is 6.4 per cent or 8,500 tons per year, while 8.7 per cent is hard plastic and packaging waste.¹³⁴

* The Norwegian Retailers Forum on Environmental Affairs, the Federation of the Plastics Industry, and the Confederation of Norwegian Enterprise, Food and Beverage.



In February 2012, Serbia announced its decision to restrict the use of plastic bags through a tax. The project launched by the Environment Ministry was a new idea in the country aimed at encouraging the use of biodegradable products which, it says, poses less threat to the environment. The ministry said manufacturers and importers of plastic bags will have to pay a fee of about EUR 220 per tonne. Producers of plastic bags that contain biodegradable additives will pay about EUR 10 per tonne, and there will be no charge for those producing fully biodegradable bags. The government will subsidise the production of compostable and biodegradable bags up to about EUR 70 per tonne. Critics lamented that a weight-based fee will only encourage the production of thinner and less quality bags.

According to the Ministry, the new act is not aimed at enforcing an immediate end to plastic bag use; rather it will sanction those who would use bags in the future, and over time allow for a complete end to their use. The act is part of the 2007 National Environmental Strategy aimed at reforming environmental policy and particularly focusing on reducing air, water and soil pollution, encouraging recycling and a more environmentally friendly waste management, and at increasing environmental awareness. In 2010, the city of Vrankje considered requiring supermarkets to offer paper bags instead of plastics, but the measure was never enforced.

SWITZERLAND

The Swiss buy about 850,000 tons of plastic items every year.¹³⁵ Experts estimated around 3,000 tons* of these items are plastic bags. Coop and Migros, the main network giants in Switzerland, annually distribute more than 240 million of plastic bags per year for free. In December 2012, Switzerland's Federal Parliament approved a motion banning single-use plastic shopping bags.¹³⁶ It is now up to the government to put the ban into action.

The motion was introduced by Dominique de Buman, a member of the lower chamber of the federal parliament (Nationalrat), and was approved by both houses of the Swiss Parliament, i.e. the House of Representatives and the Senate.

Earlier in 2009, the Canton of Jura, a rural area in the north-west, had already banned the distribution of plastic bags.¹³⁷

According to the Swiss plastics industry association (KVS), single use plastic bags, issued free-of-charge in shops, represent 0.5 per cent of the total amount of plastics used. Ninety nine per cent of all plastic waste arising in the country is recycled or used for thermal recovery for electricity generation or long-distance heating. KVS said it therefore regrets the decision to ban plastic bags, especially as arguments against the motion were presented by the federal council (Bundesrat) and an advisory commission.

UKRAINE

Ukraine is planning a ban on plastic bags up to 20 liters, regardless of their thickness.¹³⁸ The updated draft law "On limiting production, use, import and distribution of plastic bags in Ukraine" appeared on the website of Regional Development on September 14, 2012. All biodegradable bags are exempted from the ban. The ban will come into force one year after the adoption of the law.

* At 8 g per bag, this amounts to around 375 million plastic bags, or 47 bags per person (per year).



In the previous version of the bill, published in March 2012, the ban was limited to bags with a thickness less than 0.025 mm, while biodegradable bags with a volume of less than ten liters and a thickness of less than 0.015 mm were banned as well.¹³⁹

The question on banning plastic bags in Ukraine has been discussed since the end of 2011.¹⁴⁰ In February, the Ukrainian Polymer Industry Representatives Council CUPI has initiated a discussion of the resonance bill at the VIII International Business Forum "Polymer Club." As a result of the event, the participants signed a petition expressing strong opposition to the norms of the document. CUPI sent a request aimed to include its representatives to the working group on the development and discussion of the bill, which was refused.

MANAGING PLASTIC BAGS IN NORTH AFRICA AND THE MIDDLE EAST

THE MEDITERRANEAN SITUATION

Whereas nowadays twice as much municipal waste is currently produced in Europe as in the Maghreb countries (around 500 kg/capita/annum in Europe compared with 250 kg/capita/annum for the Maghreb countries), per capita waste production in the countries in the South and East has risen by 15 per cent over the last ten years. Changing consumption patterns, largely as a result of imports and the importation of manufactured goods, is driving a change in waste composition. Municipal waste in the South and East of the Mediterranean currently contains twice as much organic waste than European dustbins. However, this discrepancy is changing with some categories such as plastics showing an increase in the Mediterranean countries.

Plastics range between 37% – 80% of the total items collected on beaches. The floating plastic debris at the Mediterranean Sea can be estimated at approx. 60% - 83%. Analysed monitoring data from sea floor litter results in a range of 36% - 90% composed by plastics.

Table 7: overview of the marine debris in the Mediterranean Sea and the different categories

Marine debris in the Mediterranean sea	Categories of debris		
	Range of beach litter per 100m	Range of floating litter per area	Range of sea floor litter per area
Percentage of plastic (in % of total value)	37% - 80% (11)*	60%-83% (3)*	36%-90% (12)*

**number of studies referring to the aggregated data*

Above of this unsustainable trend in consumption patterns, these countries often suffer from an inadequate state of waste collection and treatment, with disposal in (often uncontrolled) landfills as still being practically the only method of waste disposal. Many towns only have unregulated dumps, which have existed for decades for the disposal of all types of waste produced but whose capacity cannot keep up with current production.

In the Mediterranean Sea, the situation of marine litter and especially plastic litter has taken threatening dimensions. Despite all the efforts made on an international, regional and national level, there are clear indications that the marine litter is increasing. In July 2011, a Franco-Belgian research team announced the results of their research; there were almost 250 billion small pieces of plastic in the Mediterranean and an additional 500 tonnes of dissolved plastic litter on the surface of this sea.



With these challenges in mind, strategic partnerships have been set up such as the ACR+ MED network, which seeks to become a catalyst to foster multi-stakeholder networking in the field of waste management services at local and regional level. ACR+ MED aims at taking into account the specificities of the region and at increasing expertise through the exchange of experiences between cities and regions from Mediterranean countries and from Europe.¹⁴¹

ALGERIA

According to the *l'Union nationale des plasturgistes* (2008), Algerians consume six billion plastic bags each year (180 per inhabitant/y), representing 1.5 per cent of household waste.^{142,143} On 17 February 2009 Executive Decree No. 09-87 established a tax of 10.50 DA/kg (EUR 0.01/ kg) on plastic bags imported or locally produced,¹⁴⁴ following Article 53 of the *Finance Act 2004*.¹⁴⁵

In 2005, a new regulation was introduced that imposed normalisation of alimentary plastic bags. Certain standards had to be met and black plastic bags were banned,* after it was shown they contained heavy metals and other carcinogens.^{146,147} The regulation did not have much effect though, and black plastic bags remained widely used. In 2010, realising the pollution had reached alarming proportions, the Ministry of Environment decided to take action and reactivated the normalisation of alimentary plastic bags, with inspection missions of the ministerial committee through all *wilayas* (Provinces). In September 2012, the president of the Algerian Federation of Consumers announced one million baskets made of Esparto (*Alfa* in French) will be handed out for free over a period of five years to replace black plastic bags.

EGYPT

In Egypt, around 1,000,000 tonnes of plastic waste is created each year, of which 30 per cent is recycled and 5 per cent is re-used.¹⁴⁸ The amount of plastic bags used annually is estimated to be well in the billions.¹⁴⁹ Plastic bags are freely distributed in all but one governorate.

In 2009, the governor of the Red Sea governorate banned the use of plastic bags at local supermarkets after a year long campaign against plastic bags.¹⁵⁰ The decision was a result of increasing concerns on environmental issues in the Red Sea. According to The Hurghada Environmental Protection and Conservation Agency (HEPCA), it is estimated that the cause of death of 70 per cent of the deceased turtles in the Red Sea was ingestion of plastic. Unfortunately, one year after the passing of the decree, plastic bags were still commonly provided by reputable establishments that are known for their high standards, HEPCA said.

In July 2008, Carrefour started selling reusable plastic bags for LE 5 (EUR 0.57) per bag. The supermarket chain said the initiative was a success with reported sales of 10,000 of these bags a month.¹⁴⁹

ISRAEL

Ayalon *et al.* (2009)¹⁵¹ report that two billion carrier bags in Israel are used each year.† Plastic carrier bags are provided free of charge – a law banning free plastic bags has been proposed though – so there is a tendency to use these bags excessively. According to a 2005 solid waste

* Non-coloured plastic bags are still allowed.

† The estimate of the Ministry of the Environment is even larger, i.e. a little over five billion. This estimate was based on the weight (tonnes) of HDPE bags sold to retailing chains each month. 2 billion bags amounts to around 270 bags per person.

composition survey in Israel, different types of plastic bags constitute 28 per cent of the volume of the waste and 7 per cent of the weight of the waste.¹⁵²

Another survey revealed that 6 per cent of these bags, 120 million bags annually, are used for outdoor activities (such as carrying picnic food) and might become litter, if left outside and not disposed of properly (Figure 6).

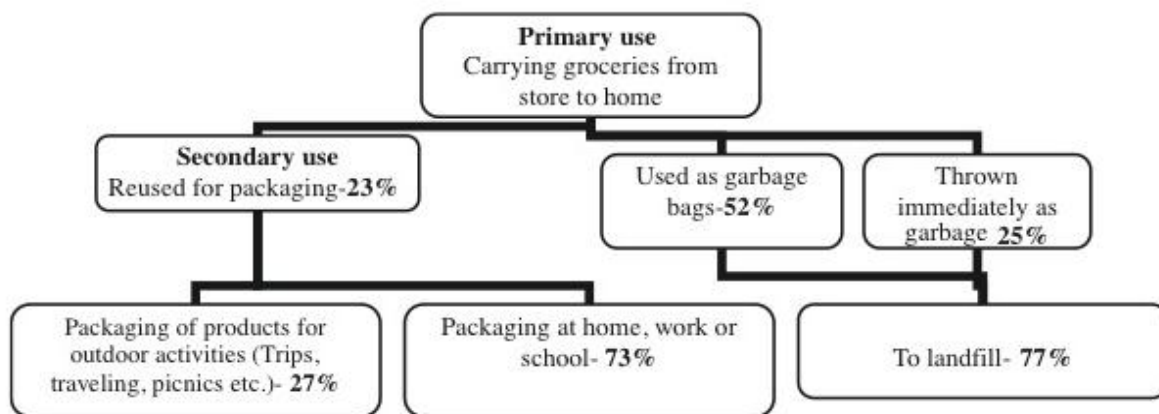


Figure 6: Routes of plastic bags use and disposal.

PROPOSED BAN

A new law banning stores from giving away free plastic shopping bags passed its first Knesset reading in 2008, after months of discussion.¹⁵³ It awaits two more readings until it is enacted as a law. Under the new bill, stores would be permitted to sell biodegradable bags at the cash register. Every plastic bag given to a customer would incur a charge of NIS 1 (EUR 0.20) which will be shown as a separate item on their receipt.¹⁵⁴ The proposal would also subsidize for 6 months the sale of reusable bags, in order to create public awareness of the law. The ban on free bags would not apply to the smaller bags used to collect fresh produce, meat, poultry, and fish, which customers would be able to continue to take for free. The bill is a weaker version of a proposed ban on all distribution and sale of the bags.

The presentation of the research findings to the Internal Affairs and Environment Committee of the Israeli parliament lead to the change in the legislative proposal from the earlier proposed ban on all distribution and sale of plastic bags to a prohibition of free plastic bags. The retailers will also be required to sell multi-use bags and an Israeli standard will be developed to define the minimal quality (strength and size) of the product.

In addition, the study strongly recommends combining explanatory and educational measures encouraging the reduction of unnecessary consumption of bags, as well as the importance of refraining from leaving litter in open spaces and using multi-use bags in outdoor activities.

Besides educational activities, also technological measures play a role in reducing plastic bags consumption (e.g. designated machines that allow pulling one bag at a time). Encouraging bag collection for recycling may also contribute to a reduction of littering.



OTHER INITIATIVES

The Raanana Municipality initiated a first-of-its-kind experiment aimed at collecting plastic bags for recycling in January 2009. Twenty-five special containers were placed across the city, and the public was asked to toss different types of plastic bags into them. According to Amnir Recycling Industries, the company collecting the bags, plastic bags had not been recycled in Israel in the past as this was an unprofitable move for a commercial company. The company's spokesman noted that if local authorities become a player in this field and participate in the operational costs, the process would be more feasible. At the time of writing, no news was available on the actual cost effectiveness of the action.¹⁵⁵

In 2010, the Campaign Say "No" to Plastic Bags was held in Caesarea to raise awareness. One-thousand Caesarea residents received flyers, free cloth bags and signed their names to the legislative proposal to reduce the use of plastic bags. A group of volunteers from Mercaz HaNoar and a group of adults worked for several hours explaining to supermarket customers, how important it is to stop using non biodegradable plastic bags.¹⁵⁶

JORDAN

Each year, about three billion plastic bags (461 per person) are used in Jordan, according to Abu Dhabi's newspaper The National (2010).¹⁵⁷

Plastic bags are commonly used in Jordan mainly because of their cheap production cost, which hovers between 0.10 and 0.30 fils (EUR 0.00010 - 0.00030), according to the Ministry of Environment. Safeway spends US\$ 1 million a year on 350 tonnes of plastic bags, according to the company's chief commercial officer in Jordan.

The government is intent on cutting down on the use of plastic bags. "A draft policy is in place," said Mohammad Khashneh, the director of the chemicals and waste management directorate at the environment ministry. "One of the scenarios is to impose taxes on plastic bags. We have not specified the taxes though, but this measure requires cabinet approval."

LEBANON

As of January 2013, no ban, tax or other national initiatives on plastic bags were present in Lebanon.¹⁵⁸

There have been local actions though, trying to raise awareness of the damage plastic bags cause to the environment, such as the distribution of reusable cloth bags with anti-plastic slogans.

LIBYA

According to the Master Thesis of N.A.A. Alhderi (2010), 73520 families who live in Al-Khums City used around 138,000,000 plastic bags every year or 1,887 plastic bags per family.¹⁵⁹ Figures for the whole of Libya were not available but are likely to be high as well. At the time of writing, no national policies on plastic bag were in place.

Alhdere states customers were aware of the environmental problems related to plastic bags, and would be willing to change if there were alternatives. The shops on the other hand did not provide the alternatives because the factories did not produce them, while the plastic bag factories were



simply lacking the materials and capacities to produce plastic bags alternatives. The Government of Libya has not provided any national-scale solutions yet, even though they are also said to be informed of the problem.

There have been reports of some awareness actions, organised by local NGOs, in Benghazi and Misurata, with seminars on plastic bag risks and alternatives, public cleaning actions, and hand-outs of reusable bags.^{160,161}

MOROCCO

Estimates of annual plastic bag use in Morocco range from one¹⁶² to three¹⁶³ billion plastic bags. *Loi 22-10*, which came into force January 1, 2011, prohibits the manufacture and import of non-degradable bags for local markets. Manufacturers that do not comply with the requirements under the regulations are liable to a fine of up to one million dirhams (EUR 208,000). Sacks and bags are also obliged to wear their composition, specifications, and final destination.

Earlier in 2009, a ministerial decree had already banned black plastic bags and bags with a thickness under 35 microns through the obligatory application of the Moroccan standard NM 11.4.050 *relating to l'emballage en matières plastiques et les exigences qualitatives et de préservation de l'environnement pour les sacs pour produits de consommation en matières plastiques* (plastic packaging and quality requirements, and environmental protection from consumer product plastic bags).¹⁶⁴

A nationwide awareness campaign to the danger of plastic bags on the environment and the need to use other alternatives was launched in November 2012, under the motto *Maroc sans sacs plastiques* (Morocco without plastic bags). The campaign, sponsored by a local environmental association, Mawarid, seeks to foster public awareness of the danger posed by non-biodegradable plastic bags to the environment and to promote among retailers and consumers environment friendly sustainable alternatives. In terms of campaign actions, Mawarid has planned television spots and an information and sensitisation tour, including the distribution of ecological bags, along the main cities' schools and market places. The campaign acts as a national extension of the 2010-2011 *Marrakech sans sacs plastiques* project.

ECO-TAX ON PLASTICS

Morocco has planned an eco-tax on plastics which will be applied from January 2014.¹⁶⁵ The money that is raised is intended to finance recycling of the plastics. It will consist of a 1.5 per cent tax on manufactured and imported plastics and products made from this material. It took more than a year for the proposition to be accepted because plastics proponents intensively debated the merits of such a measure. They claimed the eco-tax is in contradiction with the spirit of the *law 22-10*, which requires manufacturers to produce degradable bags. Therefore, critics asked for either a reformulation of the environmental tax, which was clearly intended to encourage the emergence of a recycling of plastic products, or a repeal of the law on the production of degradable bags. Experts acknowledged this problem, but still favoured maintaining *law 22-10* as a means to encourage recycling activities. In stead, they expressed the need for a clear determination of the complementarity between this legislation and the new eco-tax. It will be interesting to see which developments will take place before the effective implementation of the tax in January 2014.

STATE OF PALESTINE

At the time of writing, no information could be found on national policies on plastic bags, nor on plastic bag use in the State of Palestine.

SYRIA

In July 2010, the Syrian Ministry of Environment launched a campaign to cut down on plastic bags. The consumption of plastic bags in Damascus and its vicinity is estimated at 15 million bags per day*, though NGOs claim that the actual number is much higher.¹⁶⁶

Where bags litter highways, byways and in a region where camels choke on plastic bags, Syria is joining other countries in the Middle East, such as Lebanon, and the UAE in campaigning to ban plastic bags.

According to Syria News as the first step in its campaign '*No to plastic Bags*', the Ministry of Environment distributed (June 28, 2010) thousands of fabric and paper bags to retailers. The campaign also encouraged reuse of paper bags, which have become eclipsed by the popular plastic bags. In the second phase of the campaign, the Syrian Ministries of the Environment and Finance are believed to be planning to impose a tax on the plastic bags in order to make them more expensive, and to discourage their use. The Environment Ministry has also been exploring alternatives such as biodegradable plastic bags.

TUNISIA

It is estimated that around 10,000 tonnes of plastic bags are used in Tunisia each year, equating to around 1.25 billion bags at eight g/bag.¹⁶⁷ At the time of writing, no law or tax was in place to restrict the use of plastic bags in Tunisia, though a large voluntary agreement has recently been set up.

Albawaba News reports a public awareness campaign was launched in 2005 for the reinforcement of the quality control of the plastic bags and of the specifications to their production and the importation.¹⁶⁸ The aim of the campaign was to raise the awareness of the public on the use of plastic bags as well as informing people on standards of quality such as the obligatory use of the label "Ecolef" on plastic bags.

According to Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Tunisia, 940,000 reusable plastic bags have been sold in Tunisia's big supermarkets between 2009 and November 2012.

VOLUNTARY AGREEMENT

On 29-30 November 2012, a workshop was organised by the Ministry of the Environment with the support of GIZ, inviting large retailers, civil society, and state institutions around the same table.¹⁶⁹ The main objective of the workshop was to agree on a roadmap for reducing single-use plastic bags in major retail chains in Tunisia. A roadmap was identified based on three axes: i) political and economic instruments; ii) alternatives to plastic bags; iii) communication and raising consumers' awareness

Political and economic instruments:

- Realise benchmarking of incentives to consumers (no planned date)
- Conduct and evaluate pilot incentive measures (no planned date)
- Initiate a process for a voluntary agreement (no planned date)

* This amounts to around 243 bags per person per year.

- Reflect on legislation for the gradual reduction of plastic bags (no planned date)

Alternatives to plastic bags:

- a techno-economic and environmental study on the alternatives of plastic bags (first quarter of 2013)
- set up partnership to discuss the alternatives (first quarter of 2013)
- set up evaluation workshop (end of first quarter 2013)
- sponsor at least two studies on the alternatives on plastic bags (no planned date)

Communication and raising consumers' awareness:

- Organise a national day without carrier bags (first quarter of 2013)
- Develop a communication plan on the reduction of plastic bags (second quarter of 2013)
- Develop and implement a training program for people that can be a vector for communication (no planned date)

For the implementation of this roadmap, the participants recommended to implement one steering committee involving all stakeholders (Retailer's Trade Federation, Ministry of Environment, ANGED, CITET, Packaging Industry Trade Federation, consumer organisations, civil society organisations), coordinated by ANGED.

At the end of the November workshop, a declaration was signed by seven major retailers and their Trade Federations well as the Ministry of Environment and its institutions under supervision, including CITET and ANGED.

... We, representatives of the major retailer's brands in Tunisia, Carrefour, Cady, Géant, Magasin Général, Mercure Market, Monoprix and Promogro, under the auspices of the Trade Federation of Large Supermarkets, voluntarily commit to gradually reduce the use of single-use plastic bags, leading to a significant reduction and replacing them with more environmentally friendly reusable packaging. ...

TURKEY

Every Turkish citizen uses an average of 312 plastic bags a year, according to newspaper reports.
170

In Istanbul, the country's biggest city with about 12 million people, around 10,000 tonnes of waste are being collected every day. Plastic bags and other plastic waste make up 950 tonnes, or almost 10 per cent, of the total.

GOVERNMENT INITIATIVES

In June 2009, the government in Ankara was said to be looking at ways to discourage the use of plastic bags. According to the Environment Ministry, one possible step under review was a ban of the black bags that are said to contain carcinogens. The state might also raise taxes on plastic products, which could lead to supermarkets charging money for the bags. Already in 2002, a circular was sent by the Ministry to the Governorships, where Governorships were urged to use alternatives to plastic bags in the major shopping centres. However, such activities have remained relatively limited.¹⁷¹

In 2010, the Ministry of Environment and Forestry created an entire commission tasked with reducing plastic bag usage.¹⁷² An entire Istanbul neighborhood, Kadıköy, was declared "plastic bag



free". However, in 2011, plastic bags were still given out by most shops in Kadıköy. And the new government commission hasn't yet proposed any effective way of truly cutting back the usage numbers.

At the time of writing, none of the government's steps under review (ban or tax), has been executed, except for a local ban of plastic bags on one of Turkey's two Aegean islands, Bozcaada, in June 2011.¹⁷³

PRIVATE AND LOCAL INITIATIVES

Migros Group, Turkey's leading supermarket chain, introduced oxo-biodegradable bags in some shops in December 2008. At the same time, Migros called on its customers to use fewer bags. A Migros spokesman reported that the action had positive results, with fewer bags being used after the first six months.

Environmental activists, convinced that the government is not doing enough to convince shops and customers to look for alternatives, decided to take action themselves in 2009, and initiated several actions together with local authorities aiming to wean Turks off plastic bags. Some urged shoppers to return to traditional habits. In Corlu, a town north-west of Istanbul in the country's European section, a local environmental group distributed 20,000 canvas bags to shoppers.

In 2011, a commercial agreement between a major Turkish plastic processor and an international plastic manufacturer was set up.¹⁷² Under the agreement, Turkish company Polimernet Plastik will buy a set amount of bioplastic resin from Cereplast, an international biobased and compostable plastic manufacturer, and supply it to plastic product manufacturers throughout Turkey. Cereplast agreed to sell Polimernet Plastik 100 tons of biodegradable resin per month: enough to produce approximately 13 million grocery-size plastic bags.

UNITED ARAB EMIRATES

In 2008, around two billion plastic bags* were consumed in the United Arab Emirates (UAE).¹⁷⁴ Amid rising worries about plastic pollution, the UAE brought forward a ban on all disposable plastic products, aside from those made of oxo-biodegradable plastic.¹⁷⁵ As per decree 77/5, the new law was to go into effect on 1 January 2013. The ordinance not only affects plastic bags, but all other packaging and disposable articles made of fossil fuel-derived plastics, including semi-rigid packaging, shrink and pallet wraps and cling film, among others.

All plastic products will need an ECAS Registration Certificate issued by ESMA (Emirates Authority for Standardisation & Metrology), which will be issued only for products made from oxo-biodegradable plastic.¹⁷⁶ These products must be made with pro-degradant additive from suppliers which have been audited by ESMA and they have to comply with *UAE Standard 5009 of 2009*. ESMA said that it intends to inspect plastic bags and other plastic products at port-of-entry and impound consignments without an ECAS Registration Certificate.

In May 2010, the Ministry of Environment and Water in Dubai had already issued a ministerial resolution prohibiting printing on non-biodegradable plastic bags, in line with *decree 77/5* and *Resolution number 5/376 of 2009* which lists the dangers of printing on non-biodegradable plastic bags.¹⁷⁷ Under the new resolution, shops were not allowed to print commercial names, products names, advertisements, and anything else on non-biodegradable plastic bags.

* Around 253 bags per person per year



MANAGING PLASTIC BAGS IN THE REST OF THE WORLD

ARGENTINA

In Argentina, a federal bill has established the national prohibition of the use of polythene and other conventional plastic carrier bags.¹⁷⁸ These are to be gradually replaced with degradable materials for containers and/or biodegradable materials that are compatible with the minimisation of environmental impacts.

In the Province of Buenos Aires, legislation prohibits the use of non-biodegradable bags throughout the province. Businesses will have up to two years to remove the current system and replace it with alternative products such as paper or biodegradable plastic bags.

In Mendoza Province, non-biodegradable bags have been prohibited by Act 7319 of 2004.

AUSTRALIA

In 2007, Australians used around four billion plastic bags (around 178 per person). In 2002, Australia's Environment Protection and Heritage Council* (EPHC) resolved to reduce the environmental impacts of plastic bags. A voluntary retailer Code of Practice was the primary mechanism deployed to achieve this.¹⁷⁹

The Code operated from 2003 to 2005 and committed major retailer signatories to achieve a 50 per cent reduction in plastic bag use by 2005. Major retailers reduced plastic bag use by about 41-44 per cent, and Australians reduced overall plastic bag use by about 34 per cent. Given the limited potential for subsequent voluntary initiatives to significantly reduce plastic bag use, in June 2006 EPHC committed to phase out plastic bags by the end of 2008, and to consider regulatory options for achieving this. EPHC reaffirmed this objective in June 2007.

In Australia, the predominant types of plastics used for plastic bags are high-density polyethylene (HDPE) and low-density polyethylene (LDPE). The HDPE 'singlet' bag is usually (but not always) 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 and fashion outlets.

In 2006, the consumption of plastic bags in Australia was estimated to be 3.36 billion HDPE plastic bags, of which 40 million are estimated (based on the National Litter Index) to have ended up in the litter stream.¹⁸⁰ The steady decline in the consumption of HDPE bags experienced since 2002 ceased during 2007, and consumption of bags increased by 17 per cent to 3.93 billion in 2007. Overall however, plastic bag use has still fallen by 33.9 per cent from 2002 to 2007.

* Australia's Environment Protection and Heritage Council (EPHC) is a group of Ministers from participating jurisdictions (i.e. Commonwealth, State and Territory Governments, the New Zealand Government, and the Papua New Guinea Government).

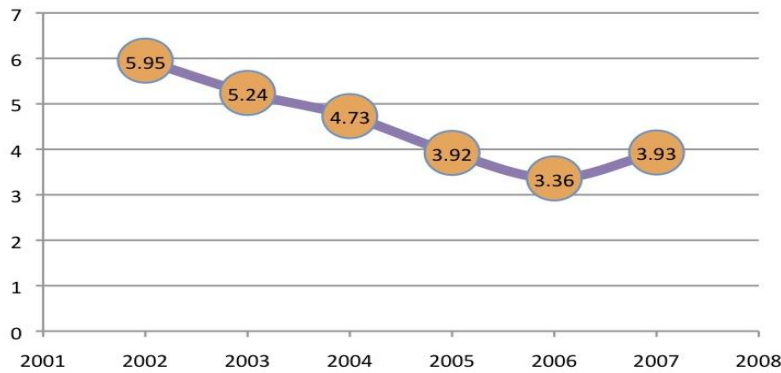


Figure 7: Estimated HDPE bag consumption in Australia, 2002 to 2007 (billions of bags per year)

Since 2009, several states and territories have taken individual action and introduced bans on lightweight plastic bags(see further).

NATIONAL APPROACH

The NSW Group Office of Environment and Heritage (2011)¹⁸¹ for the Government of New South Wales reports that a national process is underway via the Australia-wide ministerial council Environment Protection & Heritage Council (EPHC) that is developing national standards for degradables.¹⁸² The current tranche of work concerns biodegradability in marine and freshwater environments, and on land.

A Consultation Regulatory Impact Statement (RIS) in January 2007 found that regulatory options for a phase-out had economic costs which significantly outweighed the environmental benefits. In April 2008, EPHC noted the analysis presented in a Decision RIS on plastic bags, particularly the financial costs of regulatory options, and resolved not to endorse uniform regulatory action at this time, or to ban or place a charge on plastic bags.¹⁸³

For the purpose of the EPHC RIS, a plastic bag is defined as:

a carry bag, the body of which comprises polymers in whole or part, provided by the retailer for the carrying or transporting of goods, but does not include a carry bag which complies with prescribed design criteria.

The prescribed design criteria define features (the presence of any one of which indicates that the bag is not a plastic bag) are:

- a thickness greater than 45 microns
- has no handles
- is the product's integral packaging
- is designed for multiple use as a carry bag (i.e. more than ten re-uses).

The EPHC RIS considered four scenarios (against a 2007 base case):

- Option 1: litter management
- Option 2: mandatory retailer charge at point of sale
- Option 3: government levy

- Option 4: ban on plastic bags

While the cheapest option, the litter option is not the most effective at addressing the market failure, the community desire for action, nor the EPHC’s commitments to phase out plastic bags. If a mandatory retailer charge were selected as the preferred mechanism, 25c has been modelled as being cheaper for the economy than the 10 or 20c options. The RIS noted that this option has least impact on business of the regulatory options and scores best in the Multi-Criteria Decision Analysis which takes into account a broader scope of variables than Cost Benefit Analysis. Options that substantially reduce plastic bag consumption have a greater chance of reducing plastic bag litter. This is particularly the case where an economic signal makes consumers think before purchasing otherwise ‘free’ plastic bags.

CONSUMPTION OF PLASTIC BAG ALTERNATIVES

The efforts to reduce the use of lightweight thin-walled HDPE bags has led to increased use in alternative forms of shopping bags. Since the introduction of the reusable ‘green’ bag into the Australian retail market in 2002, their use as a retail bag has surged rapidly. The most commonly used reusable bags are manufactured from polypropylene.

Based on shopping observations undertaken by Hyder Consulting, 13 per cent of transactions in stores that do not charge for thin-walled bags involved the use of a designed for purpose reusable bag.¹⁸⁴ A further 15 per cent of transactions did not. Within stores that charge a fee for thin-walled bags provided, 33 per cent of transactions involved a reusable bag and 40 per cent of transactions did not. This seems to indicate that the introduction of bag charges at a retail level does lead to a major shift from thin-walled bags to reusable bags or no bag transactions.

Hyder noted that it is often argued that the environmental gains achieved through a reduction in the consumption of plastic bags could be reduced or offset by the environmental impacts of increased use of plastic bag alternatives such as kitchen tidy bags. An analysis of kitchen tidy bag sales growth over the period 2002 to 2006 was undertaken to provide a comparison of the relative change in plastic bag use and the number of kitchen tidy bags sold in units and tonnes.

The analysis presented in Table 11 indicates that the reduction in the use of plastic shopping bags significantly outweighs the increase in kitchen tidy bag sales.

Table 11: Comparison of change in plastic bag and kitchen tidy bag use (Australia, 2004-2006)

	2004	2005	2006
Decrease in HDPE bag use from previous year (millions)	510	810	560
Decrease in HDPE bag use from previous year (tonnes)	2,777	4,498	3,455
Increase in kitchen tidy bags sold from previous year (million)	26	31	38
Increase in kitchen tidy bags sold from previous year (tonnes)	251	300	364
Net change in materials use (tonnes)	-2,526	-4,198	-3,091

SOUTH AUSTRALIA

In 2009 South Australia led the nation with a ban on lightweight, checkout-style plastic bags.¹⁸⁵

South Australian shoppers were quick to embrace the State’s plastic bag ban. Research undertaken by the Ehrenberg-Bass Institute for Marketing Science at UniSA showed that more than nine in ten shoppers took reusable bags to do their shopping, compared to about six in ten before the ban took effect.

With this South Australian Government initiative there are almost 400 million fewer plastic bags in South Australia every year.¹⁸⁶

Since 2006 the Government has worked with retailers and unions to promote a smooth phase-out of the bags and to ensure risks for retail workers are minimised. Zero Waste SA worked with a task force comprising major retailers, the State Retailers Association of South Australia, Hardware Association of SA Inc., Restaurant & Catering SA, Consumers' Association of South Australia, Conservation Council, Local Government Association, KESAB environmental solutions, and the Shop Distributive & Allied Employee's Association. The ban prohibits retailers from selling or giving away plastic bags with handles made of PE less than 35 microns thick.¹⁸⁷ Thin-walled plastic bags which are marked 'degradable' are banned because degradable plastics merely break down into smaller and smaller flakes. Only compostable bags that comply with Australian Standard AS4736-2006 are permitted.



Retailers are protected from unknowingly buying banned bags and supplying them to their customers. If a supplier provides a retailer with bags they know are banned, they will be guilty of an offence (maximum penalty: A\$ 20,000). Every retailer in South Australia must comply with the transition and ban dates. Large and small retailers, supermarket and non-supermarket retailers, markets, take-away food and specialty shops must all comply with the ban.

AUSTRALIAN CAPITAL TERRITORY

In December 2010, the Australian Capital Territory (ACT) Legislative Assembly passed legislation to ban lightweight plastic bags in the ACT. *The Plastic Shopping Bags Ban Act 2010* came into effect on July 1, 2011 when a four-month transitional period began to allow residents and retailers time to adjust to the ban, which began on November 1, 2011.¹⁸⁸

The announcement followed a comprehensive study of community attitudes towards the use of plastic bags in the retail environment carried out in August 2009.¹⁸⁹

WESTERN AUSTRALIA

In April 2010, the *Plastic Shopping Bags (Waste Avoidance) Bill 2010* was introduced into the state's Legislative Council, with the aim to ban thin-walled plastic shopping bags.¹⁹⁰

NORTHERN TERRITORY

In February, 2011 Australia's Northern Territory Legislative Assembly passed a law to ban plastic shopping bags, with a phase-out starting in May, 2011 and the ban became fully implemented on September 1, 2011.¹⁹¹ The *Environment Protection (Beverage Containers and Plastic Bags) Act 2011* is an element of the \$ 34 million Northern Territory Climate Change Policy released in December 2009.¹⁹²



Based on national consumption rates, approximately 40 million lightweight thin-walled plastic bags are currently used in the Territory each year. Gains made in reducing consumption through voluntary, co-operative arrangements have now been achieved. The Territory Government believes that greater intervention is now required to stabilise or further reduce consumption.



The ban prohibits retailers from selling or giving away lightweight plastic bags designed for single use. The Territory will follow a similar approach to South Australia. Northern Territory legislation will prohibit the supply by retailers of plastic bags with handles that are made of polyethylene polymer less than 35 microns thick.

In the Territory, the ban does not extend to:

- reusable 'Green bags' (heavy PP bags designed to be reused over 100 times).
- recycled bags you bring along yourself.
- heavier retail (or boutique) bags, typically used by clothing and department stores.
- biodegradable bags that state they meet Australian Standard AS 4736-2006
- barrier bags, the type dispensed from a roll, typically for items such as loose fruit and vegetables.

VICTORIA

State agency Sustainability Victoria was established by law as a state agency in 2005. It has not adopted an interventionist stance on plastic bags, preferring to take an encouraging role with a 'Use less bags' campaign.¹⁹³

AUSTRALIAN NATIONAL RETAILERS ASSOCIATION (ANRA) PLASTIC BAG CHARGE TRIAL

In 2008 KPMG were commissioned by Australian National Retailers Association (ANRA) to provide advisory assistance in connection with the trial of a Victoria state Government and Industry charge on plastic bags.¹⁹⁴ This trial was conducted in the four week period from August 18, 2008. The quantitative and qualitative data collected focused on testing five hypotheses:

- **Hypothesis 1:** A 10 cent levy for plastic bags at supermarket checkouts reduces bag consumption by 80 per cent
- **Hypothesis 2:** A 10 cent levy does not change customer shopping habits, i.e. encourage customers to shop elsewhere
- **Hypothesis 3:** The 10 cent levy is likely to cause a long term change in customer behaviour with regard to shopping bag usage
- **Hypothesis 4:** customers use checkout bags as bin liners and a reduction in use will stimulate demand for bin liners
- **Hypothesis 5:** customers and checkout staff are not aggrieved by the introduction of a levy.

The trial concluded that there was a 79 per cent reduction in the use of plastic bags with the 10 cents charge. This does not necessarily equate to 79 per cent fewer people using these bags, as some customers and staff observed more items being packed into each bag.

Of the customers surveyed, 91 per cent responded that they had tried reusable bags, and 70 per cent of these claimed to have made it a habit. Some 87 per cent of respondents indicated they would use reusable bags if the 10 cent charge became permanent. KPMG noted that there was strong support (45 per cent) for a ban on plastic bags.



QUEENSLAND

In 2010 the state of Queensland issued a Waste Reduction and Recycling Strategy 2010-2020¹⁹⁵ which set a number of targets, including:

- reduce waste to landfill and landfill gas emissions
- increase recycling of municipal solid waste recycling to 50 per cent by 2014
- recycle 150 kg household waste per person per annum by 2010
- reduce total amount of litter

Household waste reduction initiatives included educational campaigns based on the waste hierarchy and focusing on consumer purchasing decisions and plastic bag reduction. This is the only mention of plastic bags as a state-level priority issue.

TASMANIA

On November 10, 2010 the Tasmanian Government's Minister for Environment, Parks and Heritage, David O'Byrne, committed to taking a proposal to Cabinet to implement a ban on lightweight plastic bags.¹⁹⁶ He said the Government's preference had always been for a national approach to addressing plastic bags, but the federal Environment Protection and Heritage Council had been unable to reach a resolution.

Through the Environment Protection Authority's Waste Advisory Committee, the Tasmanian Government began initial consultation with local government, industry and the community on potential ways to reduce the waste going to landfill and increasing opportunities for recycling.

NEW SOUTH WALES

In 2011, the New South Wales Department of Environment, Climate Change and Water (DECCW) published a review of waste strategy and policy (DECCW, 2011).¹⁹⁷ Within this, the Total Environment Centre (TEC) was commissioned to examine the issue of 'problem' wastes that contaminate recycling materials. TEC has identified the main contaminating materials, ranking them by impact, and suggested policies and practices to address each of the priority contaminants.

TEC recommended a possible ban on non-degradable plastic bags for organics collections. Other possible actions suggested for plastic bags included developing a standard to ensure plastic bags are biodegradable, mandating biodegradable bags and using public education to reduce the use of plastic bags around recyclables. In NSW, both degradable and non-degradable plastic bags are in use. This may result in cross-contamination i.e. non-degradable bags mixed with degradable (compostable) bags, lowering the quality of the compost products, while degradable bags mixed with plastics recycling affect the integrity of the recycled plastic material.

DECCW (re-christened Office of Environment and Heritage in April 2011) also published an implementation strategy.¹⁹⁸ Office of Environment and Heritage (OEH) confirmed (2011)¹⁹⁹ that the NSW strategy includes accelerating the introduction of compostable bin bags for food waste to enable streaming with garden waste collection, and phasing out the use of non-compostable bags (other than reusable bags) in food and grocery outlets.



BANGLADESH

PLASTIC BAG BAN IN DHAKA CITY, BANGLADESH

A survey report showed that some ten million PE bags were used every day. Each year about 3 billion bags were dumped in Dhaka City alone.²⁰⁰ Some 14.1 billion bags used to be used annually in homes in Bangladesh, before these bags were banned in 2002.

The steadily growing use of polyethylene bags led to severe environmental impacts such as soil degradation, loss of soil fertility, blocking of drains and sewers, causing water-logging and the spread of disease.

The anti-bag campaign reached its peak in the aftermath of the 1998 flood, when two-thirds of the country, including a large part of Dhaka City, was under water for nearly two months. Clogging of city drains by PE bags was a contribution. In 1999, Ministry of Environment started an action against polyethylene through its Sustainable Environment Management Programme (SEMP), that led to the formation of a Task Force by the Government under the Ministry to work towards framing a strategy to phase out polythene shopping bags. The Task Force recommended undertaking a detailed study on the production, marketing and use of PE shopping bags including on its socio-economic impacts before making the final decision.

The Ministry then started a vigorous campaign from market to market for sensitisation and motivation and announced that January 1, 2002 shall be the cut-off date for production and use of 20 micron thick PE shopping bags.

NATIONWIDE BAN

The national Government decided to ban production and use of all kinds of PE shopping bags from March 1, 2002. The bill was passed without any opposition. This bill revised the *Environment Conservation Act 95*, stating that (Section 6a):

If, on the advice of the Director General or otherwise, the Government is satisfied that all kinds or any kind of PE shopping bag, or any other article made of PE or PP, or any other article is harmful to the environment, the Government may...issue a direction imposing absolute ban on the manufacture, import, marketing, sale, demonstration for sale, stock, distribution, commercial carriage or commercial use, or allow the operation or management of such activities...

Reazuddin *et al.* concludes that banning PE bags has been a success. Now the city bins and garbage dumping sites are almost free of polythene shopping bags. The city drains are no longer clogged. Growers are happy to see that demand for jute products in the domestic markets is going up. PE shopping bags manufacturers have since been engaged in the production of alternative bags and many jobs have been created.

BERMUDA

Bermuda may impose a nationwide ban on plastic bags, Deputy Premier Derrick Burgess revealed (November 13, 2010).²⁰¹

He told the House of Assembly that the bags had a lifespan of up to 400 years and caused serious harm to the environment. "We are proposing to ban plastic bags," he said.



BOTSWANA

Botswana implemented a ban on plastic bags less than 24 micron thick in July 2007. At the same time a tax was imposed on plastic bags, which led retailers to place a price on plastic bags.²⁰²

Importantly, the legislation did not stipulate that retailers had to charge for the stronger plastic bags. The application of this price-based tool came about when retailers voluntarily decided to impose their own prices (on top of the tax). This is said to be unique because it allows market forces to determine the equilibrium price, without distorting the market share of any retailer or influencing customers with regard to where they choose to do. Retailers now charge different prices, ranging from BWP 0.20 to 0.35 (EUR 0.02 to 0.035)

The consumption of plastic bags was relatively stable across the selected retailers until the introduction of the plastic bag legislation in July 2007. Plastic bag consumption fell sharply and remained around 50 per cent lower 18 months after charging for them began.

COMPARING TAXATION AND REGULATION OF PLASTIC SHOPPING BAGS IN BOTSWANA AND SOUTH AFRICA

American think-tank Resources For the Future (RFF) reported (2010)²⁰³ that disposable shopping bags have become a feature of life in Botswana since 1975, when they were first widely issued. In South Africa, they have been issued to shoppers free of charge at most major supermarkets for even longer. This long-term, widespread use has resulted in a negative visual externality: no one is responsible for the used bags littering urban streets and catching on fences in rural areas. However, RFF noted that documented cases of wild and domestic hoofed animals, such as goats and pigs, dying as the result of ingesting plastic bag remnants are surprisingly rare, given the public profile of this issue.

Following NGO and public pressure, Botswana intervened in 2007 to cut the use of the lightweight disposable plastic shopping bags that were formerly distributed free of charge at supermarkets. Four years earlier, in May 2003, South Africa had introduced similar legislation regulating the gauge of plastic used in plastic bags, and requiring open payment for them at checkouts.

WHAT INTERVENTIONS TOOK PLACE AND HOW SUCCESSFUL HAVE THEY BEEN?

In an attempt to answer these questions, RFF sought details regarding the number of bags issued monthly, the sizes of the bags, and the prices charged from the four major retail chains in South Africa and Botswana. Because each of the four chains target a different income group, the data gave some sense of the income elasticity of demand for plastic shopping bags, as well as the price elasticity.

In both countries, the legislation had begun by trebling the minimum gauge of plastic used. The resulting bags could be loaded more heavily without bursting, and could withstand far more re-use. In Botswana particularly, the focus of policy was not merely on curbing the number of plastic bags issued, but on encouraging recycling, reducing plastic litter, and ensuring the safe disposal of residual plastic waste. The private sector agreed to aid the process by not distributing bags without charging, though the prices levied varied.

RFF's key finding was that charging for bags had a far greater impact in the short run than in the long run. Indeed the actual price charged was less important than the act of charging, a finding that held

true over the entire range of prices being levied. Moreover, this effect seemed relatively insensitive to the incomes of consumers.

The initial impact of levies was also far greater than that of subsequent price increases. Conventional utility theory, which presumes that people act rationally, gives little help in explaining this pattern of behaviour. More useful might be prospect theory—or at least the endowment effect, the notion that people attach an irrationally high value to things they see as theirs by right, especially when these are threatened. The public may have seen free bags as a right and therefore reacted against paying, irrespective of the price. Once they had become accustomed to paying for plastic bags, the price became relatively insignificant as, for most of them, the price of the packet was low relative to the cost of the purchases made and carried in it.

In order to estimate consumer responsiveness to these levies, it was necessary to normalize the use of bags for the volume of purchases and for the volume of the bags used. The result can then be expressed as the real value of purchases per bag. Any increase in this figure indicates success in the policy. The impacts of the charges have varied across counties and across time. In Botswana, the charge appears to have been more successful than in South Africa, albeit the charge has been in effect a far shorter time.

Simply showing the number of bags issued could misrepresent the impact of the charges over time, since the volume of retail sales also drives the demand for bags. Accordingly, the effect of the 2007 legislation and charges is represented using an index comprising the number of bags issued by each of the four major retail chains, divided by the real value of their sales.

In South Africa, the impacts of the charge have been far less clear cut. Surveys of consumer behaviour indicate that relatively few are reusing the bags to shopping; instead, they are being used to carry household waste.

Recycling waste-contaminated bags is economically unfeasible. In this respect, the new legislation has not been successful. Moreover, data from three of the four retail chains indicated that, despite the charges, bag use increased once consumers had become accustomed to paying for them.

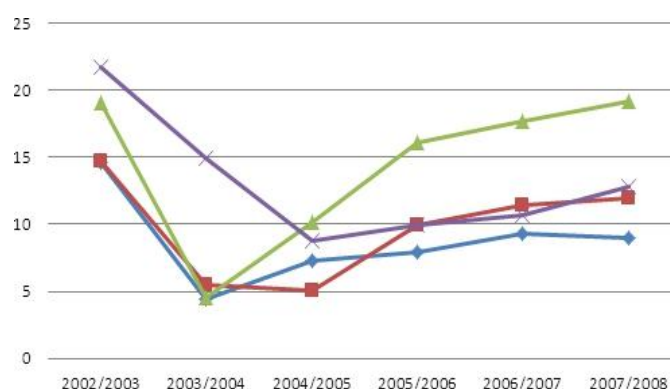


Figure 8: Index of shopping bags issued (South Africa)

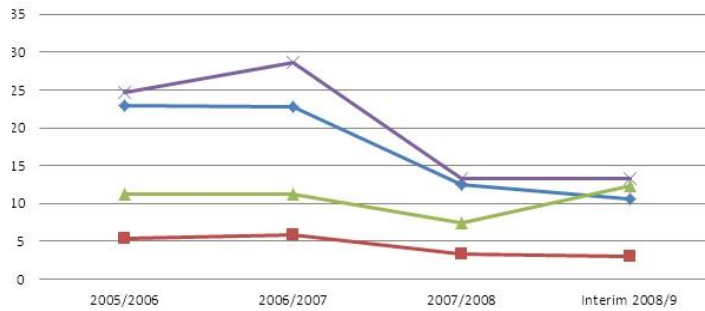


Figure 9: Index of shopping bags issued (Botswana)

RFF's findings identified two interesting aspects of the problem:

- first, when levying charges for plastic bags, consumer sensitivity to the charge declined over time; that is the sensitivity of plastic bag demand to price was less in the long run than in the short run.
- second, both the very poor and very rich have revealed a willingness to pay for good heavy duty plastic bags.

It can be seen that in both Botswana and South Africa, shoppers in retail outlets that target low-income consumers demand just as many if not more bags per \$ 100 worth of shopping. Two reasons have been postulated. One is that, not having cars, and typically living at a distance from the retail outlets, they do not shop in bulk, but buy small amounts as and when needed. Their bags are therefore less fully filled.

Another reason is that, when buying similar products of similar volume, the poor are likely to buy the cheaper item. The results are clear: in both countries the plastic bag charge has been clearly regressive.

South Africa and Botswana's experiences with regulation and taxation of plastic bags may offer useful insights for other LDCs (least developed countries). Certainly their experiences suggest that long-run reduction of plastic bag use may be more difficult to achieve in LDCs than it has been in first-world economies, such as Ireland or Denmark, where ecologically aware consumers pushed for the legislation and were already accustomed to waste sorting and recycling.

In retrospect, it is unclear whether or not the threefold increase in the gauge of plastic being used was warranted. It is also clear that publically displaying the price of bags and stressing the payment may make the tax more effective.

The particular interest of Botswana's experience lies in its voluntary roots. This was legislation that the public wanted. In South Africa, it had long been noted that it was stores targeting the very poor (and the very affluent) that issued heavy-gauge bags. Despite the regressive nature of charges, opposition to the regulation and pricing of plastic shopping bags did not come from the poor in either country.

In the absence of price competitive biodegradable packaging, regulation and taxation of plastic bags may appear to offer a feasible short-term solution, even in LDCs, to the problem of plastics in the environment. The South African experience, however, suggests that consumers adjust to such taxes and charges, and in consequence these may provide only a limited solution in the long run.



BRAZIL

In Brazil there is currently no national legislation on plastic bags.²⁰⁴ Brazilians consume about 1.5 million plastic bags an hour, resulting in 12 billion bags a year (roughly 63 bags per person per year). A bill was introduced in March 2007, the Chamber of Deputies (*PL- 612/2007*), which promotes the replacement of conventional bags with biodegradable bags in retail outlets throughout the Brazilian territory.

Also in March 2008 the Ministry of Environment launched the 'Consumer Aware Embalagens' (conscious consumption of packaging), with the exhibition 'Best practices and innovations in packaging' organised in Brasilia as a starting point for education work that will spread throughout Brazil.

According to the Brazilian Government, the Ministry of Environment's 2010 campaign "Bags Suck" – created to decrease the consumption and the discard of plastic bags in the country – gained the empathy of the public opinion, and the adhesion of cities, and private companies.²⁰⁵ The one-year balance carried out by the Ministry showed that the campaign had managed to avoid the use of about 800 million plastic bags in Brazil. The three largest supermarket chains in the Country, with over

50 per cent of the market, had adhered to the campaign from the beginning. "The great supermarket owners have facilitated the ecologically-correct behavior of their clients by implementing different programs to stimulate an aware consumption", explained Fernanda Altoé Daltro, coordinator of the campaign in the Ministry of Environment.

RIO DE JANEIRO

In 2010, the state government of Rio De Janeiro passed a law forcing medium- and large-sized supermarkets and stores to offer at least one of three options to dissuade customers from placing their purchases in plastic bags.²⁰⁶ The first is offering a R\$ 0.03 discount for each group of five items bought by consumers who bring their own shopping bags, with the value of the discount being adjusted annually based on inflation. The second is to give consumers a kilogram of rice or beans for returning 50 plastic bags. Lastly, stores can replace plastic bags with sacks made from reusable, more resistant material.

Law 5.502/09 doesn't ban plastic bags or make them illegal, but it's aimed at getting stores and customers to decrease their use. Micro-enterprise and small companies have two to three years to adjust to the law. All stores must place a poster with this message visible: "Conventional plastic bags take more than 100 years to decompose. Please dispose of plastic bags in the appropriately marked waste collection recycling bins, or bring your own reusable shopping bag from home."

A Carrefour's Representative reported that consumers' acceptance had exceeded the company's expectations, and over five months' time, the use of reusable and 100 per cent biodegradable bags and cardboard boxes had become the norm for the store

SÃO PAULO

According to World Packaging News, the São Paulo state government signed an agreement with São Paulo's Association of Supermarkets (APAS) to ban the use of free single-use plastic bags in supermarkets in February 2012.²⁰⁷ Supermarkets would offer, as an alternative, biodegradable compostable bags made from cornstarch and reusable bags for a small price. However, after an intense debate on how the consumers received the determination of the major retail chains to forbid the distribution and sale of plastic bags, the Brazilian Justice decided to lift the ban in June



2012, due as an interpretation that the consumer was being harmed by the new policy. The decision obligated the supermarkets to provide biodegradable packaging material or paper, within 30 days, with no charge for the service.

APAS stated that it will appeal against the court decision that ordered the return of free distribution of plastic bags in the affiliated institutions. According to the entity, the decision “violates the constitutional rights of its members, and is a throwback to the advances made.”

Earlier, Plasteurope²⁰⁸ reported that the ban had been criticised by plastics associations, including Plastivida (São Paulo), a national industry association which promotes the responsible use of plastics. In a joint statement, Plastivida, the National Plastics Institute and Brazilian flexible plastic packaging industry association ABIEF said that consumers should not be penalised unnecessarily through charges for plastic bags. It is not the plastic bags themselves that are causing the environmental problems but their incorrect disposal, they stated. This problem needs to be addressed by educating people about how to use, re-use and dispose of the bags.

CANADA

The Canadian Government (2008)²⁰⁹ estimates that Canadians take home an estimated 2.86 billion plastic bags per year (86 bags per person). There is no national legislation in Canada governing plastic bags (Natural Resources Canada, 2011).²¹⁰ This would generally be controlled at the provincial level in Canada, though there are municipal (i.e. more local) initiatives, partly because litter issues generally fall to them although the highways and byways between municipalities are a provincial responsibility.

Several different initiatives concerning plastic bags are underway. These include outright bans, phasing out of plastic bags and replacing them with bags of other material, charging a fee per bag (an ‘eco-charge’), and education measures. These actions are being undertaken by consumers, retailers, organisations and municipal and provincial governments, either through their own initiatives or in partnership with others.

CANADIAN LOCAL AUTHORITY INITIATIVES

The Federation of Canadian Municipalities lists some examples of local authority initiatives on plastic bags.²¹¹

TOWN OF LEAF RAPIDS, MANITOBA - PLASTIC BAG BAN BYLAW (2007)

In 2007, Leaf Rapids became the first community in North America to ban thin-walled plastic shopping bags with *Bylaw 462*. The bylaw prohibits retailers from giving away or selling thin-walled plastic bags and levies a fine of up to C\$ 1,000 for anyone found in contravention of the bylaw.²¹²

CITY OF TORONTO, ONTARIO - PLASTIC RETAIL SHOPPING BAGS BYLAW (2009)

With *Bylaw 356-2006*, the City of Toronto adopted a new Municipal Code Chapter requiring retailers to charge a minimum of five cents for each plastic retail shopping bag requested by customers or, if plastic shopping bags are not offered, to provide a free alternative such as paper bags or cardboard boxes.²¹³ Signage about the bylaw requirements must be prominently posted at store checkouts; the plastic bag charge must be recorded on the store receipt, and retailers must accept any reusable containers provided by customers for their purchases.

The so-called bag tax was not very popular and in June 2012 an attempt was made to get rid of the tax, urged on by Mayor Rob Ford.²¹⁴ Ford and some councillors had argued that the \$ 5 million retailers earned annually from the fee wasn't going to any particular environmental group and had served its purpose, cutting plastic-bag consumption in half. While the majority of councillors decided to kill the bag fee by July 1 of 2012, the council ended up voting in favour of placing a full ban on giving single-use plastic bags to consumers, due to take effect on January 1, 2013.

In response, the city was hit with a pair of legal challenges over the proposed bag ban, one from the Ontario Convenience Stores Association and the other from the Canadian Plastic Bag Association.²¹⁵ In the end, Toronto councillors decided in November 2012 not to proceed with the contentious ban. As a result there is now no plastic bag tax, nor a ban. The council is due to revisit the issue in June 2013.



By-Law Effective:
December 31, 2010



Remember to bring your own
reusable bags
City of
Thompson

TOWN OF DEUX-MONTAGNES, QUEBEC - REGLEMENT SUR LES SACS DE PLASTIQUE (2009)

The Town of Deux-Montagnes *Bylaw 1358* bans the distribution and sale of disposable plastic shopping bags for retail purchases.²¹⁶ The bylaw is aimed at source reduction and so does not permit substituting compostable bags for conventional plastic bags. This objective is part of the town's 2006 Green Shift initiative, in which the town distributed a reusable bag with the town logo to every household.

TOWN OF ANNAPOLIS ROYAL, NOVA SCOTIA - BYLAW FOR THE ESTABLISHMENT OF MULTI-USE PLASTIC SHOPPING BAGS (2009)

The *Bylaw for the Establishment of Multi Use Plastic Shopping Bags* prohibits retailers from giving away or selling plastic shopping bags intended for a single use. Violators are subject to a penalty of up to C\$ 1,000.²¹⁷

CITY OF THOMPSON, MANITOBA

The City of Thompson has passed Bylaw Number 1839-2010.²¹⁸ The Bylaw took effect on December 31, 2010 and prohibits the sale or give-away of plastic bags.

The bylaw states specifically: 'No person shall sell or provide thin-walled plastic bags free of charge or allow thin-walled plastic bags to be sold or provided free of charge'. This includes biodegradable bags that are less than 2.25 mm thick. It was reported that the City Council had been considering the ban for many years.

CITY OF SIOUX LOOKOUT, ONTARIO

On September 15, 2010, The City of Sioux Lookout became the first municipality in Ontario to ban plastic bags. Sioux Lookout Municipal Council gave a third and final reading to *Bylaw No. 20-10*.²¹⁹ The Council then voted 5-2 to pass the *Bylaw to Prohibit the Sale or Free Distribution of Plastic Bags Within the Municipality of Sioux Lookout*. The intent of the bylaw includes:

- helping to stem the large portion of plastic bags that find their way into the local landfill
- reducing the distribution and use of plastic bags to promote environmental and financial benefits, including decreasing the amount of litter found throughout the municipality and protecting storm sewers from blockages from plastic bags.



The bylaw defines plastic bags as, *'a bag made of plastic film, including biodegradable or compostable bags, provided by a Retail Business to a customer at the till or point of sale to carry customer purchases from the Retail Business'*.

Equally important in the definition of plastic bag is the description of what does not constitute a plastic bag, including: bags used for bulk purchases (e.g. for produce, small hardware supplies), meat, frozen foods, prepared foods, newspapers, laundry dry cleaning, minnows, and bags sold in packages containing multiple bags intended for such uses as garbage, recycling, pet and yard waste.

The chief voluntary effort comes from the plastics industry. The Canadian Plastics Industry Association (CPIA) is the voice of the Canadian Plastics Industry. With over 3,350 companies employing 106,000 workers, Canada's \$ 31-billion plastics industry supports an active programme of recycling for plastic bags. CPIA notes that in Canada, 44 per cent of the population (almost 14 million people) have access to plastic bag recycling through kerbside programmes, drop-off depots, or at-store bag take-back schemes.²²⁰

Plastic shopping bags can be recycled into new bags and other durable products, such as plastic lumber for decking, park benches, picnic tables and waste receptacles. The number of plastic recycling businesses in North America has nearly tripled over the past several years. Whole new product categories are emerging that use recycled plastic shopping bags, such as the composite lumber market, which was valued to reach US\$ 1.4 billion in 2007.

INDUSTRY INITIATIVE

From July 1, 2009 IKEA ceased selling plastic bags in its Canadian stores;²²¹ the final step in the Company's Bag the Bag programme that launched in October 2007, with charges of five cents a bag. IKEA donated all proceeds (more than \$ 280,000) to Tree Canada.

ONTARIO

Stewardship Ontario (SO) is the industry scheme producer responsibility scheme with an interest in plastic bag. "People may point to China as a leader for its total ban on plastic bags," said SO's VP (Operations) Lyle Clarke, "but they don't have the same recycling infrastructure we have where shopping bags are recycled and highly recyclable. The same holds true in other places that lack the technology to recycle plastic. Here, in Ontario, it's a far different story. Today plastic bags can be recycled into new bags or a wide variety of plastic products, ranging from flooring and decking to park benches and picnic tables".

In February 2009, the Toronto Star reported that Ontario shoppers carried home 269 million fewer shopping bags in 2007 than they did in 2006.²²² On the other hand, they still carted off a little more than 4 billion thin-walled bags over the course of the year. That's 316 bags per year for every man, woman and child in the province. And fewer than one in twelve of these found its way into a recycling programme.

Three years ago in Ontario, the Canadian Council of Grocery Distributors (CCGD), the Canadian Federation of Independent Grocers (CFIG), the Recycling Council of Ontario (RCO), the Retail Council of Canada (RCC) and the Canadian Plastics Industry Association partnered the Ministry of the Environment to craft a strategy for achieving a 50% reduction in plastic bag use by 2012.



In Toronto, which imposed a 5 cent bag fee on June 1, 2009, plastic bag use fell by 70-75 per cent following introduction of the fee - a finding borne out by reported marked declines in the generation of plastic film.

When Ontario's voluntary plastic bag reduction task force was first established, Stewardship Ontario reported that close to 60 per cent of plastic bags (2.35 billion at the time) were being reused to wrap garbage, organics or recyclables. Instead of a ban, the Ontario Task Force opted for a multi-faceted approach to reducing plastics use. The group focused on getting more retailers to adopt best practices - phasing out non-recyclable plastics, reducing bag size, using stickers/tape for larger items, encouraging better bagging, making reusable alternatives readily available and promoting in-store or kerbside recycling services.

Plastic shopping bags made of biodegradable or compostable plastic, or plastic bags that have metal fittings (e.g. eyelet or grommets) or other non-plastic components, such as string, card or cardboard, will be banned for sale or distribution. The move to ban non-recyclable bags is part of the city's commitment to ensuring a sustainable recyclable product, and ties into Ontario's agreement to reduce plastic bag use by 50 per cent by 2012. In December 2008, the City of Toronto allowed plastic retail shopping bags into the Blue Bin programme.

BRITISH COLUMBIA

In 2008, British Columbia's plastic bag reduction initiative came into being through a voluntary agreement between four leading retail industry associations and the Ministry of Environment. This initiative seeks to halve the number of plastic bags distributed in British Columbia by 2013.

The goal of the partnership is to build a strong relationship among the members in order to reduce the use of plastic bags in British Columbia by focusing on the 3Rs hierarchy: Reduce, Reuse and Recycle. A report published in 2009 estimated that 790 million plastic bags were distributed in 2007 by grocers, retailers and pharmacies in British Columbia.²²³ To achieve the 50 per cent reduction target, British Columbians will need to reduce the number of plastic bags they use by an estimated 394 million.

In 2008, an estimated 723 million plastic bags were distributed in British Columbia, a reduction of 66 million bags, or around 8.4 per cent since the previous year. In addition, British Columbians recycled over 60 million plastic bags using voluntary in-store recycling programmes. So, in total from 2007 to 2008 more than 120 million plastic bags were diverted from landfills. Key factors contributing to this progress towards the 50 per cent reduction target included:

- in-store incentives encouraging reduction and recycling
- improved bagging practices at check-out
- increased availability of reusable bags
- more voluntary in-store collection points for recycling
- greater consumer awareness and, most importantly, consumers changing their behaviour and reducing their reliance on plastic bags.

ALBERTA

Alberta and four of Canada's major retail associations have reached an agreement aimed at reducing plastic bag use across the province.



The retail industry has agreed to implement a strategy to cut plastic bag use in half by 2013, using 2008 as the baseline year. Approximately 900 million thin-walled plastic bags were distributed that year. The strategy is being implemented at industry's expense, and includes education initiatives to promote the use of reusable shopping bags.

NORTH WEST TERRITORY

Since February 2011, all paper, plastic and biodegradable bags have cost 25 cents in all Canada's Northwest Territories (NWT) stores, according to the Province's Government.²²⁴

Phase 2 of the Single Use Retail Bag programme is part of the Government of the Northwest Territories'

(GNWT) Waste Reduction and Recovery Programme Expansion and is intended to reduce litter on the land and in communities. The 25-cent fee does not apply to bags used inside stores for unpackaged bulk items such as produce, bakery items, candy and small hardware items. It also does not apply to bags used for dry cleaning, prescriptions or primary packaging of prepared food. Fees for thin-walled retail bags have consistently worked to reduce consumption, with higher fees linked to fewer bags purchased. Fees collected from Phase 2 of the programme continue to go into the GNWT's Environment Fund to help pay for future waste reduction and recycling programmes.

The single-use Retail Bag programme (SRBP) is the second programme created under the Waste Reduction and Recovery Act. It was implemented on January 15, 2010 to address millions of disposable shopping bags that cause unsightly litter.

As of February 1, 2011, the *Single-use Retail Bag Regulations* apply to the SRBs distributed by all NWT stores. According to the NWT Government, studies show that when a bag costs 5 or 10 cents, there is an initial drop in consumption, but after some time consumers absorb the additional price into everyday expenses and begin paying for bags. A 25 cent environmental fee will ensure consumers don't become accustomed to the fee and begin purchasing bags. Residents will only have to pay the fee if they don't bring their reusable bags.

All NWT retail stores are included in the programme; this includes clothing stores, convenience stores, hardware stores, hair salons, florists, wholesalers, etc. Restaurants are not included in the programme. Every NWT household will receive two compact reusable bags free of charge.

CHILE

In Chile, although there is no current legislation, a bill was introduced in the House of Representatives in August 2008 which prohibits the use of non-biodegradable plastic bags.²²⁵

In August 2008 the Minister for the Environment launched a campaign (More room, less bags) which aims to reduce plastic bag use by encouraging the use of traditional cloth or paper bags.

CHINA

China banned plastic bags nationwide on June 1, 2008, in a bid to save some of the 37 million barrels of crude oil that are used for China's plastic packaging every year. AFP reported (2011) that around three billion plastic bags were being used daily* in China before the 2008 ban.²²⁶ Since then, according to the NDRC [National Development and Reform Commission], people used at least 24 billion fewer plastic bags in supermarkets every year. Overall, a reduction in plastic bag

* Around 815 bags per person per year

use of nearly 10 per cent was recorded in 2011 (compared to 2008, right before the new regulations).²²⁷

Xing (2009)²²⁸ reports that the Chinese ban on plastic bags consists of two regulations:

- the compulsory national standard of plastic bags - should be no less than 25 microns thick
- the management of compensation for the use of plastic shopping bags in retail establishments requires that the selling price of the plastic bags be higher than operating costs.

The policy exempts the use of plastic packaging for raw meat and noodles for hygiene and safety reasons.

Although China has banned the distribution of free plastic carrier bags at retail outlets (University of Hong Kong, 2011), the level of charge per bag is not stated and outlets are free to impose any amount of levy they want.²²⁹ Also, the revenue is retained by the outlets concerned.

In addition, on July 10, 2008 China's Ministry of Commerce, National Committee of Development and Reform, and State Association of Industry and commerce made a joint supplementary provision which expand the scope of application, according to which restaurants and bookshops are included. IT Wire (2011), citing official China news agency Xinhua, reported that China is planning to expand its nationwide ban on free plastic shopping bags, and free plastic bags thinner than 25 microns will not be allowed at bookstores and pharmacies.²³⁰

Implementation has not been easy; Xing (2009, *ibid*) reported that problems include:

- market-traders continue to provide free ultra-thin plastic bags. Traders often have two kinds of plastic bags. One meets the national standard and is used to demonstrate during inspections, while the other one is thinner than 25 microns.
- some businesses still use the sub-standard auxiliary bag (or pre-packaging roll bag), for example, the bags have no such Logo as 'for food use', 'QS', enterprise information, and the thickness is thinner than the required standard.
- there are cases of double-charging consumers
- there is lack of effective substitutes for plastic bags. Non-woven cloth bags are now accepted widely, though these are manufactured from non-biodegradable plastics and will result in increased consumption of non-renewable resources.

From the consumer's side, it is reported that shoppers have have embraced the ban without significant complaint, despite sacrificing some degree of shopping convenience.²³¹

In its first review, the NDRC announced that plastic bag use in supermarkets was reduced by 66 per cent one year after the policy became effective. The limit in bag production saved China 1.6 million tons of petroleum, the NDRC estimated.²³² The commerce administration enforced the ban through a 600,000-strong army of regulators who inspected some 250,000 retail stores or markets, according to China Daily. The regulators dispensed about 2 million yuan (US\$ 236,484) of fines.

Wang Miaowei *et al.* (2011)²²⁷ conducted regional surveys in March 2008 (before the regulation was imposed), October 2008, and April 2011. They found that within three years since the implementation of the ban policy, the total level of plastic bag use had dropped first and then rebounded but overall at lower level than before. The paid-use system of plastic bags has partly

been effective. More so in the short term than in the long term, as there was little change after the first seven months. The prohibition of using ultra-thin plastic bags on the other hand has basically not taken effect, as they were still widely used in 2011 (a drop of 9.36 per cent was recorded).

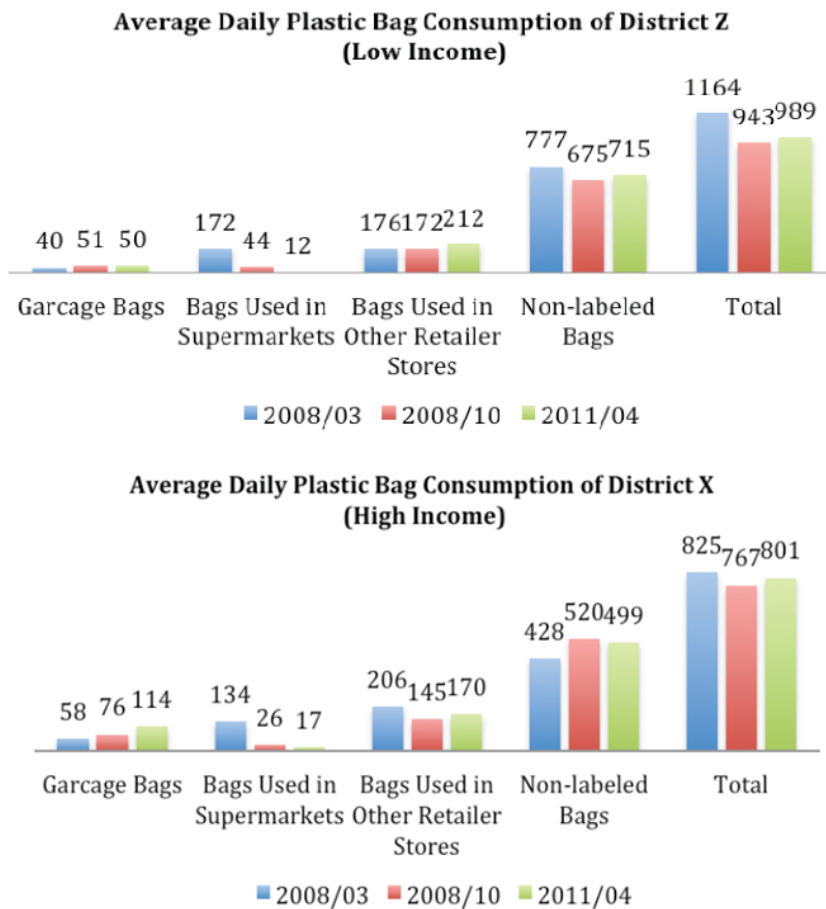


Figure 10: Average daily plastic bag consumption in a high and low income district in Shanghai. Units in the graph: 1 plastic bag. Source: School of International and Public Affairs, Columbia University (2011). Error! Bookmark not defined.

HONG KONG

The Hong Kong administration has introduced an environmental levy on plastic shopping bags.²³³ The indiscriminate use of plastic shopping bags is reportedly a major and visible environmental problem in Hong Kong. The Government's landfill survey indicates that some eight billion plastic shopping bags are disposed of at landfills every year. This translates into more than three plastic bags per person per day.

To counter the problem of the indiscriminate use of plastic bags, the Government proposed to introduce an environmental levy of 50 cents on each plastic shopping bag at the retail level, with the first phase covering chain or large supermarkets, convenience stores and personal health and beauty product stores. A two-month public consultation conducted in 2007 indicated overwhelming public support for the levy.

The *Product Eco-responsibility Ordinance* (PERO) (Cap. 603) was enacted in July 2008. The Ordinance provides a legal basis for introducing producer responsibility schemes, with the environmental levy on plastic shopping bags as the first scheme under the Ordinance. The *Product Eco-responsibility (Plastic Shopping Bags) Regulation* which further sets out the implementation details of the



environmental levy scheme, was approved by the Legislative Council in April 2009. The environmental levy commenced on July 7, 2009.

Under the Levy Scheme, prescribed retailers are no longer allowed to provide free plastic shopping bags; and they must charge their customers an environmental levy for each plastic shopping bag they ask for. Retailers who have successfully registered under the Levy Scheme would become registered retailers and they will:

- have a certificate of registration displayed at each of their registered retail outlets
- have their names and addresses maintained in the Register posted on EPD's website
- display cards and stickers bearing the Levy Scheme's logo.

The Levy

The environmental levy is set at 50 cents for each plastic bag given out at a registered retail outlet. This level is based on public opinion survey as well as previous voluntary campaigns which indicated that a levy of 50 cents would create sufficient incentive to reduce the use of plastic shopping bags on the one hand, but not exceeding a level generally accepted by the public on the other.

Plastic bags subject to the Environmental Levy include those:

- wholly or partly made of plastic (this includes but is not limited to PE, PP, PVC and nylon).
- with a handle, handle hole, perforated line for tearing out a handle hole, carrying string or strap, or any other carrying device on, or attached to, the bag
- made partly with plastic are plastic shopping bags such as:
 - paper shopping bags made partly with plastic such as plastic lamination or plastic handles
 - non-woven bags made of polypropylene (commonly known as 'environmental bags')

Plastic bags NOT subject to the Environmental Levy include those:

- sold at a price of \$ 5.00 or more
- two or more bags that are sold as a pre-packaged pack at a price of \$5.00 or more per pack
- that contains either unpackaged goods or more than one piece of goods; and is sealed before the goods are supplied to the retailer concerned
- that do not have a handle (e.g. those commonly offered for wrapping fruit, seafood, or bakery)

CONGO

The Republic of Congo has banned the production, import, sale and use of plastic bags in a move to fight environmental pollution in the Central African nation, government spokesman Bienvenu Okiemy said, according to Reuters (2011).²³⁴

Okiemy said that the government had adopted a decree which prohibits the use of plastic bags to pack food, groceries, water and other beverages. He did not say when the ban would become



operational. Congo, like many developing nations, lacks adequate waste management and recycling facilities. The widely used non- biodegradable plastic bags are strewn about, causing harm to the environment.

GHANA

Ghana's Vice President Mahama has called on African leaders to rise up and join hands to address the waste plastics in African cities (GNA, 2011).²³⁵

"Plastic waste would continue to be a major cause of flooding in our cities and there is the need for us as leaders to rise up and do something immediately to ensure that the cities were developed", he emphasised.

HAITI

Arrêté présidentiel of 9 August, 2012, prohibits the importing, manufacturing, and marketing of black polyethylene bags and single-use expanded polystyrene containers.* The ban came into effect on October 1, 2012.²³⁶

Plastic bags used for potable water were exempt. In order to raise awareness about the ban, the government ran TV spots for weeks.²³⁷ There was also a three month grace period after the ban came into effect. However, critics wondered how Haiti — a country that already struggles to control its porous borders and collect taxes — will police the ban. Others stressed the need the need for viable alternatives since Haiti's poorest consumers would not be able to afford the substitutes.

INDIA

In 2002, the Indian government mandated a thickness rule on plastic bags. All bags must be bigger than 20 microns in thickness. This rule was implemented to reduce malaria outbreaks, aid in storm water runoff management and to prevent the sacred cows of India from inadvertently ingesting plastic bags.²³⁸ **On the state and local/regional level, tighter regulations have been introduced, including blanket bans.**

In February 2010, the Government of India issued a status report on actions taken to counter problems caused by lightweight plastic shopping bags.

STATE-WIDE INITIATIVES

Various States have increased the minimum thickness of plastic bags to even higher limits of 40, 50, or 70 microns. These States or Urban Territories are:

- Goa: 40 microns
- Himachal Pradesh: 70 microns (blanket ban from August 2009)
- Maharashtra: 50 microns
- Meghalaya: 40 microns
- Punjab: 30 microns
- Chandigarh: 30 microns

* These containers are widely used by vendors on street markets to sell food and drinks.



- West Bengal: 40 microns
- Kerala: 30 microns. (now a blanket ban)

HIMACHAL PRADESH

In June 2004, a state-wide ban on plastic bags thinner than 70 microns came into effect in Himachal Pradesh. It was the first state in India to ban plastic bags. The official statement reads as follows:²³⁹

The Govt. of Himachal Pradesh vide Notification No.STE-A(3)-4/2003 dated 04.06.2004 has prohibited the use of polythene (and other similar material) carry bags by stockists, traders, retailers and vendors of all kinds of commodities within the State of Himachal Pradesh, if size and thickness of such bags are less than 18"x12" and 70 microns respectively. Hon'ble Chief Minister has also issued a public appeal in leading newspapers in this regard, so that this ban is implemented strictly with effect from 14.06.2004.

This ban was tightened in 2009, when all types of polythene bags made of non-biodegradable materials became banned. It was the first state to introduce a blanket ban.

MAHARASHTRA

In October 2012, The Mumbai Mirror reported that the state government is planning to introduce even more stringent measures to curb the use of plastic across Maharashtra, one of them being a blanket ban on plastic bags at malls, markets, educational institutions, government offices, tourist and heritage spots and eco-fragile zones.²⁴⁰ While this may not be a complete ban on plastic, the state's idea to target areas where plastic bags are used and sold the most is sure to drastically bring down their use.

The first steps towards decreasing the use of plastic in Maharashtra had come in the aftermath of the 2005 floods in Mumbai, when the then Chief Minister Vilasrao Deshmukh had issued a complete ban on plastic bags (which had clogged the drains and escalated the crisis). Soon after that ban, however, plastic-bag manufacturers met cabinet ministers and convinced them to dilute the ban. It was now alright to carry bags with a thickness over 50 microns (the sturdier ones that could be used more than once).

More recently, the union environment ministry came up with a directive asking shopping establishments to charge for plastic bags. But none of these measures have made a big dent in the use of plastic, forcing environment department officers to propose these fresh measures.

WEST BENGAL

West Bengal Pollution Control Board has banned the manufacture, sale and use of plastic bags in ecologically fragile areas (such as the Sunderban areas, hilly areas of Darjeeling), forest areas and different heritage and tourist sites. Action has been initiated for public awareness (trainings, workshops) for plastic waste management such as proper disposal of plastic bottles, banning of plastic bags, use of cloth/jute bags etc.

OTHERS

It is reported that blanket bans are in place in the States of Rajasthan (2010), Sikkim, Kerala and Tamil Nadu.²⁴¹

DELHI

On November 22, 2012, a blanket ban on the manufacture, sale, storage and usage of plastic bags came into force in Delhi, the capital of India.²⁴² It is being enforced under the *Environment (Protection) Act of 1986*, which carries a maximum penalty of 100,000 rupees, and five years of imprisonment. According to the city government, each of Delhi's 4.6 million households use about five carry-out plastic bags a day*.

The idea of a blanket ban was launched by the Delhi Government in March 2011, despite reservations by India's national Environment Minister Jairam Ramesh.²⁴³ The latter was against a blanket ban on the use of plastic bags as no other cheaper option is available as compared to cloth, jute and paper bags.

There were also some concerns raised by the Finance Department, claiming that the department was silent as to whether it would lead to any financial implication to the Government especially of banning of the plastic bags manufacturing units in the city and its relocation, if any and rehabilitation of the workers if any. In its reply to the Finance Department, the proposal suggested that there be no financial implication due to the proposed ban.

The ban repealed the existing *Delhi Degradable Plastic Bag (Manufacturing, Sale and Usage) and Garbage (Control) Act 2000*,²⁴⁴ and its 2008 Amendment²⁴⁵. The 2008 Amendment allowed the use of biodegradable plastic of 40 microns or thicker under the theory that heavy-duty plastic bags are used again and again, not disposed of.²⁴⁶ In 2009, the government also exercised provisions of the 2000 Act to forbid sale, storage and use of all kinds of plastic bags in certain notified places, such as luxury hotels, hospitals, restaurants and big shopping malls.

But the newest ban extends to all varieties of plastic bags, even those for garbage (as well as to all plastic sheets, films or covers for packaging books, magazines or cards). City government officials said they will think about how to deal with waste disposal later. The only exception is for the bags used for biomedical waste, as prescribed under *Bio-medical Waste (management and handling) Rules*.

The Secretary of the environment for the city government said that the stricter plastic ban was necessary, in part because of the failure of the 2009 ban.²⁴⁷ It was almost impossible to enforce the partial ban as everyone claimed they were using the bags that were allowed. As a result, the ban of 2009 was barely enforced and considered a failure.

MUMBAI

The Brihanmumbai Municipal Corporation (BMC) has been waging a war against plastic bags as they were one of the main culprits of the disastrous floods of July 2005. Bags thinner than 50 microns have been banned in the city, but activists say plastic must be totally banned to eradicate the problem.²⁴⁸ As of January 2010, BMC has begun pilot programs to ban plastic bags in Mumbai and will be proposing an amendment in the State Government to ban all plastic bags, not just those that are below 50 microns in thickness.²³⁸

* Taking an average household size of 4.47 (Economic Times, 2010), this amounts to around 450 plastic bags per person per year.



OTHERS

Use of plastic bags has been banned in some districts in Mizoram/West Bengal, Jammu, and Kashmir has also banned polyethylene bags under the *Non Biodegradable Material (Management, Handling and Disposal) Act, 2007* - effective from May 11, 2009. Hill station Matheran has a blanket ban on plastic bags.

HIMACHAL STATE WINS NATIONAL AWARD FOR PLASTIC WASTE MANAGEMENT

In April 2011, for its sustained campaign against usage of plastic bags, the Indian state of Himachal Pradesh was conferred with Prime Minister's Award for Excellence in Public Administration for 2009/10.²⁴⁹ The Government of the State of Himachal Pradesh banned plastic bags in Himachal Pradesh under the *HP Non- Biodegradable Garbage Control Act, 1995* effective from August 15, 2009.²⁵⁰

The State intends to enforce a complete ban on plastic cups, plates and tumblers from August 15, 2011. A State-sponsored '*Polythene Hatao Paryavaran Bachao*', has involved NGOs, government departments, institutions, panchayats (groups of respected elders chosen and accepted by their communities), urban local bodies and rag-pickers to collect waste PE garbage.

The government offered a buy-back scheme for the waste plastic at Rs 3 (EUR 0.05) per kg, which was then shredded and mixed with bitumen for road surfacing. More than 300 tonnes of plastic waste were collected and used to surface 300 km of roads.

JAPAN

Japan's Environment Ministry (2010)²⁵¹ has supported voluntary initiatives to restrict plastic bag use. A national scheme for 3Rs eco-points has been put forward.

For example, *Gifu Eco-life Promotion Project* provides eco-points to people who co-operate in efforts such as reducing plastic bag consumption, bringing one's own chopsticks to restaurants, promoting simple packaging. This scheme is coupled with two cities and nine towns in Seino region, and five cities and three towns in the Gifu region. Participants can redeem points for eco-goods and more than 800 shops have co-operated in this effort.

Japan for Sustainability reported (2009)²⁵² that the Nagoya City government in Aichi prefecture planned to charge shoppers for plastic shopping bags throughout the city, although the city government initially planned to launch the programme in 2010.

In Midori Ward, which started a pilot scheme in October 2007, the ratio of plastic shopping bags refused by customers was 89 per cent over a one-year period. This was equivalent to about 31 million plastic shopping bags. This result has accelerated the implementation of the scheme throughout the city.

KENYA

On January 6, 2011, AFP reported that Kenya would outlaw the manufacture and import of plastic bags thinner than 60 microns from March 2011.²⁵³ According to research done by Kenya's National Environment Management Authority (NEMA), the United Nations Environment Programme (UNEP) and the Kenya Institute for Public Policy Research and Analysis (KIPPRA) in 2005, 100 million plastic bags are handed out annually in Kenya by supermarkets alone.²⁵⁴ NEMA has noted



that the landscape is blighted with 'artificial flowers' of varied colours, due to poor management of plastic bags.

Earlier in 2007, the Minister of Finance had introduced Finance Bill 2007, *Kenya Gazette Supplement No. 60 (Bills No. 26)* which proposed the banning the manufacture and import of plastic bags of less than 30 microns and imposed a 120 per cent excise duty on all sacks and bags.

As the 2007 ban widely failed, NEMA directed Kenya Bureau of Standards (KEBS) to revise upwards the standard gauge of plastic bags and wrappers from 30 to 60 microns, the East African Community Standard. NEMA also recommended the following tips to reduce the need for plastic bags:

- use bags made from cotton, sisal, corn, paper and cloth
- recycle plastic bags for various purposes, like holding garbage, instead of purchasing new ones.
- take previously used bags when going shopping or using a sturdy bag
- don't take anything with a wrapper that will directly end up in a bin such as plastic wrapping on air time scratch cards
- use and re-use of large plastic sacks whenever possible
- refrigerate food in containers rather than plastic bags.

NEMA further called upon all stakeholders to support the increase in gauge of plastic bags with a view to conserve and protect the environment for posterity.

KYRGYZSTAN

In June 2012, the Parliament of Kyrgyzstan proposed a draft law “on the prohibition of import, production and sale of polyethylene (plastic) bags in Kyrgyzstan” in a move to safeguard a clean environment in the country.²⁵⁵ The plastic bags are proposed to be replaced with more ecologic options - paper, reusable bags and string bags. The draft law was brought up for public discussion.

MALAYSIA

On average, Malaysians use eight pieces of plastic bags a week (417 a year).²⁵⁶ Following the initiative of individual states such as Penang and Selangor (two of the 13 states of Malaysia), the Federal government of Malaysia started a “No Plastic Bag Every Saturday” nationwide campaign in January 2011. Every Saturday, consumers now have to pay if they insist on receiving a plastic bag.

Around the same time, Penang, who was the first state to launch the “No Free Plastic Bag” campaign in July 2009, introduced a permanent ban on free plastic bags. The ruling applies to all hypermarkets, supermarkets, pharmacies, fast-food outlets, nasi kandar restaurants and convenience stores (including petrol stations). Mini-markets and single stores only have to comply on Mondays, Tuesdays and Wednesdays. Hawkers and wet markets are exempt from the ruling. Those who still want plastic bags can purchase them for 20 sen (EUR 0.045). Proceeds collected are donated to the States Partners Against Poverty (PAP) Fund. From July 2009 until Dec 2010, RM 401,868 (EUR 96,671) was collected for the fund.

In Selangor, the Government introduced a similar once-a-week ban in December 2009. By March 2011, the so-called *No Plastic Bag* campaign netted RM 274,000 (EUR 62,245) from consumers who have to pay 20 sen (EUR 0.045) for each plastic bag they use at retail outlets. The Star (2011)²⁵⁷



reports that more than one hundred hypermarkets, supermarkets, pharmacies, convenience stores, bookstores and other retailers are taking part in the campaign.

MALI

In January 2013, the National Assembly of Mali voted a new law banning the manufacture, importation, marketing, possession and use of plastic bags.²⁵⁸

The law will be implemented as from 1 April 2013. This deadline allows time for merchants and consumers to find a clean alternative to plastic bags. The initiative promises to be a return to traditional methods such as going to the market with woven baskets or a bucket.

Similar to other African countries, the litter created by plastic bags was considered one of Mali's worst ecological problems, polluting waterways, harming animals and harbouring disease. Earlier projects against plastic bag littering include the social development project in Mopti, a port city on the Niger River, to recycle plastic bags into street paving blocks.²⁵⁹ It was started in 2007 by the Aga Khan Foundation and reportedly transformed Mopti from a "giant trash bin" to a clean city where business was booming and tourism increasing.

A local concern resulting from the law however are the difficulties on the part of shopkeepers that sell bags of frozen drinks, made from plastic bags, water, and ginger juice (or other flavours). This type of purchase is common in a country where temperatures can reach 45 degrees Celsius in the shade, and it typically represents additional income for families in need.

MAURITANIA

In January 2013, after a moratorium of 6 months, Mauritania's Ministry for Environment banned the use of plastic bags to protect the environment and the lives of land and sea animals.²⁶⁰ Anyone using, distributing, manufacturing or importing plastic bags could be fined EUR 7 up to 2,500 or sentenced to a year in prison.

In Nouakchot, the capital, plastic bags represent one fifth of all municipal solid waste, totaling over 91,000 tonnes. Only 21 per cent of all plastic bags are landfilled, compared to 37 per cent for the total waste fraction. The plastic bag problem is said to be so terrible that eighty per cent of all cattle in the capital have plastics bags in their rumen. A survey held in Nouakchott revealed that 90 per cent of the people regularly used plastic bags in the shops and market places, using on average over 7 bags per day (2,646/y). Seventy per cent admitted throwing away their bags after using it once.

MEXICO

There are no national initiatives relating specifically to plastic bags in Mexico. In March 2009, Mexico City legislators approved a bill that would punish store owners or operators (with 1.5 days in jail and fines of about US\$ 77,400) for giving out thin plastic bags that are not biodegradable.²⁶¹ Mexico City and the metropolitan area used around 20 million bags per day at that time (384 bags per person per year).

Modelled on bans in China and San Francisco, the restriction states: "*No commercial establishment may give away a plastic bag for transporting, handling or packaging their products*". The strict law applies to all stores, including dry cleaners, which will no longer be able to return clothing in plastic covers.



The ban came into effect in August 2009, though there was a one-year grace period before authorities would start to impose sanctions. By August 2010, it appeared that the Mexican capital's anti-plastic bag legislation was proving tough to implement, and the law may be modified sooner than the plastics industry expected. Plastic News (2010)²⁶² reported that the city's environment minister favoured recycling to solve the capital's garbage problems.

WAL-MART MEXICO

Already early 2009, Wal-Mart Mexico, the nation's largest retailer, had begun working with its plastic bag suppliers to come up with a substitute.²⁶³ In 2008, Wal-Mart set itself the goal of halving the number of plastic bags it issues across Mexico by 2013. The retail chain plans to gradually reach that goal by handing out 237 million fewer bags each year.

NEW ZEALAND

Hurunui Recycling (2011)²⁶⁴ advises that New Zealand has no national policy on reducing plastic, and local authorities have no authority to ban plastic bags.

Rhian Tough (2007) in a thesis for a master's degree cited a study suggesting that New Zealanders consume 244 million plastic shopping bags each year (or around 61 each per year).²⁶⁵ However, she also referenced other sources which give estimated annual figures of up to 372 bags per person.

NEW ZEALAND PACKAGING ACCORD 2004

On August 10, 2004, Plastics New Zealand became a signatory of the New Zealand Packaging Accord, a voluntary agreement between Government and Industry to improve the sustainability of the packaging in New Zealand.²⁶⁶ This Accord included a target whereby major NZ brand owners & retailers committed to reducing plastic shopping bag usage by 20% by 2008, compared with 2003/4 (adjusted for sales).

Individual retail signatories to the Accord will develop and implement plans in order to achieve national reduction targets for plastic shopping bags, as follows:

- **Reduce** - discourage unnecessary use of plastic shopping bags, and maximise the number of items packed per bag, appropriate to item type.
- **Reuse** - provide alternative multi trip/reusable (cloth and plastic) shopping bags for sale in store.
- **Recycle** - provide customer recycling facilities for checkout bags. (Implementation will differ according to type of retail environment.)

In January 2009, the New Zealand Herald reported that the Packaging Accord 2004 was on track to hit a 20 per cent plastic bag reduction with 144 million fewer bags used each year. By then, 100 million bags had been taken out of circulation, most (86 million) within the previous two years as the campaign to involve shoppers gained momentum.²⁶⁷

PHILIPPINES

On April 6, 2011, Philippines Senator Loren Legarda (2011)²⁶⁸ called for a national ban on plastic bags, with fines in the tens of thousands for violators. Legarda, Chair of the Senate Committee on Cultural Communities, filed *Senate Bill 2759, the Total Plastic Bag Ban Act of 2011*, which prohibits



groceries, supermarkets, public markets, restaurants, fast food chains, department stores, retail stores and other similar establishments from using non-biodegradable plastic bags. As of August 28, 2012, the ban was still pending in the senate.²⁶⁹

The proposed penalty for violators include: a fine of P 10,000 (EUR 158) for the first offense; P 50,000 (EUR 791) for the second offense; and, P 200,000 (EUR 3,162), as well as one year suspension of business permits for the third offence. "Typhoon Ondoy in 2009 clearly showed that plastic bags severely worsened the flooding in Metro Manila and made post-cleanup very difficult," Legarda said.

On August 3, 2011, the House of Representatives approved *HB 4840 or the Plastic Regulation Act of 2011*. This legislation would require the phase out of non-biodegradable plastic bags within three years and the placement of a plastic bag recovery bin at each store or cluster of stores.

Plastic-makers targeted by ordinances and other measures prohibiting the use of plastic bags have come up with a new technology they hope will solve the problem of waste plastic bags and also protect employment.

Caloocan 1st District Representative Oscar Malapitan expressed his support to industry for developing a new technology wherein plastic bags biodegrade in a month.²⁷⁰ An additive is available which, when added to plastic bags, will decay in 30 - 45 days, depending on exposure to sunlight. A bill requires malls, supermarkets, grocery stores, convenience stores and public markets to use oxo-biodegradable plastic shopping bags. The Caloocan lawmaker said that various bills banning plastic products are pending in Senate and Congress, lawmaker said. Local plastic manufacturers have expressed full support for items of proposed legislation and initiatives implementing a plastic bag recovery programme, which they consider preferable to banning plastic bags.

Crispin Lao (2011)²⁷¹, president of the Philippine Plastics Industry Association (PPIA), cited *House Bills 496* (the proposed *Plastic Bag Recycling Act of 2010*), and *House Bill 501* (proposed *Stores Proactive in Plastic Bag Recycling Act of 2010*), both filed by Aurora Congressman Juan Edgardo Angara.

The two bills promote the reduction of plastics usage, encourage the use of alternative and reusable bags and devise retrieval and recycling mechanisms. He said a plastic bag recovery programme could be implemented nationwide only through legislation. Lao stressed that a tax levy, a regulation or ban in the use of plastic bags would not be a positive move, citing its impact on the plastics industry and the poor people. Recycled plastics can become useful products, such as bricks, part of an asphalt mix, fillers for hollow blocks and fuel for cement kilns.

LOCAL AND REGIONAL INITIATIVES

At least 59 Filipino cities and municipalities have passed their respective ordinances and are now in various stages of enforcing the ban on plastic bags. Local ordinances have been passed by the LGUs in Lucban, Quezon, and Tanay, Rizal, as well as in Bacolod and Davao. More recently, Muntinlupa, Las Piñas, Marikina, and Makati, have also enforced the plastic ban.

Legarda, who chairs the Senate committee on climate change, said the support of LGUs serves to boost the campaign against non-biodegradable plastic bags and to use re-usable and recyclable plastic bags.

"Even as SB 2759 remains pending at the committee level, these cities and municipalities have clearly shown that such measure is enforceable so long as the twin elements of genuine concern for the environment and the necessary political will are present," said Legarda.



MUNTINLUPA CITY

On January 18, 2011 Muntinlupa City, located on the south end of the Manila metro vicinity, became the first major urban centre in the Philippines to ban the use of plastic bags.²⁷² *Ordinance 10-109*, which also bans polystyrene containers, is stricter than many laws in other countries in that it prohibits the offering of bags for wet meat and fish products.

Severe flooding in Muntinlupa has been attributed to plastic bags and other non-biodegradable packaging which clog waterways and prevent proper water flow. The ordinance, signed into law by Muntinlupa mayor Aldrin San Pedro, is expected to ease such water-flow problems and to stimulate similar bans throughout the Manila metro area.

However, not all reactions to the ban, which imposes fines and potential prison time, have been positive. In addition to industry opposition, the city's Environmental Sanitation Center must address the public's hesitancy to accept the change. While some contest the ban based on an unwillingness to modify their use of plastic bags, others founded their arguments in business. Many street vendors selling drinks see no viable alternative with which to package their merchandise. Small shops who sell nothing but fresh meat and fish cannot afford the expensive paper often used by larger shops as a packaging substitute for plastic bags, and many consumers cannot afford to purchase reusable bags.

Section 15 of *City Ordinance 10-109* states that violators shall be fined P 500 (EUR 8), P 1,000 (EUR 16) and P 2,500 (EUR 40) for the first, second, and third offences, or imprisonment of not more than six months at the discretion of the court. The mayor has warned that business establishments found violating the law face the risk of having their licences to operate cancelled for up to one year.

The Philippine Information Agency (2011)²⁷³ reported that 90 per cent of materials found obstructing storm drains and waterways were plastic discards, costing the city government P 2.3 million (EUR 36,000) to remove in 2009.

RWANDA

Law N°57/2008,²⁷⁴ banning the manufacture, use, import and sale of polythene bags in Rwanda, was passed in September 2008. Offenders risk imprisonment of six to twelve months and/or a fine of Rwf 5,000 (EUR 6,25) to 500,000 (EUR 625). Rwanda was the first country to ban all plastic bags.

The foundations of the ban were laid in 2004, when the Ministry of the Environment began to conduct studies on the use of plastic bags in Rwanda.²⁷⁵ In addition to the visual pollution, research from the National University of Rwanda reported the widespread environmental consequences of plastic, such as contaminated water sources and hindered agriculture. In 2005, awareness about this information was raised by encouraging locals to use the monthly obligatory communal work session, known locally as *Umuganda*, to collect all the plastic bags lying around or buried. In 2006, a Law prohibiting bags thinner than 100 microns or less was passed, which was expanded in 2008 to a ban of *all* plastic bags through the aforementioned *Law N°57/2008*.²⁷⁶

Rwanda now takes its ban very seriously. Even travellers to the country are warned that they will be fined for using the bags within the country.²⁷⁷ Luggage will be searched at the border and even at police checkpoints throughout the country to make sure you are not carrying plastic bags. It is reported that Kigali, the capital, and the countryside appear exceptionally clean, ever since the Law was passed. Rwanda has been recognised for this initiative and awarded from all over the world,



with the most prestigious award in 2008 where the UN Habitat named Kigali the cleanest city in all of Africa.²⁷⁸

However, not everyone is happy with the ban, and the campaign has certainly come at a cost, including use of more expensive packaging materials. The government hopes the locals will revert to traditional packaging, including woven baskets, which used to be an important traditional craft in Rwanda. Other alternatives such as bags made from cloth or banana leaves are encouraged as well. Yet, an article in AllAfrica in August 2012 reported resurfacing of small black and white plastic bags around Kigali city.²⁷⁹

Others claim that the restriction creates unfair competition for local businesses, especially since Rwanda has recently waived restrictions on goods originating from the East African Community (EAC). The recent passing of the *Polythene Materials Control legislation* in early February 2012 at the East African Legislative Assembly (EALA) has therefore been very welcomed by Rwanda. The bill will provide a legal framework for the preservation of a clean and healthy environment through the prohibition of manufacturing, sale, importation and use of polythene materials in the region. Another solution could be to devise mechanisms to outlaw sale of products that are packaged in non-biodegradable materials on the local market, regardless of their origin, says an editorial of AllAfrica.²⁸⁰

SINGAPORE

The Singapore National Environment Agency report (2011)²⁸¹ that they ran a campaign 'Bring your bag day' a few years ago where customers paid 5 cents (EUR 0.028) for each plastic bag take from a supermarket (on certain days of the week). The money went to an environmental NGO, but the campaign was not deemed a great success.

One of the supermarkets still gives a ten cent (EUR 0.056) rebate to those bringing their own bag to the supermarket. There is said to be a greater awareness now and more reusable bags being used - but no national Government policy initiatives in sight.

SOMALILAND

A ban was issued by the country's Ministry of Trade and Industry on March 1, 2005, entitled - *Banning importation, production and use of plastic bags in the country.*

Plastic bag pollution in Somaliland is reportedly prevalent (Begum, 2010)²⁸² that the bags have been nicknamed *Hargeysa flowers* (after Hargeysa, the capital city). According to government officials, plastic bags have become both an eyesore and a source of environmental problems in Somaliland. Of special concern are the adverse effects on livestock, especially on those that feed on shrubs, and clogging of storm and sewage drains.

The ban is supposedly backed by an awareness campaign. Some assessments indicate that both importation and local production of the bags continue, regardless of the ban.

SOUTH AFRICA

In May 2003, South Africa introduced a ban on thin plastic bags in combination with a levy per bag in an attempt to control the environmental problems posed by plastic bags.²⁸³ Before these measures were introduced, plastic bag consumption in South Africa was estimated at 8 billion per year (160 per person). South Africa also exports a range of bags to the annual value of R 80 million

The Department of Environmental Affairs and Tourism (DEAT) had identified littering in general as a problem facing the South African environment, and has focused on the effect of indiscriminate dumping of thin plastic bags, believing that this has contributed greatly to the problem.

The regulations prohibit the manufacture, trade in and commercial distribution of thin plastic bags in all retail stores in South Africa. Plastic bags should have a minimum thickness of 30 microns, whereas the average thickness of plastic bags had been 17 microns. The heavier gauge was intended to encourage reuse of plastic bags. Moreover, the Government argued that the move would allow for easier recycling and strengthen the recycling industry, retaining existing jobs and creating new ones.

The second measure was a fixed purchase price for bags plus an additional levy of R 0.03 (EUR 0.0024), which rose to R 0.04 (EUR 0.0032) in March 2009. So, together with the ban on thin-walled plastic bags, consumers were given the option of using their own bags or buying thick-walled plastic bags costing:²⁸⁵

- up to R 0.25 (EUR 0.02) for the 10-litre plastic bag;
- R 0.31 (EUR 0.025) for the 12-litre bag;
- R 0.49 (EUR 0.04) for the 24-litre one.

RECEPTION OF THE 2003 BAN AND LEVY

A 2010 study by the University of Cape Town²⁸³ suggested that since these measures were introduced, there has been an overall fall in the consumption of plastic bags of approximately 44 per cent (calculated 'per R 1,000 of shopping'). However, the researchers also found that the levy charged had only short run success. They note that over time, the effectiveness of the levy has continued declining despite its comprehensive application at checkout points.

A socio-economic impact analysis of the draft legislation (2003)²⁸⁴ found that although an increase in the thickness of bags would stimulate recycling, the increase in recycling would be limited (maximum

10-15 per cent of production) unless other factors that constrain recycling were addressed. The most important factor is the need to create additional demand for recycled polymer. According to the department, those who fail to comply with the new legislation face fines of up to R 10,000 (EUR 829) or one year imprisonment for first-time offenders, and fines of up to R 100,000 (EUR 8,292) or imprisonment of up to ten years for repeat offenders.

The South African Government's Department of Environmental Affairs and Tourism quickly declared itself satisfied with the level of public and business co-operation in implementing the new law on the use of plastic bags (2003).²⁸⁶

For an interesting comparison of taxation and regulation of plastic shopping bags in Botswana and South Africa, carried out by US think-tank Resources For the Future (RFF), see the section on Botswana.

SOUTH KOREA

In Korea since 1999, there has been a charge for plastic and paper bags in department stores, discount stores, and major shopping markets. The purpose of this charge is to reduce the use of

disposable bags. According to the law, each shopping mall must sell the plastic bags and refund the 50 won (EUR 0.03) deposit when the customers return their plastic bags.

According to the Korean Zero Waste Movement, when first enforcing the law, it seemed that the use of disposables decreased considerably.²⁸⁷ As time went by, many customers seemed to become less enthusiastic to receive their refund because it annoyed them to return their used shopping bags, and they start to bear the cost of shopping bags as a matter of course.

The Korean Green Mileage Campaign began under the slogan of 'carry a green-bag' (a shopping basket) with the participation of several Korean celebrities. Korean distributors are promoting Green-bag

(a pro-environment shopping bag to reduce the use of plastic bags) to their customers. E-mart, Korea's largest distributor, has prohibited sales of plastic bags and has renting shopping baskets at some branches since February 2009. Other major retailers in Korea were said to be taking an active part in campaigns to reduce plastic bags.

TANZANIA

The Government of Tanzania issued a public notice banning the manufacture, importation, sale, purchase and use of plastic bags thinner than 30 microns (60 microns for juice and water packaging).²⁸⁸ In 2006, the Government also imposed a surtax on the permitted plastic packaging (i.e. 30 microns and thicker).

These bags were thought to contribute the blocking of drainage ditches and sewers and thus increasing the likelihood of contributing to the spread of diseases such as malaria and cholera. According to a local source (2011), Tanzania's environmental authorities estimated that eight billion bags were being used each year before the ban.²⁸⁹

TOGO

On January 5, 2011, the African state of Togo adopted *décret N° 2011-103/PR du 05 janvier 2011 fixant les modalités de gestion des sachets et emballages plastique*, which officially outlaws the import and sale of non oxo-biodegradable bags in order to protect the environment.²⁹⁰ Importers of plastic bags were given a six-month deadline and manufacturers nine months.

According to a survey by the NGO *Pour un Avenir Ensoleillé* ('For a Sunny Future', EAP-Togo), a Togolese uses on average 4.3 conventional non-biodegradable plastic bags per day. It is estimated that in Lome alone, around three billion plastic bags are used every year.

RECEPTION OF THE BAN

According to Blogger Lola Akomatsri, alternatives to plastic bags, especially oxo-biodegradable bags, are still having difficulties to penetrate the market as of February 2012, four months after the expiry of the government moratorium.²⁹¹ She blamed the lack of financial support from the Government and established networks of pirates.

The disadvantage of oxo-biodegradable bags are the low profit margins for wholesalers and the higher consumer prices, being 50 per cent more expensive than plastic bags. The high prices are especially difficult for small retailers, who lose customers when only offering the more expensive bags because the bag price often makes up a large percentage of their sale. So far, the oxo-degradable bags are only bought by supermarkets, hypermarkets, and some general food stores, Akomatsri said.



Moreover, the Togolese government is slow in cracking down on illegal bags, which are still sold openly. As a result, importing companies who want to comply with the decree, feel abandoned by the authorities in the fight against non-biodegradable plastic bags.

Another result of the ban has been a near-doubling of the demand for white non-biodegradable bags. Because the new oxo-biodegradable bags are white, in contrast with the conventional but now illegal black plastic bags, Togolese associate them with the colour white. Therefore, customers who cannot afford the famous biodegradable bags prefer to buy cheaper plain white bags to bluff other customers that care about the environment.

UGANDA

People caught offering plastic bags ('buveera') in Uganda after a ban took effect in January 2010 could go to jail for up to three years, pay a fine of up to sh 3 million (EUR 858) or both.

New Vision (2009)²⁹² reported that Christine Akello, an environmental lawyer working with the National

Environment Management Authority (NEMA), said the penalties would be provided for in an amendment to the waste management regulations under the National Environment Management Act. The amendment was made when Government banned the thinner plastic bags and will be revised to include all plastic bags. PE bags thinner than 30 microns were banned two years earlier, but implementation was hampered by confusion over which bags were below or above 30 microns. NEMA planned to work closely together with non- governmental organisations to engage in the mobilisation of resources and engage local communities in removing plastic bags waste.

URUGUAY

Uruguayans used around 1,400 million plastic bags per year in 2008, a total consumption of plastic bags averaging 432 bags per person per year. There is no national legislation now in place to restrict the circulation of plastic bags in Uruguay, according to industry body Cempre (2011).²⁹³ However, the Uruguayan National Environmental Bureau (*Dirección Nacional De Medio Ambiente*) has issued a Strategic Action Plan for Sustainable Management of Plastic Bags (2009).²⁹⁴

There is a national action plan; it does not seek to remove or ban plastic bags, but to reduce their indiscriminate use, promote reuse and improve their final disposal to minimise environmental impacts. This plan will run from 2009 to 2015 and has been designed to serve as a tool for planning and for facilitating actions between the public and private sector. Within the plan, there are five strategic lines of action to be developed in an integrated manner, each with relevant targets:

Strategy 1: Reduction of plastic bag consumption per capita

- Target 2015: 40 per cent reduction of average consumption per capita bags compared to 2008.

Strategy 2: Promotion of reuse and recycling of plastic bags

- Goals for 2015: 100 per cent increase in the volume of plastic bag recycling in relation to 2008
- Major outlets to adopt quality criteria.



Strategy 3: Replacing traditional materials with others more easily degradable

- Goal for 2011: 80 per cent of plastic bags sold by major outlets is oxo-biodegradables/biodegradable
- Goal for 2015:
 - 100 per cent of plastic bags sold by major outlets is oxo-biodegradables/biodegradable
 - 50 per cent of all bags are of oxo-biodegradables or biodegradable materials.

Strategy 4: Improve management of urban solid waste

- Goals for 2015:
 - Increase of 50 per cent of investments in public via containers compared to 2008.
 - 50 per cent of the departmental capitals to receive a substantial improvement in street cleaning
 - 100% of the departmental capitals to have management plans in place for packaging.

Strategy 5: Promotion of cultural change towards a responsible and rational use of plastic bags

- Target 2015: 75 per cent of the population to take some action to reduce plastic bag wastage.

USA

There is no national legislation on plastic bags in America. However, retail bag regulations have been enacted or proposed at either the state or local level in around 30 states.

An excellent source of information which reviews the situation in America has been put together by the State of Florida's Department of Environmental Protection (DEP). The state's *Energy, Climate Change, and Economic Security Act of 2008 (House Bill 7135)* required the DEP to perform an analysis and submit a report (Florida DEP, 2010) to the Legislature by February 1, 2010 regarding the necessity and efficacy of both state-wide and local regulation of bags used by consumers to carry products from retail establishments.²⁹⁵

Florida DEP sought to enquire whether a regulation on retail bags was necessary. To determine this, the authors examined data on:

- the number of retail bags generated, recycled, and disposed
- the role retail bags play in Florida's litter
- the effect retail bags have on wildlife and environment
- life cycle studies which compare various retail bag alternatives
- retail sector response to environmental issues connected with the use of bags

The authors of this review noted that almost every retail establishment has a bag for its customers and



Americans used almost 90 billion of them in 2003*. Retail bags are most commonly paper and plastic thin-walled bags. Only a relatively small percentage are reused or recycled (12 per cent of plastic bags and 37 per cent of paper bags) while far too many damage the environment because people improperly handle and dispose of them.

* This equates to around 310 bags per person each year. This is in line with numbers given by the NRDC in 2008 (<http://www.nrdc.org/media/2008/080109.asp>), although some other sources give numbers of over 1,200 bags per year when not only shopping bags are included (http://www.envirosax.com/plastic_bag_facts).

Table 12: Options for discouraging and reducing the use of thin-walled retail bags (Source: Florida DEP, 2010)

Option	Pros	Cons	Additional Comments
Educational campaign	Easy to implement	Limited impact unless coupled with other option(s)	-
Encourage in-store recycling	Uses infrastructure that exists already Increases recycling	May be costly to stores Does not accommodate compostable/biodegradable alternatives	
Retail stores offer reusable bag credit	Allows retailers to be proactive & flexible Attractive to customers Incentive aimed at changing behaviour – reducing consumption	Not attractive to all retailers. Credit is usually small (1 to 5 cents) and it is therefore undervalued by customers	Pilot study of a reusable bag policy at 100 stores found 58 per cent reduction in the number of plastic bags used
Require biodegradable bags as an option at checkout	Bags are easy for stores to purchase Customers feel 'greener'	Bags are expensive, cost will be passed on to customers Confuses consumers who don't realize that bags will not biodegrade in home composters Can contaminate plastic recycling	-
Require additional recycled content in bags	Easy to accomplish for paper bags Reduces environmental concerns for manufacturing	More difficult to accomplish for plastic bags Increased recycled content bags are more expensive Does not address end-of-life concerns Minimally addresses manufacturers' environmental concerns	Current average recycled content both for paper bags and for plastic bags is 30 per cent
Implement pilots in interested communities	Some communities in Florida expressed interest	Difficult for retail chains to implement something in just a small area	-
Set recycling rate goal (number recycled/y)	Increased recycling Material is in demand	Hard to track Does not reduce the number of bags used Does not address manufacturers' environmental concerns	-
Require bag consumption reduction (+ plan to enact ban or fees if not reached)	Reduces bag consumption Gives retailers flexibility	Hard to establish baseline Very difficult for smaller stores to track	-
Increasing fee over time	Incentive to reduce consumption Could not fund recycling and educational campaigners Reduces litter Reduces costs of clogged drains	Fees may be perceived as a tax May transfer businesses to surrounding locations Potential to job losses	-
Flat fee (no increase over time)	Reduces consumption Reduces litter Reduces costs of clogged drains	Consumers get used to paying and consumption creeps up Fees may be perceived as a tax May transfer business to surrounding locations Potential job losses in plastic bag manufacturing and recycling	-
Ban	Reduces consumption Reduces environmental damages Reduces litter Reduces costs of clogged drains	Some consumers like convenience of store-provided bags May promote shift to disposable alternatives Potential job losses	-

Improper handling and disposal of retail bags has been shown to harm the environment. While plastic bags may appear to be the major problem, the solution is not to switch to paper. Life cycle analyses show a higher level of environmental harm from manufacturing to disposal of paper compared to plastic bags. A switch to biodegradable or compostable bags is not the answer either. Since Florida has no solid waste commercial scale composting facility to handle these bags, they would end up in a landfill just like paper or plastic bags.

While all strategies to reduce the use of retail bags have merit, some are more effective than others. Although they initially pose an inconvenience for some consumers, bans produce the fastest results, closely followed by user fees and taxes. Voluntary efforts are more readily accepted by the retail industry and the public, but take more time to produce results. While voluntary efforts can be helpful in changing behaviour patterns, their effectiveness is dependent on the number of retail establishments participating. Public education is crucial to any approach, to illuminate the damages caused by thin-walled bags, and the cost to undo the harm, and promote reusable bags. Collaboration with the retail sector is also essential.

Figure 11 shows that the number of mandatory policies for bag reduction has increased steadily since 2006.

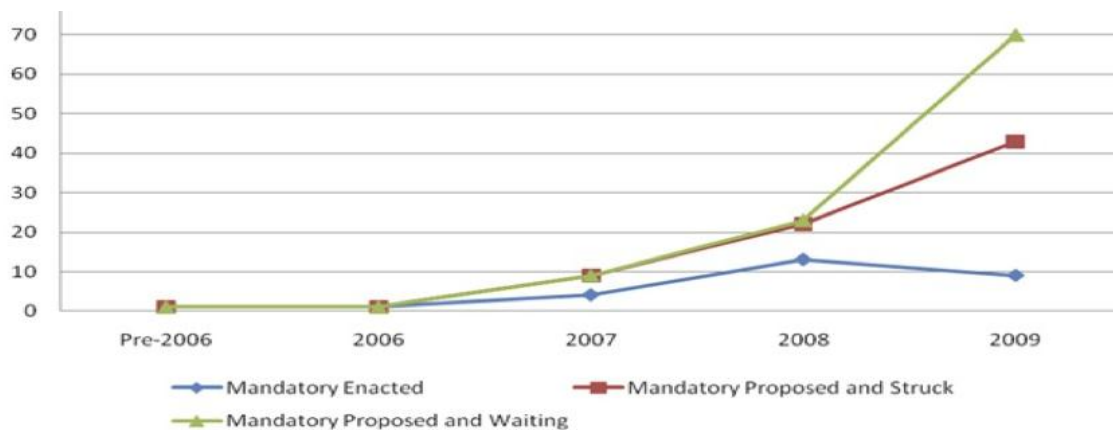


Figure 11: Number of mandatory retail bag policies proposed and enacted in America

BIODEGRADABLE BAGS IN AMERICA

Biodegradable and compostable bags are gaining attention as alternatives to plastic and paper bags. The technology has improved since first introduced and some manufacturers now market biodegradable bags with a 'lifespan'. There are multiple types of biodegradable and compostable bags. Compostable bags should meet ASTM D6400-04, the standards for plastics designed to be composted in municipal and industrial aerobic composting facilities.

Biodegradable bags now fall into the following categories:

- photo-degradable react to ultra-violet light to break down
- hydro-biodegradable react to —moist biologically active environments to break down
- oxo-biodegradable use additives to react with the atmosphere in order to break down.

While bags that do not persist in the environment sound like a positive step, there are serious drawbacks. All types of biodegradable and compostable bags must be placed under specific

conditions to degrade properly. For instance, a photo-degradable bag will not break down if it is covered by water or otherwise obscured from light and an oxo-biodegradable bag requires direct access to oxygen and sunlight to degrade.

Any consumer who places a labelled 'biodegradable' bag in the home compost pile will not see the promised degradation because the required high temperatures achieved in municipal composting facilities cannot be achieved with home composting. Additionally, some of these bags leave plastic pieces or other residues when they break down, leftovers that natural systems and wildlife cannot tolerate. Finally, biodegradable bags inadvertently lead to litter because consumers assume the bags will quickly break down or compost, whatever the conditions; they discourage environmental stewardship.

FEDERAL INITIATIVES

In April 2009, the US Congress introduced the *Plastic Bag Reduction Act of 2009* (H.R. 2091) to amend the *Internal Revenue Code of 1986* to impose a retail tax on thin-walled carryout bags, and for other purposes.²⁹⁶ However, this bill never became law. This bill was proposed in a previous session of Congress. Sessions of Congress last two years, and at the end of each session all proposed bills and resolutions that haven't passed are cleared from the books.



The American Chemistry Council runs a comprehensive online facility to encourage the recycling of plastic bags (www.plasticbagrecycling.org), and is highly critical of such policy instruments as bans.

The ACC notes that plastic grocery bags are extremely resource-efficient products; plastic bags require 40-70 per cent less energy to manufacture than paper bags.²⁹⁷ For every seven trucks needed to deliver paper bags, only one truck is needed for the same number of plastic bags, helping to save energy and reduce emissions. It takes 91% less energy to recycle plastic than paper.

The recycling of plastic bags and film reached a record high across the United States in 2008, continuing a growing national recycling trend. An estimated 832,394,000 pounds (378,000 tonnes) of post-consumer film (including plastic bags and product wraps) were recovered in 2008, according to the latest *National Post-Consumer Recycled Plastic Bags and Film Report*.²⁹⁸ This represents a 28 per cent increase in bag and film recycling since 2005. The boost in recycling was driven by greater consumer access to collection programmes, primarily at large grocery and retail stores, as well as by new markets for these recycled materials.

The recycling report was conducted by Moore Recycling Associates, Inc. of Sonoma, California, based on information obtained from 79 domestic processors, end-users of film material and exporters. The recycling numbers reported likely understate actual bag and film recycling because export data is more difficult to obtain than data on domestic recycling, and in 2008 there was a shift toward export markets, according to the report. Data collection also was affected by the rapid spike in the number of collection programmes as many stores launched new programmes to recover post-consumer plastic bags and product wraps from their customers. There are now retail store collection programmes in all 50 states.

The increasing number of bag and film recycling programmes are being led by plastic bag makers. Last year, the Progressive Bag Affiliates announced a recycling goal of 40 per cent recycled content in all plastic shopping bags made by these companies by 2015.



When fully implemented, the Full Circle Recycling Initiative (launched in 2009) is expected to reduce greenhouse gas emissions by 463 million pounds (210,000 tonnes), conserve enough energy (mainly natural gas) to heat 200,000 homes, and reduce waste by 300 million pounds (136,000 tonnes) every year.²⁹⁹

STATE AND LOCAL INITIATIVES

The first US state-level plastic-bag legislation was enacted in Washington, DC in 2009, although several cities and counties have had them in place since 2007.³⁰⁰ Table 13 below shows the diversity and number of local level policy initiatives in America that were around in 2010.

Table 13: Local Enacted Regulations in the United States (Source: Florida DEP, 2010)

Location	Population	Year effective	Ban	Fee	Requirement	Voluntary	Provide alternatives ⁽¹⁾
30 Communities, AK	16,500	1998	✓				
Austin, TX	656,562	2007				✓	
Lake County, IL	712,453	2007			✓		
Oakland, CA**	404,155	2007	✓				
Phoenix, AZ	1,567,924	2007				✓	
San Francisco, CA	808,976	2007					✓
Suffolk County, NY	1,512,224	2007			✓		
Albany County, NY	298,114	2008			✓		
Chicago, IL	2,853,14	2008			✓		
Fairfax, CA	7,066	2008	✓				
Los Angeles CA	3,833,995	2008				✓	
Malibu, CA	13,009	2008	✓				
Manhattan Beach, CA ⁽²⁾	36,605	2008	✓				
Nassau County, NY	1,351,652	2008			✓		
New York City, NY	8,363,710	2008			✓		
Paia, HI	2,752	2008	✓				
Rockland County, NY	298,545	2008			✓		
Solana Beach, CA	12,825	2008				✓	
Tempe, AZ	175,523	2008				✓	
Westchester County, NY	953,943	2008			✓		
Edmonds, WA	40,158	2009	✓				
Madison, WI	231,916	2009			✓		
Marshall County, IA	39,523	2009					✓
Outer Banks, NC	33,518	2009	✓				
Palo Alto, CA	59,395	2009	✓				
Tucson, AZ	541,811	2009			✓		
Westport, CT	26,051	2009	✓				
Fairbanks, AK	35,132	2010		✓			
Washington, DC ⁽³⁾	591,833	2010	✓	✓			
Kauai County, HI	63,689	2011	✓				
Maui County, HI	143,574	2011	✓				
Total			13	2	10	5	2

(1) Provide alternatives means to provide alternative bags such as compostable or reusable bags.. (2) Under lawsuit, not in effect.(3) Washington DC has both a ban and a fee.



RECYCLING LAW IN DELAWARE STATE

In 2009, the US state of Delaware passed legislation (*HB15 - Act to amend Chapter 60, Title 7 of the Delaware Code relating to recycling and waste reduction in The State Of Delaware*) requiring increased consumer access to plastic bag recycling.³⁰¹ The new law, similar to those already passed in the states of California and New York, required retailers and chain stores that issue plastic bags to consumers to provide collection bins for their recycling. The legislation will also require retailers to provide consumers with an option to purchase reusable bags and will require plastic bag manufacturers to print a recycling message on all shopping bags.

PROPOSED BAN IN OREGON

Oregonians use approximately 1.7 billion plastic bags each year. Proponents of mandatory bans were hoping in 2011 that Oregon would become the first American state to adopt such an instrument. *Senate Bill 536* was introduced in January 2011, and would prohibit use of thin-walled checkout bags except in certain cases. However, the bid for a statewide ban failed to pass the Senate after plastic bag manufacturer Hilex Poly launched a lobbying effort against the legislation.

After the failed bid, several cities took their own initiatives to ban plastic bags. Single-use plastic checkout bags have been banned in Portland, Eugene and Corvallis. Paper bags are still allowed, but will require a fee of 5 cents in Eugene and Corvallis. Advocates are now taking their quest to the Oregon Legislature, renewing the failed 2011 bid for a statewide ban.³⁰² The bill has returned to the Oregon Senate, but it doesn't have a sponsor yet. Sen. Mark Hass, D-Beaverton, who pushed the bill hard in 2011, said he doesn't want to be in the eye of the storm this time.

The text of the *Oregonian Senate Bill 536* (and the 2012 draft *LC 1048*) would introduce a range of measures including:^{303,304}

- prohibiting use of thin-walled checkout bags except in certain cases
- allowing Department of Environmental Quality to impose civil penalty
- prohibiting local governments from imposing charges on checkout bags or other bags provided to customers
- repealing the statute requiring retail establishments that offer plastic bags to customers to also offer paper bags.

FIRST STATE-WIDE BAN IN HAWAII

A bag ban law passed in May was enacted in Hawaii County in January 2013, forcing customers who do not bring their own bags to grocery stores to pay for disposable plastic bags.³⁰⁵ Hawaii County is the last county in Hawaii to enact a plastic bag ban; Hawaii is now the first plastic bag-free state in the country. While the law currently enforces a bag fee, plastics bags will be completely banned in Hawaii by July 1, 2015; paper bags will need to come from at least 40 per cent recycled product.

SAN FRANCISCO PLASTIC BAG BAN

In 2005, San Francisco Environment (SFE) estimated that more than 180 million plastic bags were distributed in San Francisco.³⁰⁶ With no significant reduction in the number of bags, nor any increase in plastic bag recycling, the City targeted the largest retail distributors of plastic check-out bags. In an effort to reduce plastic bag use, the City partnered social marketing campaigns such as *Bring Your Own Bag* and distributed thousands of SFE-branded canvas bags made from scrap cloth.



From December 2007, large Supermarkets (over US\$ 2 million in gross annual sales receipts) and chain pharmacies were prohibited from distributing plastic checkout bags. Instead they may distribute BPI certified compostable bags, paper bags made with a minimum 40 per cent post-consumer recycled content, or reusable bags. The intent of this legislation was to reduce the amount of thin-walled plastic bags used and disposed of in the City. SFE considered that while research indicates that a fee on check-out bags is the best way to achieve this goal, state laws currently prohibit cities from assessing bag fees. The *San Francisco Plastic Bag Reduction Ordinance* is an action that taken until better state-wide legislation is enacted.³⁰⁷

By mid-2010 it was reported that since the San Francisco ban was implemented, with an estimated 100 million plastic bags per year removed from the waste stream.³⁰⁸

CALIFORNIA STATEWIDE PLASTIC BAG BAN REJECTED BY LAWMAKERS

On August 31, 2010, California lawmakers rejected a bill seeking to ban plastic shopping bags after a contentious debate over whether the state was going too far in trying to regulate personal choice.³⁰⁹ The Democratic bill would have been the first state-wide ban, although a few California cities already prohibit their use.

Supporters of the bill said the 19 billion plastic bags state residents use every year harm the environment and cost the state \$ 25 million annually to collect and manage. It had been the subject of intense lobbying by industry, which called it a job killer. The *bill, AB1998*, called for the ban to take effect in supermarkets and large retail stores in 2012. It would have applied to smaller stores in 2013.³¹⁰

Republicans and some Democrats opposed it, saying it would add an extra burden on consumers and businesses at a time when many already are struggling financially.

LOS ANGELES PLASTIC BAG BAN

In May 2012, Los Angeles became the largest city in the United States to approve a ban on plastic bags at supermarket checkout lines, handing a hard-fought victory to environmentalists.³¹¹

The City Council voted 13 to 1 to phase out plastic bags over the next 16 months at an estimated 7,500 stores, meaning shoppers will need to bring reusable bags or purchase paper bags for 10 cents each.

Once the plastic bag ban ordinance is enacted, larger stores will have six months to stop handing out plastic bags and smaller markets will have 12 months. After that, retailers would be required to charge 10 cents for each paper bag they provide customers. "My hope is that so few paper bags will be used as a result of this measure that the formal ban ... on paper bags may not even be necessary," said Councilman Paul Koretz, who initially had hoped to prohibit paper as well.

GREEN CITIES CALIFORNIA ENVIRONMENTAL ASSESSMENT OF GROCERY BAGS

In 2010 Green Cities California published a Master Environmental Assessment (MEA) on the subject of thin-walled, or disposable, grocery shopping bags, to help cities and counties determine the significance of actions that they may take to cut back on the use of thin-walled grocery bags.³¹² Green Cities California (GCC) is a coalition of thirteen local governments which aims to accelerate the adoption of sustainability policies and programmes through collaborative action.³¹³

Findings of the study were as follows:



- **Thin-walled plastic bags:** Nearly 20 billion thin-walled high density polyethylene (HDPE) plastic grocery bags are used annually in California, and most end up in landfills or as litter. In fact, of the four types of bags considered, plastic bags had the greatest impact on litter.
- **Thin-walled paper bags:** Kraft paper bags are recycled at a significantly higher rate than thin-walled plastic bags. Still, over its lifetime, a thin-walled paper bag has significantly larger greenhouse gas (GHG) emissions and results in greater atmospheric acidification, water consumption, and ozone production than plastic bags.
- **Thin-walled biodegradable bags:** Although biodegradable bags are thought to be an eco-friendly alternative to HDPE plastic bags, they have greater environmental impacts at manufacture, resulting in more GHG emissions and water consumption than conventional plastic bags. In addition, biodegradable bags may degrade only under composting conditions. Therefore, when littered, they will have a similar impact on aesthetics and marine life as HDPE plastic bags.
- **Reusable bags:** Reusable bags can be made from plastic or cloth and are designed to be used up to hundreds of times. Assuming the bags are reused at least a few times, reusable bags have significantly lower environmental impacts, on a per use basis, than thin-walled bags. Some of the reviewed LCAs indicate that use of the non-woven plastic reusable bag results in particularly large environmental benefits.
- **Effects of policy options on thin-walled bags:** In other regions of the world, fees and bans on bags have resulted in dramatic drops in consumption. For instance, the Irish plastic bag tax immediately resulted in a greater than 90 per cent reduction in use. Due to California *law AB2449*, no fee program on plastic bags can be introduced. However, bans on thin-walled plastic bags, as well as fees on other thin-walled bags, may be implemented to minimize use.

CITY OF CHICAGO PLASTIC BAG RECYCLING ORDINANCE

In 2009, the City of Chicago³¹⁴ introduced a *Plastic Bag Recycling Ordinance*³¹⁵ requiring businesses that provide plastic bags to customers to:

- **Print or display** on every plastic carryout bag:
 - *'Please Reuse Or Recycle At Participating Store'* using letters at least ½ inch in height; or a similar message encouraging the reuse or recycling of plastic carryout bags that is no less than 1 inch in height and uses letters at least ¼ inch in height
- **Provide a bin** for the collection of plastic bags and other film plastic that is visible and easily accessible to customers
- **Make reusable bags available** at or near where plastic bags are dispensed. Reusable means:
 - a bag made of cloth or other machine washable fabric with handles, OR
 - a durable plastic bag with handles that is at least 1.15 mils thick and specifically designed and manufactured for multiple reuse
- **Recycle or reuse** any plastic bags collected
- **Submit an annual report** to the Department of Environment each year providing the weight, location and cost for recycling the plastic bags.



There is no exemption based on size of establishment and no exemption for the quantity of bags handed out. The ordinance does not apply to fast food restaurants or other types of food service establishments.

AMERICAN SAMOA

American Samoa, an unincorporated territory of the United States located in the South Pacific Ocean, southeast of the sovereign state of Samoa (formerly known as Western Samoa), approved an *Act prohibiting supplying of plastic bags* to consumers (*HB No. 31-4, Public Law 31*) on January 11, 2010.³¹⁶

The American Samoa Environmental Protection Agency along with the Departments of Commerce and Public Safety were designated and authorised to enforce the provisions of this law on its effective date.³¹⁷

The plastic shopping bag ban became effective on February 23, 2011, after which date supplying petroleum-based plastic shopping bags to consumers and customers is prohibited.

VIETNAM

On November 15, 2010, Vietnam's first *Environmental Protection Tax Law* was approved by the National Assembly.³¹⁸ The law became effective on January 1, 2012 and makes products made from oil and gas, coal and the hydro-chloro-fluoro-carbons, HCFCs, used in refrigeration liable for tax. These include plastic bags, pesticides, agricultural-produce preservatives, warehouse sanitisers and chemicals to kill termites.

A tax of up to VND 50,000 (EUR 1.79) is imposed on every kilogram of plastic bags, with the government aiming to reduce the use of this product at supermarkets and shopping centres nationwide by 40 per cent by 2015. Recycled bags are exempt from the tax, but no real criteria have been laid out by the authorities, which means consumers are unable to distinguish the 'harmful bags' from recycled bags.

RECEPTION OF THE TAX

The Vietnam Plastics Association has complained that prices of plastic bags have surged sharply due to the tax, causing sales to drop 35 percent in January 2012, compared to a year earlier. Around 20 per cent of workers at its member companies lost jobs the same month, the association said. Small traders, who use the majority of plastic bags and are said to have no choice but to provide plastic bags for their customers, are reported to have difficulties with the increased prices.

In May 2012, Vietnam's Ministry of Industry and Trade has called for suspension of a new environmental tax on plastic bags, saying the plastic industry is struggling with low sales due to higher prices.³¹⁹ According to the trade ministry, the tax is confusing since there are various kinds of plastic bags and it is not clear which of them are subject to the tax.

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