

# Plastic Bag Elimination Program

## Policy Proposal

Detailed public policy brief with measurable steps toward the elimination of the sale of soft plastics in British Columbia's domestic market.

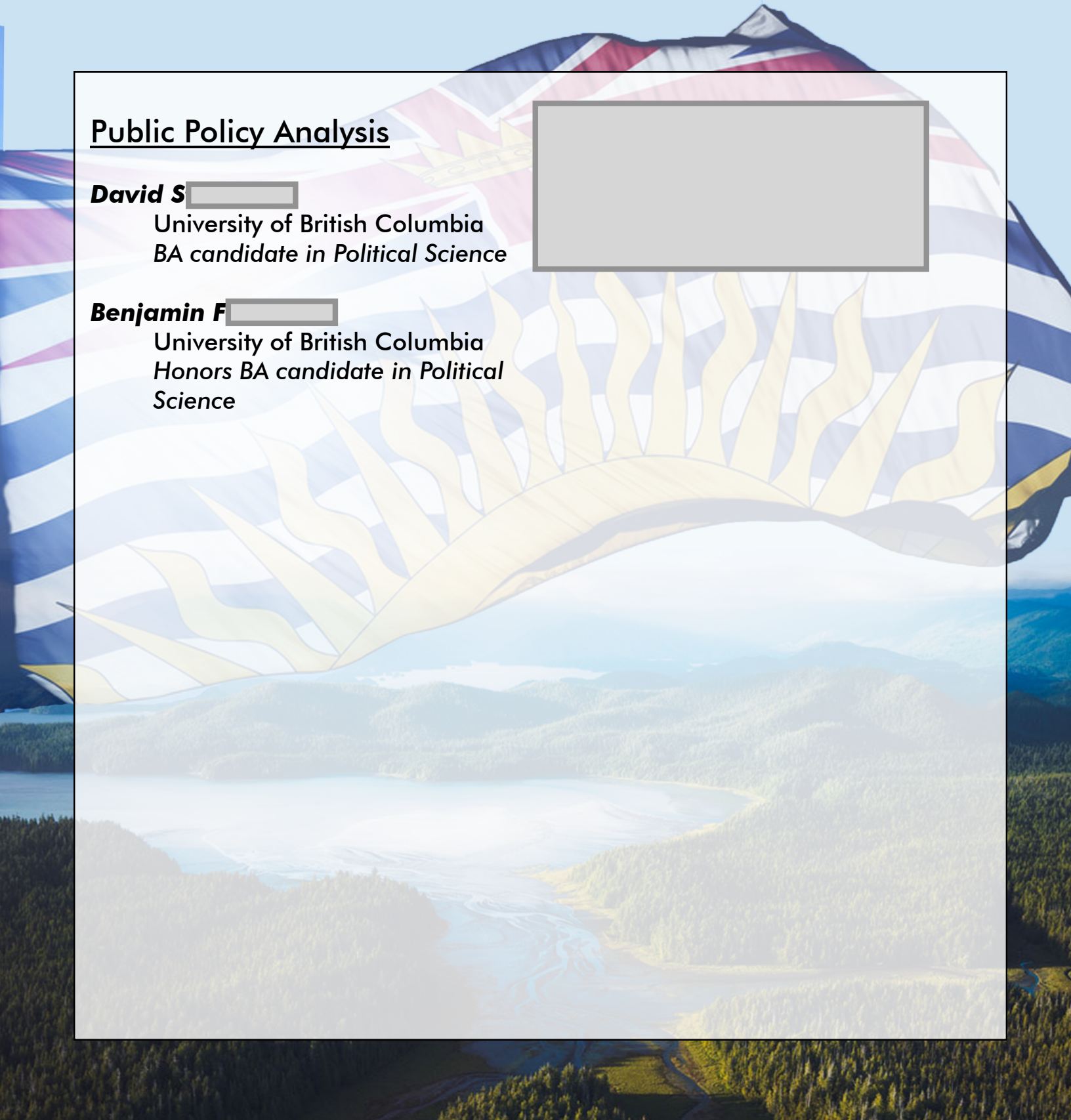
### Public Policy Analysis

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# 1.0 introduction

## 1.1 Problem Statement

Plastic pollution in the world's oceans is an increasingly urgent problem. By the year 2050, it is estimated that there will be more plastic in the ocean than fish[1]. In the year 2015, 8.1 million tonnes of plastic, the equivalent of 2275 adult male orcas, ended up in the ocean[2]. And while some of the plastic in the ocean can be seen from the surface most of the dangerous small plastics are on the ocean floor. Plastic in the ocean is a threat to British Columbia's ocean life's health, tourism, and therefore our economy. A UBC study on the impact of plastics in the marine birds on the Canadian west coast found that plastic was damaging the health of birds as they end up eating the poisonous plastics[3]. Canadians take home on average 9 to 15 billion single use plastic bags[4]. Efforts to take action to limit the impacts of plastic bags on the environment have been pursued around the world. As a leader of environmental issues, British Columbia is in a position to ensure that consumers do not damage the environment.

## 1.2 Policy intent

This proposal's intent is to provide a common sense policy recommendation that is aimed at addressing the single-use disposable plastic bag aspect of ocean plastic pollution, with a structured elimination strategy. In order to have a successful policy for the elimination of soft plastics, there are considerations which must be satisfied. What are the costs to citizens, what are the costs to businesses, how will this affect the economy and the budget, how will citizens and media respond to the proposition and how will that reflect on government, how can the policy be made so that it is as much a win-win scenario for all involved groups, and finally, are all other considerations accounted for?

This policy brief and its recommendations will address these concerns and lay out the groundwork for plastic bag elimination. This proposal will reaffirm BC's environmental policy leadership in order to protect the health of our ecosystems. With this, the province of BC can also contribute to the UN Sustainable Development Goals by increasing the sustainability of some of the world's greenest cities.

## 2.0 Policy recommendations

- A) 5 cents levy on non-compostable, single use bags for six months.
- This six month grace provides ample time for manufacturers of plastic alternative to safely scale their business, and allow for retailers to smoothly change their orders while allowing them to sell through their old inventories.
  - Three month grace period for businesses to adjust, without risk of fines.
- B) After six months, all single use, non-compostable bags will be banned from retail stores.
- C) After six months from adoption of this policy, all single use bags will have a levy of 10 cents.
- This increase will put a negative pressure on consumer compliance and acceptance, ensuring that shopping habits continue to change. This will prevent the perception of the fee on the bags as part of the innate cost of shopping.
- D) The single use bag fee will increase at a rate of 5 cents biannually.
- This will ensure that the pressure on consumers remains consistent and effective.
- E) This policy will be set to review in 18 months from initial conception.

### 2.1 Exemptions.

Products exempt from fees and sale restrictions include bags intended for:

- Medical/Hygiene (bags with direct contact to produce, meat and dairy, trash bags)
- Individual product packaging
- Bags for medical and sanitation applications

### 2.2 Enforcement

Any business which is found to not comply with this policy in regard to application of levies, or continuing to provide non-compostable bags past the grace period shall be subject to a fine. Enforcement may be comprised of on spot inspections, anonymous citizen hotline, and investigations. This fine will be determined by the appropriate legislators and consulted groups

## 3.0 Definitions

Regulation concerning the ecological impacts of plastic bags is relatively new. As a consequence, there are only a handful of acceptable definitions of the form of plastic bags, which can permit clear and enforceable regulation. As a result, this proposal redefines a few critical definitions to make it both more bi-conditional, and more consistent. For example, many definitions differentiate between single use and multi use plastic bags based on thickness (in microns) and/or the presence of a handle[5]. However, the thickness of a bag is not simple to measure for the sake of enforcement, and the presence of a handle is not an essential quality of a bag. Structural integrity, composition and form are the respective essential qualities of a single use plastic bag.

**3.1 Single use:** Any bag with a carrying capacity of up to 5kg with no discernable stretching or tearing shall be considered single use.

- Any bag which is able to maintain its core function within certain parameters (carrying weight) for more than one use is categorically multi use.
- These parameters were set on typical and implicit expectations of a plastic bag, while being conditional, and enforceable.

**3.2 Multi-use:** Any bag with a minimum carrying capacity of 5kg with no discernable stretching or tearing shall be considered multi-use.

**3.3 Compostable:** Any substance which is composed of organic materials that will undergo biological and chemical decomposition if exposed to natural environmental conditions.

**3.4 Biodegradable:** Any organic or inorganic substance which will undergo physical decomposition if exposed to natural environmental conditions.

- The distinction between compostable and biodegradable is because bio degradable plastics will simply deteriorate into micro plastics, while compostable plastics cease being plastics.

**3.5 Soft plastics:** Soft or flexible plastics are any plastics that can be easily scrunched into a ball or broken when crushed by hand and includes bread, pasta, chip and candy packaging.

## 4.0 Alternative systems

Many countries around the world have implemented their own plastic bag reduction strategies, ranging from outright bans on all forms of plastic bags accompanied by strict and aggressive enforcement, to gradual levies intended to guide market forces and seamlessly phase plastic out. Currently, there are over 11 countries in Africa, 9 in Asia, and 13 nations in Europe, and over a hundred cities in north America which have instituted plastic bag bans and levies, with varying degree of success. While many levels of government from around the world have implemented a diverse array of plastic bag reduction strategies, each system is contextually specific.

### 4.1 Analogous System for BC

A market based solution is the best policy framework to reduce the number of plastic bags in British Columbia. This form of solution would be the most efficient due to its ability to shift the responsibility of plastic bag consumption onto the consumer. By shifting the responsibility onto individuals, the reduction of single use plastic bags can occur more quickly and sustainably than by purley government banning. The most efficient reduction policy seen around the world that would best fit the case of BC would be the proposal seen in Ireland and Scotland. These policies see a low cost charge on single use plastic bags. This levy allows consumers who are willing to pay for the plastic bag to make decision at the same time as manipulating incentives to create a trade off for the consumer that reflects the damage that single use plastic bags cost to the environment.

In addition to the low cost levy on plastic bags, this policy proposal suggests that BC can build on an already successful framework to make it even more successful. In addition to a low cost levy on single use plastic bags this proposal recommends that banning of sale of non-compostable single use plastic bags. This ban will significantly reduce the troublesome life cycle of the non-compostable plastic bag while allowing for the market to have flexibility to meet the new set of regulations by continuing the use of compostable single use plastic bags.

#### Ireland Option: High tariff on plastic bags

- Tariff: 22c per plastic bag
- Effect: 95% decrease in plastic bag use
- Per capita plastic bag usage change: 321 to 21[A]

#### California Option: Ban and tariff on plastic bags

- Tariff: 10c per reusable plastic or paper bag[C]
- Ban: Single use plastic bags[C]
- Effect: 80% reduction in plastic and paper bag use[D]

#### Scotland Option: Low tariff on plastic bags

- Tariff: 5c[B]
- Effect: 80% reduction in plastic bag consumption
- Per person plastic bag usage change: 144 to 29[B]

#### Netherlands Option: Ban free distribution, tariff on plastic bags

- Tariff: Recommended 0.25e
- Ban: shops not allowed to provide plastic bags for free
- Effect: 71% decrease in plastic bag use (since 2016)[E]

[A] <http://www.irishexaminer.com/ireland/95-reduction-in-plastic-bag-usage-273500.html>

[B] <http://www.bbc.com/news/uk-scotland-34575364>

[C] <http://www.calrecycle.ca.gov/plastics/carryoutbags/FAQ.htm>

[D] <https://ww2.kqed.org/news/2017/05/18/are-plastic-bag-bans-good-for-the-environment/>

[E] <https://www.government.nl/topics/environment/ban-on-free-plastic-bags>

## 4.2 Existing Plastic Bans and Levies Around The World.

- Cameroon (all)
- Eritrea (all)
- Maruitania (all)
- Kenya (30 microns)
- Morocco (all)
- Rwanda (retail give away of plastic bags)
- Somaliland (ban of import, use, and manufacturing)
- Tanzania (all)
- Tunisia (all)
- Bangladesh (all)
- Uganda (30 microns)
- China (25 microns)
- India (50 microns)
- France (50 microns)
- Italy (all from not biodegradable)
- California (ban for all)
- Botswana
- South Africa (.06 –0.08\$)
- Hong Kong (0.50\$)
- Indonesia (0.02-0.47\$)
- Israel (0.10\$)
- Denmark (0.40-0.70\$)
- Germany (0.30\$)
- Ireland (3.26\$)
- Netherlands (0.37\$)
- Wales (0.05\$)
- Northern Ireland (0.05\$)
- Scotland (0.05\$)
- England (0.05\$)

## 4.3 What are the alternatives to plastic?

There are two main alternatives to petroleum plastics which are compostable, and one which is almost infinitely reusable. Polylactide, which is a compostable, paper, and cloth.

That said, alternatives to plastic are not without their limitations. According to the Life Cycle Assessment of Supermarket Carrier Bags conducted by Britain's Environmental Agency, paper and reusable bags as they are currently made, need to be used a number of times in order to match the carbon footprint of plastic bags. For paper, they need to be re-used three times, for recycled reusable plastic bags, they need to be used four times, and a cotton bag needs to be used 131 times[6]. These results are largely caused by the fact that plastic bags and reusable plastic bags are now frequently made with a high degree of recycled plastic, while paper is mostly made from timber and timber offcuts and cotton bags are made from raw cotton which has a high footprint from transnational manufacturing and shipping[7]. While this study may imply that the status quo is the most environmentally conscious choice, the study does not account for technological advancements and policy changes which may resolve these issues.

### 4.3.1 Paper

Paper is a clear and obvious alternative for British Columbia as BC is home to a large lumber and paper industry. This is significant since a reduction in petroleum plastics will increase demand for paper products, resulting in a strengthening of BC's paper industry.

While paper is recyclable and fast to biodegrade, paper is not a perfect alternative since by comparison to plastics, it is heavy weak, expensive, has a fairly high carbon footprint, and is prone to tearing. Though these issues may seem significant, smart policy and industry restructuring can increase their feasibility by lowering their cost, improving their durability and re-usability, thereby lowering their carbon footprint[8].

#### **Solution**

Paper can be made more durable and water resistant thus making them more reusable, through adding long fibers to the wood pulp in the papermaking process, such as cotton. Historically this has been done for printing on legal documents and for currency as cotton is durable, soft, and holds ink well. However, cotton is both expensive and has a high carbon footprint since it is resource intensive and cannot be grown locally[9]. Fortunately, there are numerous other crops which can be grown in British Columbia which can provide long fibers cheaply enough to increase the strength of paper products, and only marginally increase the weight, such as hemp fiber. Additionally, using the fibers of locally grown crops which are not resource intensive, may be categorized as acting as a carbon sink, and further lowers the carbon footprint of paper[10].

### 4.3.2 Polylactide (PLA)

PLA is a plastic which is made from fermented plant starch (typically corn), requires only 32% of the fossil fuel resources as conventional plastics, and is argued as being carbon neutral since the growing of the plants theoretically removes an equivalent amount of carbon from the atmosphere, as it takes to process the plant matter into PLA[11]. This does not account for the Co<sub>2</sub> re-released into the atmosphere as the bag decomposes. While advertised as compostable within three months under ideal lab conditions, PLA may take anywhere between 100 to 1000 years to decompose in landfill conditions.[12] Furthermore, since PLA is non-recyclable, it must be differentiated from the recyclable containers. For these reasons, PLA may be better suited as a compostable alternative to non-recyclable product packaging and bags for produce, rather than as a replacement for petroleum based carrier bags.

#### **Solution**

PLA is currently made into bags which can be used for household composting, and are sufficient in this regard. PLA's best uses are for replacement of plastic products not intended for recycling, but for landfill[13]. Using PLA as a replacement for hard plastics such as clamshell packaging, or soft plastics such as black plastic garbage bags can result in less landfill overall as the PLA will instead likely be diverted to industrial compost.

### 4.3.3 Cloth

Cloth bags, whether they are synthetic, cotton, or polycotton, are reusable, and are recyclable. Unfortunately, because cotton is an extremely water and pesticide intensive crop, the average new cotton bag would need to be used somewhere between one to two hundred times to be on par with one plastic bag in terms of its carbon footprint[14]. This is not taking into consideration that a ban on plastic bags would result in an increase in foreign manufacture of cotton bags[15]. Though cotton bags are the ideal replacement, the environmental impact of the supply chain of the textile and garment industry must also be addressed.

#### **Solution**

Since imposing a tax on new non-recycled re-usable cloth bags would not be viable due to media coverage framing the tax as counter-intuitive to reducing consumption of plastic, solutions which make use of textiles, and are environmentally responsible require ingenuity and long term horizons.

Most clothing is not recycled, but donated, sorted, baled, and shipped to the developing world. There, the clothes are intended to be resold or recycled into new clothing, but the majority of which is burned or dumped [16]. Clothing can be collected washed, and turned into reusable bags which diverts clothing from landfills, and reduces the need for manufacture of new bags. However, with textiles, simply because it is cheap and functional, does not mean that consumers will not replace it. To address this concern, a gradual reduction strategy can reduce impulse purchasing of cloth bags, as well as sustainable consumption awareness campaigns may be utilized[17].

## 5.0 BC recycling industry overview

### 5.1 Recycle BC (est. 2014)

Recycle BC is a non-profit organization responsible for residential packaging and printed paper recycling throughout British Columbia, servicing over 1.8 million households or over 98% of BC. Recycle BC was originally launched in 2014 as Multi-Material BC (MMBC)[18].

#### **Service:**

They ensure packaging and printed paper is collected from households and recycling depots, sorted and responsibly recycled. Recycle BC provides recycling services either directly to communities or by working in partnership with local governments, First Nations, private companies, and other non-profit organizations. 155 communities participate in their recycling collection program and more are serviced by our recycling depots. Each year approximately 186,000 tonnes of material is collected from households and depots. (since 2014)[19].



## 5.1.1 Localities that use Recycle-BC for pickup

Curbside Collection	City of Surrey	Regional District of Central Okanagan
100 Mile House	City of Terrace	Regional District of Kootenay Boundary
Alberni Clayoquot	City of Vancouver	Regional District of Kootenay Boundary East Sub-Region
Regional District	City of Williams Lake	Regional District of Nanaimo
Anmore	Comox Valley Regional District	Regional District of North Okanagan
Capital Regional District	Coquitlam	Regional District of Okanagan-Similkameen
Cariboo Regional District	Cowichan Tribes	Seabird Island Band
City of Abbotsford	Cowichan Valley Regional District	Seton Lake Band
City of Burnaby	District Municipality of North Cowichan	Squamish Nation
City of Campbell River	District of Lake County	Strathcona Regional District
City of Castlegar	District of Maple Ridge	The City of White Rock
City of Chilliwack	District of Mission	The Corporation of the Village of Cumberland
City of Courtenay	District of North Vancouver	Toquaht Nation
City of Duncan	District of Peachland	Town of GoldenTown of Ladysmith
City of Kamloops	District of Port Hardy	Town of Lake Cowichan
City of Kelowna	District of Summerland	Town of Oliver
City of Langley	District of West Kelowna	Town of Osoyoos
City of Nanaimo	District of West Vancouver	Town of Port McNeill
City of Nelson	Gitxaala Nation	Town of Princeton
City of North Vancouver	Ka:'yu:'k't'h'/Che;k't'les7et'h' First Nation	Town of Smithers
City of Penticton	Klahoose First Nation	University Endowment Lands
City of Pitt Meadows	Mount Waddington Regional District	Upper Similkameen Indian Band
City of Port Coquitlam	Nakazdli Band	Village of Alert Bay
City of Port Moody	New Westminster	Village of Kaslo
City of Revelstoke	Penticton Indian Band	Village of Nakusp
City of Richmond	Prince George	Village of Telkwa
City of Salmon Arm	Quesnel	
	Regional District of Central Kootenay areas H, I, J	

## 5.2 BC Recycles

BC Recycles' purpose is to of recycle BC is is to make recycling more manageable for British Columbians by providing information to the public. It's organization's structure is set up as a collection of Stewardship Agencies. Stewardship Agencies "are industry led organizations appointed by producers to implements and manage their products at the "end of life". They operate under a government approved stewardship plan"[20]. Some examples of Stewardship Agencies are: Recycle My Cell, Lightrecycle, Canadian Battery Association, Encorp Pacific, and the Electronic Products Recycling Association BC. The funding of programs are determined by the individual stewardship agencies. Costing decisions are "made by obligated stewards; namely, retailers, manufacturers and others in the supply chain"[21].

## 5.3 Recycle Council of British Columbia

### Goal of Non-Profit:

"RCBC facilitates the exchange of ideas and knowledge that enable efficient solutions to eliminate waste."

"Formed in 1974 as a marketing consortium for community-based non-profit recycling groups, RCBC is now a multi-sectoral non-profit organization that provides information about Zero Waste, recycling and waste avoidance policies and programs in British Columbia"

### What they do:

#### Primary Public Education Tools

- RCBC Recycling Hotline
- Recyclepedia
- Materials Exchange (MEX): MEX is a free-to-use service that finds alternative solutions to disposal by matching surplus household or industrial materials with companies and individuals seeking those material types. Now a web-based service, the MEX, through its multiple sites had 134068 visits during the 2011 calendar year.
- Policy Development
- Annual Conference - brings together govt, tech, business together to discuss ideas
- Special Events
- Contract Services
- Publications of reports

## 6.0 Current legislative overview

### 6.1 Library of Parliament Plastic Bag Study

"Many of the activities associated with the production of plastic bags, such as manufacturing and distribution, would fall within provincial jurisdiction under the Constitution Act, 1867 as matters of local works or undertakings under section 92(10) of the Act, property and civil rights (section 92(13)), or matters of a local or private nature in the province (section 92(16)). The regulation of plastic bags as they affect ecosystems, habitats and wildlife would likely fall within provincial capacity to regulate with respect to natural resources under section 92A of the Constitution Act, [22].

"The authority of Canadian municipalities to enact measures connected with plastic bags originates with the constitutional authority of the provinces, as municipalities are considered "creatures of the provinces" and have no valid legislative power other than that delegated to them by the provinces. The basis for most initiatives stems from municipalities' ability to regulate with respect to waste management, including waste disposal and recycling"[23].

### 6.2 Provincial Environmental Management Act

"In October 2004, the Province of British Columbia enacted the Recycling Regulation (B.C. Reg. 449/2004), under authority of the Environmental Management Act. The Recycling Regulation requires producers of prescribed products to take Extended Producer Responsibility (EPR) for the life cycle management of their products, including collection and recycling, so that products are diverted from landfills and disposed of in an environmentally friendly way at their end of life."[24]

With a significant piece of legislation such as this, there is a high degree of responsibilities which must be undertaken in order to comply with the legislation.

### 6.3 Plastic ban interest in BC

Currently there is a great deal of interest in instituting plastic bag bans within British Columbia. Recent news reports discuss how there has been a steady rise in public favour of policy restricting the use of plastic bags. This is evident by the fact that there have already been propositions to impose levies on plastic bags in small towns. Some, such as the Tofino and Rossland BC have passed regulations to this effect.

Currently the city council of Victoria is reviewing proposed bylaws to implement levies working toward plastic bag elimination. The cities of Vancouver and Richmond have also attempted to control plastic bag consumption, but no specific legislation has yet been enacted. However, Vancouver has committed to the Greenest City 2020 Action Plan, which includes a goal to create zero waste.

### Who has the power to enact legislation?

#### City Council Authority:

- Require businesses to prompt customers
- Require in-store recycling
- Business license fees
- Ban distribution
- Ban disposal in solid waste system

#### Provincial Authority:

- Require fees on single use items
- Require refundable deposits

### City powers

- Prohibit businesses from distributing single-use packaging like shopping bags, disposable cups and take-out containers.
- Require customer prompts prior to distributing single-use items (for example, businesses could be required to ask customers at the point of sale if their food and beverages are to stay or go, and only provide single-use items upon request).
- Prohibit single-use packaging from being disposed in the solid waste system
- Vary business license fees by type of businesses and/or amount or type of single-use items generated.
- Require businesses to ensure their single-use packaging is recyclable or compostable.
- Require businesses/organizations to provide on-site recycling programs for customers.
- Require that specified single-use items (e.g. bags) be made of a specified amount of recycled content[25]

## 6.4 Limitations

Vancouver City Council does not currently have the clear legislative authority to require businesses to charge a fee, provide a discount, or require refundable deposits on single-use packaging. This authority lies with the provincial government. However, the City could seek this authority through a request to the provincial government for an amendment to the Vancouver Charter, or request that the Province of BC either exercise that authority on a provincial level or delegate it to regional governments. This is also the case with many other municipalities.[26]

## 7.0 The Impact of Industry Change

What will be the impact of the elimination of plastic bags on industry in British Columbia?

In 2015, the plastic and rubber manufacturing industry sales in BC were 1.16 billion dollars, and the paper manufacturing sales were 4.59 billion dollars, falling to 4.25 billion in 2016[27]. This means that the entirety of British Columbia's paper manufacturing industry, which includes paper for books, newspapers, household cleaning, and personal hygiene as well as paper bags, is roughly four times larger than the entirety of British Columbia's plastics and rubber manufacturing industry, of which, only a small subsection is engaged in the manufacturing of plastic bags. Contrary to popular belief, roughly 90% of all disposable plastic bags are made in Canada, and not in China; however, roughly 90% of reusable bags are made in China[28]. The majority of plastic bags made in Canada are manufactured in Ontario, where the head offices of many of Canada's national grocery chains are located.

While there are consequences to an integral change in the structure of an industry, the benefits will greatly outweigh the consequences. While a shift away from plastic and to paper and reusable bags in BC will have a negative effect on Ontario's plastics industry, it will also have a positive effect on British Columbia's lumber and paper industry which has suffered in recent years.

Although BC is home to some plastic bag manufacturing, plastic bag sales greatly outnumber British Columbia's share of the plastic bag manufacturing market[29]. This implies that if BC's paper industry were to replace the plastic bag industry, it would be reasonable to expect to see economic growth as the paper industry provides substitute products made in BC, rather than Ontario.

## 8.0 Consumer Response

In order to see a rise in the economy due to industry change, there also needs to be a change in change in consumption, and therefore change in demand. For this to occur, consumers need to be accepting of paper bags as an equivalent replacement product. Though consumers may notionally approve of the change for the environmental benefits, it is not a guarantee that that will be a sufficient enough factor to change consumer choice. The major factors which consumers care about regarding shopping bags, is their inexpensiveness, their durability, waterproofness, disposability, and their short term re-usability. Consumers like the closed system provided by a plastic bag in the sense that it carries their groceries, then their lunch, and finally acts as a small trash bag. This means that in order for plastic bags to be replaced, paper must be able to perfectly satisfy these conditions. While paper is not ideal in this regard since the most common paper bags on the market are not waterproof and are prone to tearing, paper bags have the potential to be preferable to plastic and even reusable bags in each of the above categories which consumers care about.

In order to negate the limitations of using paper over plastic, demand for paper must be raised, or demand for plastic must be lowered, or a combination of the two. This can easily be done artificially by levying a tax on plastic bags. The effectiveness of such a tax is highly dependent on the price of the tax, and so choosing the correct price is highly important.

## 9.0 Conclusion

The provincial government has a unique opportunity to demonstrate leadership in addressing environmental degradation effectively and inexpensively. It is possible for the provincial government to implement the policy put forth by this proposal and make use of existing institutions to inexpensively yet effectively carry out and enforce the new legislation.

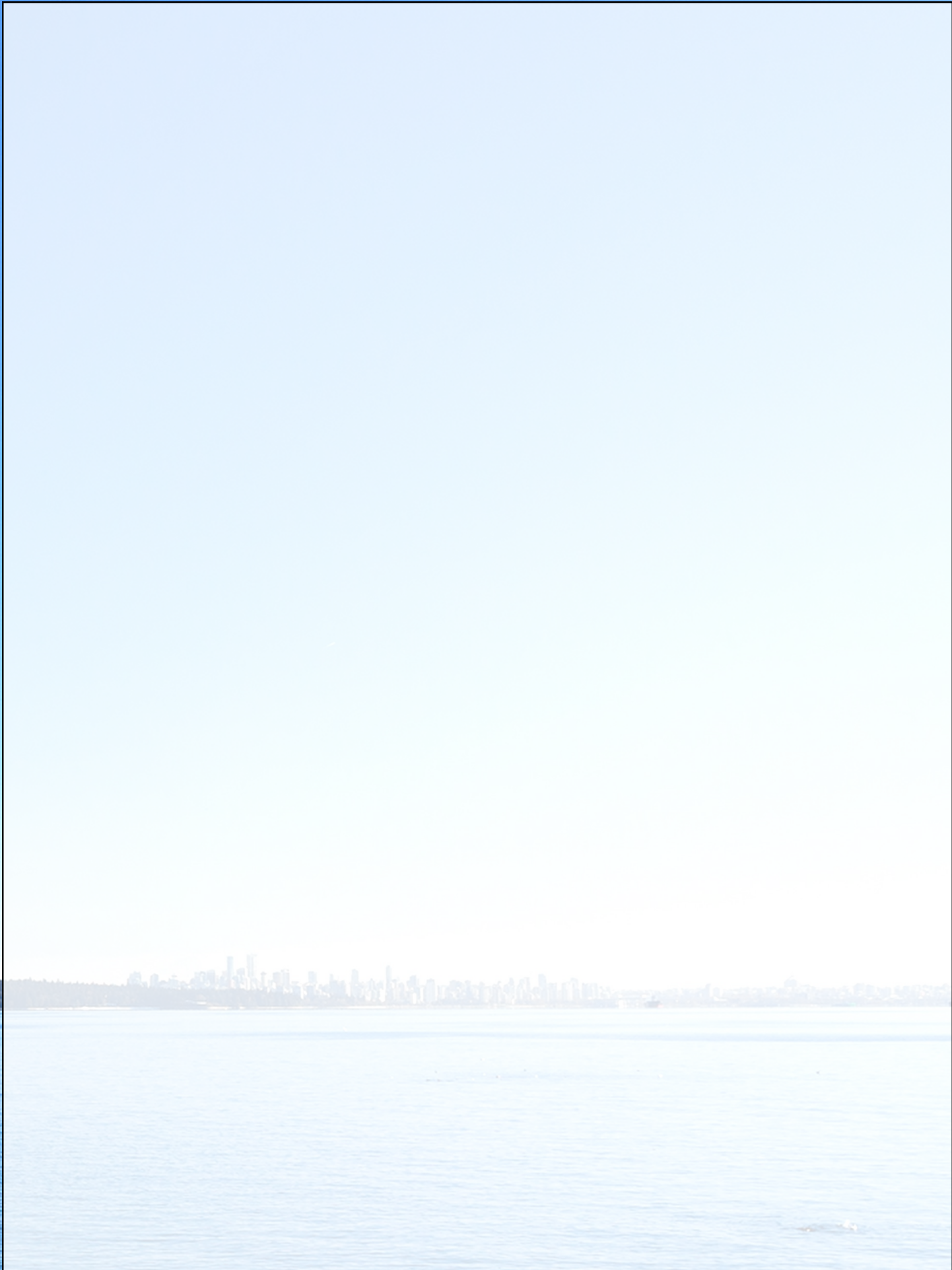
The major criticism that the public may make is that a plastic bag tax will not work and is an unfair tax. Plastics industry interest groups may also attempt to argue that plastic bag consumption currently has a lower carbon footprint than traditional manufacturing procedures as paper. However, a product's carbon footprint is not an all-encompassing measure of a product's ecological impact. A product's carbon footprint does not account for the impact of a plastic bag on the sustainability of marine ecosystems by its effect of fooling animals into consuming plastic rather than prey.

For public awareness and policy advertising this policy can be presented as both supporting the domestic forestry industry as well as working toward protecting the environment. This seemingly common-sense policy has the potential to enact lasting positive change for the marine ecosystem, garnering widespread support, and doing so while being financially prudent. Together, we can maintain a truly beautiful British Columbia.

### 9.1 Next steps.

This policy is in its early stages. To increase its chances for success, there are numerous steps which should be undertaken. One of the most important of which, is to accurately gauge public support. To this end, a survey measuring citizen openness to environmentally driven sacrifice, and policy preferences is currently being conducted. A copy of this survey can be found in the Appendix, as well as a link to the survey. Future iterations of this policy proposal will likely draw from survey results.

Other important considerations which will be included in future iterations, is input from interviews with professionals from industries such as paper and lumber, waste management services, and fishing and ocean management services.



## Appendix

# Public opinion on plastic bag elimination

Working link: [https://ubcarts.ca/qualtrics.com/jfe/form/SV\\_2bGGTP8VOJSTv0x](https://ubcarts.ca/qualtrics.com/jfe/form/SV_2bGGTP8VOJSTv0x)

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The goal of this survey is to assess individual's desire for, and acceptance of varying forms of plastic bag elimination programs.

By responding to this survey,

I hereby consent to have my responses used by the principle investigator(s) of this study. By consenting to this study, I understand that all responses are given freely, and that I will not be paid for my responses.

I understand that at no point will the researchers identify me by name in any reports generated by this study, and that all responses will be kept confidential and secure. I understand that any time I may request to have my responses redacted from the study.

I understand that if I am uncomfortable with any questions, I am under no obligation, legal or otherwise, to respond to said questions. I understand that I am under no obligation to complete the survey.

This study is minimal risk, however, I understand that if as a result of my completion of this study I feel I have suffered any distress, I may contact the principle investigators of this study via the address provided by the office of the department of the principle investigators.

## 2 Section A: Demographics

In this section you will be asked questions about you. Please answer to the best of your ability.

### 3 What is your age?

▼ under 18 (1) ... 85 or older (9)

### 4 What is your gender?

Female (1)

Male (2)

Other (please specify) (3) \_\_\_\_\_

Refuse (4)

### 5 What is your nationality, or country of birth?

▼ Afghanistan (1) ... Zimbabwe (1357)

**6 What is the highest level of school you have completed or the highest degree you have received? Please select your highest level of completion.**

- Less than high school degree (1)
- High school graduate (high school diploma or equivalent including GED) (2)
- Some college but no degree (3)
- Associate degree in college (2-year) (4)
- Bachelor's degree in college (4-year) (5)
- Master's degree (6)
- Doctoral degree (7)
- Professional degree (JD, MD) (8)
- Trade school certification (9)
- Other (please specify) (10) \_\_\_\_\_
- Refuse (11)

**7 To your best estimate, what was your average income last year?**

- Less than \$10,000 (1)
- \$10,000 to \$19,999 (2)
- \$20,000 to \$29,999 (3)
- \$30,000 to \$39,999 (4)
- \$40,000 to \$49,999 (5)
- \$50,000 to \$59,999 (6)
- \$60,000 to \$69,999 (7)
- \$70,000 to \$79,999 (8)
- \$80,000 to \$89,999 (9)
- \$90,000 to \$99,999 (10)
- \$100,000 to \$149,999 (11)
- \$150,000 or more (12)
- Refuse (13)

**8 Which statement best describes your current employment status?**

- Working (paid employee) (1)
- Working (self-employed) (2)
- Not working (temporary layoff from a job) (3)
- Not working (looking for work) (4)
- Not working (retired) (5)
- Not working (disabled) (6)
- Not working (student) (9)
- Not working (other) (7) \_\_\_\_\_
- Refuse (8)

**9 Are you currently a student in a post-secondary institution?**

Yes (1)

No (2)

prefer not to answer (3)

**10 What racial background do you most identify yourself with?**

White/Caucasian (1)

East Asian (2)

Southeast Asian (3)

Middle Eastern (4)

Indian/south asian (5)

North African (6)

Sub Saharan African (7)

Latin/South American (8)

First Nations/ Indigenous (9)

Other (please specify) (10) \_\_\_\_\_

Refuse (11)

**11 For the following question, please indicate how strongly you agree or disagree with the statements.**

<b>12 Environmental opinions</b>	Disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Agree (5)
I am knowledgeable about environmental issues (1)					
Our provincial government is doing its fair share for environmental protection (2)					
Other BCers do not do enough in their daily life, to protect the environment (3)					
I do not do enough in my daily life to protect the environment (4)					
BC has a responsibility to protect the environment more than most other provinces. (5)					
Product regulation is necessary to make lasting positive environmental impact. (6)					
Individuals can effectively take environmental responsibility on their own. (7)					
I think about the environmental costs of my actions frequently. (8)					
Others think about the environmental costs of their actions frequently. (9)					
People genuinely care about living sustainably. (10)					



**13 In your opinion, who is responsible for environmental protection and restoration? (Please number from most to least responsible)**

- Individuals (1)  
 Transnational corporations (2)  
 Regional governments (municipalities and provinces) (3)  
 National governments (4)  
 Non-government adocacy groups (WWF, Greenpeace etc.) (5)  
 International agencies (United Nations, World Bank etc.) (6)  
 Select industries (Oil and gas, Plastics, Pesticides) (7)  
 Non-transnational, medium to large scale companies and corporations (8)

**Environmental sustainability often requires sacrifices until sustainable replacements can be made. Many people will choose to ride a bike rather than drive, eat vegetarian to reduce the carbon footprint of their food, or only buy clothing second hand.**

**14 This question is intended to assess preferences between inconveniences. Please rank the items on the list of in order of your most willing to least willing to sacrifice for environmental sustainability.**

- Meat, Dairy, and eggs. (1)  
 New clothing (2)  
 new electronic devices (cellphones, tablets, personal computers) (3)  
 Private car ownership and use. (4)  
 Single use plastic shopping bags (5)  
 Coffee (6)  
 1 day shipping (7)  
 Disposable food and beverage containers (8)  
 Plastic product packaging (9)  
 Refined sugar (10)  
 Palm oil based products (Many brands of shampoos, toothpastes, etc.) (11)

**15 Suppose the provincial government were to pursue a policy option to reduce the number of single use plastic bags made, and sold. Please indicate whether you approve or disapprove of the policy options below.**

	Approve (1)	Disapprove (2)	Don't know (3)
Complete ban on single use plastic bags (1)			
25 cent fee on single use plastic bags (2)			
10 cent fee (3)			
5 cent fee (4)			
A progressively increasing fee on single use plastic bags (5)			
increasing fee resulting in a ban (6)			
Complete ban on single use plastic bags plastic, with a fee on paper bags (7)			
No bans, and high fee on single use plastic bags, and a low fee on paper bags (8)			
no ban or fee (9)			

**16 Please comment with any questions or concerns you may have had with this study.**

\_\_\_\_\_

**Thank you for completing the survey.**

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