Issues –it's all about CLIMATE CHANGE

What is Canada's strategy as part of the global goal to stabilize climate change? On December 9, 2016, the Pan-Canadian Framework on Clean Growth and Climate Change was approved by the federal government, a plan to impact all sectors of Canada's economy, as well as to stimulate clean economic growth, and build resilience to the impacts of climate change. Canada's target is to reduce carbon dioxide equivalent (CO_2e) greenhouse gas emissions by 30% below 2005 levels by 2030. Ontario's target is 37% below 1990 levels by 2030 which Ontario cities have adopted, thus, it is London's target too.

Although Canada contributed less than 2% of global CO_2e emissions in 2010, we are committed to reach an emissions reduction to 523 Megatonnes (Mt) by 2030, being a producer and user of fossil fuels. In 2014, Canada's national inventory reported 732 Mt of emissions excluding forestry emissions 72 Mt. Energy use was our highest generator of emissions (81%) or 594 Mt, followed by agriculture (8%), industry (7%), and waste (4%). In 2014, emissions were 120 Mt (20%) higher than 1990's 613 Mt.

What are the barriers? In April 2016, Canada's Parliamentary Budget Officer, stated the leading barriers in reducing emissions are (1) our strong dependency on fossil fuels and (2) management of our forests. Our 2030 target means removing more than the equivalent of all emissions from today's cars and trucks and a price for decreasing CO_2e of $100 per tonne. Policy underway includes reducing emissions from coal use, improving vehicle fuel-efficiency, and studying the contribution of managed forests in removing atmospheric emissions. Some say tar sands production, the pipelines that carry that oil, and resulting emissions are the main barrier to meeting our international obligations on climate change.

In 2016, the federal government tabled a national price on carbon, expected to start with a $10 per tonne fee in 2018, with increases to $50 a tonne by 2022. Provinces and territories could develop their own programs by September 2017 to have reviewed. If not, Ottawa would top up or put into force their own plan held to a federal standard. On January 15, 2018, with four provincial strategies underway (British Columbia, Alberta, Ontario, Quebec), Ottawa did just that with a draft policy, the Greenhouse Gas Pollution Pricing Act, and the regulatory framework to implement it expected to be introduced into Parliament this spring and passed in the fall with full compliance January 1, 2019.

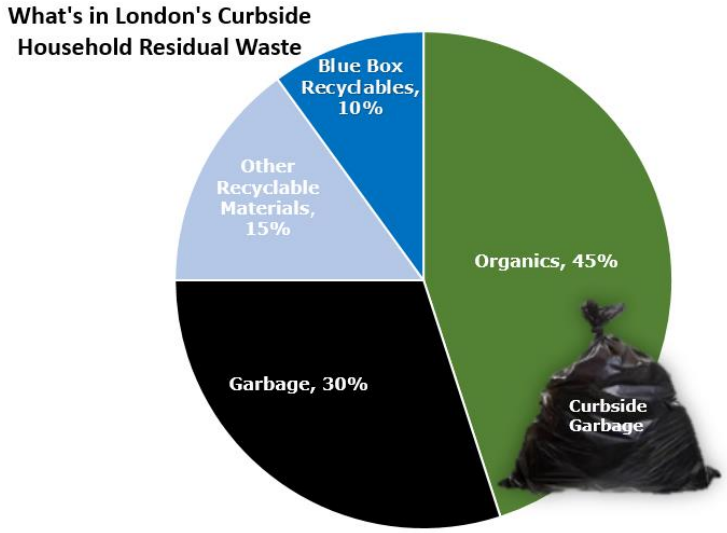
One of the most effective national policies with the greatest impact on emissions in Canada is Bill C-30: Canada's Clean Air and Climate Change Act. Since 2006, it has supported: initiatives to reduce emissions and improve air quality; bring innovation to clean energy and transportation (large emission sources), improve indoor air quality, and build adaptation and international engagement strategies. Clean, non-emitting electricity systems are the cornerstone of our future through renewables and low-emitting sources. The biggest challenge is to make it easy for Canadians to leave their car at home.

Waste

In London, more than one tonne of waste is produced per person each year. This includes waste generated at home as well as in the workplace. Much is diverted through reduction, reuse, recycling, composting and biogas programs. The remainder goes to the City's W12A Landfill Site. There is also a small amount of waste from outside of London delivered to our landfill, while some of London's business waste is taken to landfills outside of the city for disposal.

During 2018, the City has been developing a long-term Residual Waste Disposal Strategy, a plan to manage residual waste (material that goes to landfill) that cannot be diverted and require a mandatory Environmental Assessment (EA) that must be approved by the Ministry of the Environment and Climate Change (MOECC) and Cabinet. This plan expects to expand the W12A Landfill Site and find solutions to manage residual waste until 2050 (25 years beyond the current approved capacity of the landfill). Other smaller municipalities may be required to use the site as well given certain limits. Overall London must increase its current residential (household) waste diversion rate to 60% by 2022, from the current rate of 45%.

A companion Resource Recovery Strategy is also underway involving the development of a plan to maximize waste reduction, reuse, recycling, and resource recovery in an economically and environmentally responsible manner. It will identify new, emerging and next generation technologies and where these technologies may play a role, as well as areas to reduce or maintain current costs of City programs; and align with the province's focus.



In Ontario, each person is responsible for 850 kilograms of waste per year. Provincially, the waste diversion rate has been stuck at 25% for the last decade. Dealing with our food and organic waste is a key part of building a circular economy. Discarded organics are a significant source of greenhouse gas pollution, representing 5% of Ontario's total emissions. Existing programs include: the Blue Box Program the municipal Hazardous or Special Waste Program, the Waste Electrical and Electronic Equipment Program and the Used Tires Program. The province also has a Deposit Return Program for beverage and alcohol containers. In Ontario's circular

economy, these programs will continue without disruption until the materials they manage are transitioned to the new framework. Once the materials are transitioned, these programs and the industry funding organizations that operate them will be eliminated.

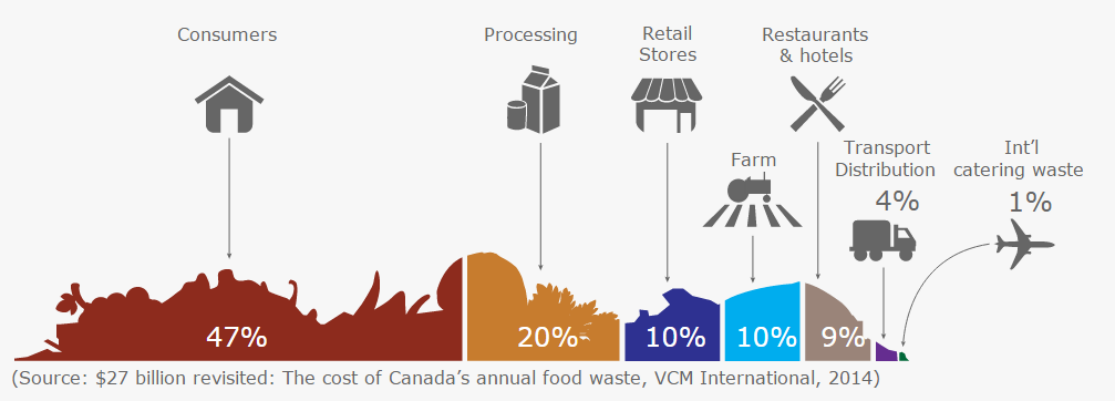
The Strategy for a Waste-Free Ontario: Building the Circular Economy, released on February 28, 2017, committed the Ministry of the Environment and Climate Change to create a Food and Organic Waste Framework to reduce the volume of food and organic waste sent to landfill and to recover resources. The Framework Action Plan and Policy Statement, (pursuant to Section 11 of the Resource Recovery and Circular Economy Act, 2016), issued April 30, 2018, is now in effect to prevent, reduce and recover food and organic waste, rescue surplus food, support beneficial end-uses and restore healthy soils.

This framework includes policy statements and targets directing municipalities and all private businesses to take actions. Up to 50% of food waste is seen as avoidable. Ontario residents generate 3.7 million tonnes of organic waste every year. It is estimated that more than 2 million tonnes of it goes to landfills yearly. In breaking down, it creates methane, a greenhouse gas that is 25 times more potent than carbon dioxide. The way we are headed, Ontario will need 16 new or expanded landfills by 2050. That's why we must take action to reduce the staggering amount of food and organic waste we create.

In Canada, the responsibility for managing and reducing waste is shared among federal, provincial, territorial and municipal governments. In general terms, municipalities manage the collection, recycling, composting, and disposal of household waste, while provincial and territorial authorities establish waste reduction policies and programs, and approve and monitor waste management operations such as recycling centres, landfills and hazardous waste facilities. The federal government controls international and interprovincial movements of hazardous waste and hazardous recyclable material, as well as identifying best practices to minimalize possible toxic pollution from the management of waste.

Canadians are amongst the largest waste producers per capita on the planet. The amount of food wasted each year is particularly staggering. In Canada, about $31 billion worth of food is wasted annually. This equates to about $868 worth of food wasted per person per year. Consumers are responsible for the largest share of food waste, at approximately 47% of total food waste. The remaining food waste is generated along the supply chain, where food is grown, processed, transported and sold.

Value of Food Wasted by Sector in Canada



(Source: $27 billion revisited: The cost of Canada's annual food waste, VCM International, 2014)

Water

London has had several sources of drinking water over the past 150 years. In the days of the early settlers, the Thames River was used for drinking water as well as for transportation. Since that time, both surface water (lakes and rivers) and groundwater (wells) sources have been used. Springbank Park, Pond Mills and the Beck Wells Systems were used as water sources. In 1967, the size and the needs of the City contributed to the requirement of a pipeline from Lake Huron. In 1995, the surface water supply system was expanded to Lake Erie. Along with water supply from these two Great Lakes, London has 2 back-up well systems in the north east and west parts of the City. Groundwater wells are only used during an emergency as a water source for London.

Our water comes to us through a network of treatment plants, reservoirs, pumping stations and pipes – 1,550 km of pipes - initially built in the 1870's. Since then it has been maintained and improved and serves us now well into the future. It is our responsibility to make sure it is maintained.

Water at Lake Huron enters our water supply system just north of Grand Bend. It is clarified and purified at the Grand Bend Filtration Plant and then pumped through a 1.2 meter diameter pipeline to the 109 million liter reservoirs at Arva (just north of London). This water supply system – from Grand Bend to Arva – is called the Lake Huron Water Supply system. From Arva, the water is then pumped into the City of London water distribution system.

Lake Erie water is drawn from the lake and purified at the Elgin plant located east of Port Stanley. The Elgin Water Supply System, supplies the cities of St. Thomas and London and several smaller communities. Before water reaches London, it is stored in a reservoir northeast of St. Thomas. London's water treatment falls under the jurisdiction of two Boards: the Lake Huron Primary Water Supply System Joint Board of Management and the Elgin Area Primary Water Supply System Joint Board of Management. Together, these two water supply systems provide approximately 150 million litres of

treated water every day (85% from Lake Huron and the remainder from Lake Erie). The City then manages the distribution system which ensures the water quality and quantity for our residents. Water testing results satisfy or exceed government requirements and standards. Our drinking water goes through a treatment process involving settling tanks and filtration to remove particles. Chemicals are used in the treatment process to provide a safe and aesthetically pleasing drinking water. Alum helps settle out finer sediments, chlorination to kill microorganisms and fluoride to help prevent cavities. For more info: http://www.watersupply.london.ca.

On an annual basis, the City of London performs over 12,000 water quality tests. London also has 10 locations in which continuous online sampling of chlorine residual is monitored. All samples are submitted to an accredited laboratory for analysis in accordance with the province's Safe Drinking Water Act, 2002. Other provincial standards for water quality are set out in the Ontario Regulation 169/03 (Water quality standards) and Ontario Regulation 170/03 (Drinking water systems)

In 1993, **the Province** created the Ontario Clean Water Agency (a crown corporation), which focuses on the operation of water and sewage systems of more than 450 water and wastewater treatment facilities in the province. Through the Ministry of the Environment and Climate Change, the province regulates these systems to ensure water safety and quality including the registering of all municipal drinking water systems, system owners/operators licensing, operator authorization to run and maintain drinking water systems and issue of drinking water works permits to modify, repair or extend drinking water systems.

London's stormwater system includes thousands of catchbasins, hundreds of kms of sewer pipes, numerous channels and more than 60 management pools, 110 kms of creeks and the Thames River to help reduce the possibility of flooding and property damage. Stormwater ponds and wetlands differ from natural ponds and wetlands given they are man-made. They collect runoff from streets, ground surface and storm sewers.

The federal government has jurisdiction related to fisheries, navigation, federal lands, and international relations, including management of boundary waters shared with the United States, and relations with the International Joint Commission. It also supports aquatic research and technology, and ensures national policies and standards are in place on environmental and health-related issues.

Energy

London's 2014-2018 Community Energy Action Plan (CEAP) goals are to increase the economic benefit of sustainable energy use and reduce greenhouse gas emissions (GGE) to 15% below 1990 levels by 2020. The Environmental Programs Division addresses much of this work including air quality, climate change, climate adaptation, energy conservation, active transportation (walking and cycling), and reduced travel during peak periods. London spends over $1.4 billion on energy every year. Emissions are about 3 million tonnes of GGE yearly. Total GGE per person in 2016 were almost 15% lower than in 1990. Air quality is impacted by pollution and emissions from natural sources, industry, transportation, and cross border movement. Local air pollutant levels are often affected by factors such as emissions sources, weather conditions, and topography.

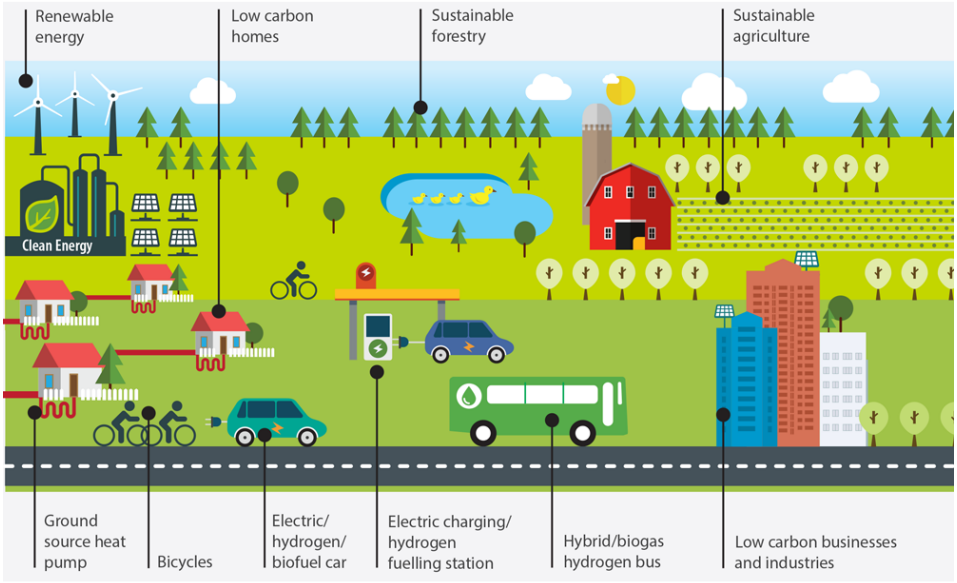
London was one of four cities in Ontario in 2011, to test energy mapping tools to help make better plans for energy efficiency and conservation. Since 2014, London Hydro and Union Gas provide City staff with annual energy use at the postal code level. City staff then matches up this data with property data to provide the maps showing the different aspects of energy use in homes at the block-by-block level:

The City's Corporate Energy Conservation and Demand Management Plan 2014-2018, is a mandatory requirement of the Ontario Green Energy Act. The plan's goal is to reduce corporate energy use by 10% from 2014 levels by 2020. This requires a service delivery energy efficiency (energy used per Londoner) improvement of 15% to accommodate London's growth. In 2016, the City noted it spent about $21 million on energy and expected to increase this to $26 million by 2020 if energy efficiency remains unchanged. If goals are met, the City's annual energy costs will be around $4 million lower than forecasted and annual energy-related GGEs will be approximately 3,900 tonnes CO2e lower per year as compared to 'business-as-usual'. Between April 2017 and March **2**018, corporate energy use decreased by 7% from 2014 levels, avoiding over $2 million per year in future energy costs.

Sifton Properties net-zero energy head office at West 5, London Ontario

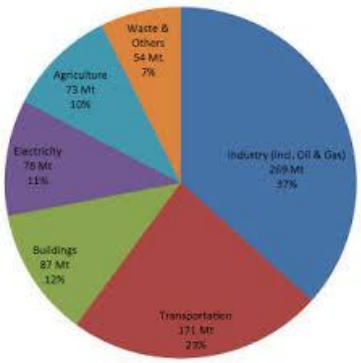
Provincial targets to reduce GGE from 1990 levels, adopted by municipalities, include a 15% reduction by 2020, 37% reduction by 2030, and an 80% reduction by 2050. Ontario has demonstrated leadership in fighting climate change by replacing coal-fired power plants with clean and green power electricity generation, improving the province's transit network and creating a cap and trade program to limit GGEs. A new provincial government (June 2018) will not continue the cap and trade program but we hope they will look at other options to address conservation efficiencies and economies.

What can Ontario look like in 2050?



Our national government signed and ratified the international 2015 Paris Climate Agreement, with Canada's commitment to reduce GGE by 30% below 2005 levels by 2030. Pricing carbon pollution is central to Canada's plan. See climate overview. As Canada transitions to a low-carbon future, energy plays an integral role in meeting Canada's collective commitment, as energy production and usage accounts for over 80% of Canada's overall GGEs. Decline of fossil fuels are predicted to impact our energy costs so energy efficiency must be prioritized along with conservation and renewables.

Emissions by sector in 2014 (megatonnes of CO2 eq.)



Transportation

Many cities in Ontario, and around the world, recognize that traditional patterns of urban development are not sustainable in terms of their municipal operating costs, personal movement expenses, and climate change implications. Thus, future planning must engage many more sustainable practices.

London's 2030 Transportation Master Plan (TMP) is the guiding document for London's planning, both now and in the future. The London 2030 TMP is guided by a Council supported vision that is very transit focused. The city-wide target mode share for active transportation by 2030 is 15%. The survey for the plan confirmed that cars dominated daily travel, 73.5% in the weekday AM and PM peak periods. Public transit involved 12.5% mode share and cycling/walking almost 9% of daily trips. Other modes such as the taxi, school bus, and motorcycle made up the remaining 5%. Key to the TMP strategy is a Bus Rapid Transit network being designed to provide faster, more efficient service than an ordinary bus line, while resembling rail transit in service quality, look, and feel. BRT involves a north/south corridor along Richmond Street/Wellington Road and an east/west corridor along Dundas Street / Oxford Street, both to serve downtown and the broader central area. More active transportation infrastructure is being implemented to support growth in intensification areas and improve access to transit, particularly BRT.

The City has a vast network of trails and off street bike paths through the Thames Valley Parkway system. The Cycling Master Plan (2016) addresses a number of connections and improvements for cycling outlining a recommended investment and implementation strategy to 2031. Our Official Plan (2016) is a significant mechanism in implementing TMP recommendations and development of all lands within the City's boundaries, municipal services and facilities, and by-laws over the next 20 years.

There are approximately 675,000 daily trips made within the City of London. Approximately 24% of total daily trips involve commutes to work or to work related destinations and 10% of trips are to school. Travel for shopping, social/recreational, and personal business destinations represents 15% and about 48% of trips made are residents returning to their home destinations.

The **provincial** Ministry of Transportation, through promoting, managing and maintaining Ontario's multi-modal transportation system, supports the delivery of key Ontario government priorities of building a strong economy including job growth and economic competitiveness and stronger, safer

communities through four priority areas. These include: improving public transit; and delivering trade corridor and border infrastructure improvements to ensure the efficient movement of people and goods at international gateways. Promoting road safety – rules are outlined in the Highway Traffic Act (vehicle licensing and classification, traffic offences, the administration of loads and other transport-related issues) and education, legislation and regulation, and making personal travel safe is very important. Lastly, improving Ontario's highway, road and bridge infrastructure is key through strategic investments, as well as local transportation infrastructure throughout the province.

The Ministry also invests in developing clean cars, fuels and other technologies to balance investments in highways and transit resulting in less congestion, reduced smog and emissions.

The number of vehicles registered in Canada in 2016 was a total of 33.8 million. The numbers registered in Ontario reached 11.9 million (up 2.2% from 2015), followed by Quebec (up 2.5% to 8.4 million) and Alberta (up 0.2% to 5.1 million). In Ontario, 10.1 million vehicles include passenger vehicles, mopeds, motorcycles, commercial vehicles, buses, trailers, snow vehicles and off road vehicles. 8.7 million drivers and approximately 85,000 bus and truck companies actively operate on our highways. 237,755 trucks, 29,932 buses and 553,572 commercially licensed bus and truck drivers are registered in Ontario. Thousands more operate in Ontario from other jurisdictions. More than 90% of all Ontarians reside within 10 km of the provincial highways.

Federally, the Minister of Transport is responsible for the activities of Transport Canada, 12 Crown corporations, an Agency, a Tribunal and two funds. 42 Shared Governance Organizations also fall under this portfolio. Infrastructure Canada works closely with all orders of government and other partners to enable investments in social, green, public transit and other core public infrastructure, as well as trade and transportation infrastructure. Together, they contribute to rural and urban infrastructure, and make sure that our roads, bridges, railroads, ports and airports are well-placed, well-built, well-kept, safe and secure. Their work supports the economy, the environment and the health of Canada's communities.

Natural Resources Canada's Office of Energy Efficiency provides extensive information to consumers to purchase fuel-efficient vehicles and personal vehicle usage and tools, training, and technical expertise to commercial users seeking to green their fleets/operations.

Some things don't change. 'Well planned cities focus on moving people and goods rather than vehicles. Movement in cities is not an end in itself. We travel to reach people, our jobs, goods and services. In more populated cities, public transport saves valuable space and energy compared to private transport and is given priority on the road. The healthiest and most sustainable modes of transport are, of course, walking and cycling'. Source: Sustainable Transport Action Network (SUSTRAN), May 1996.

Taking Action in Your Community

Everything we do makes a difference toward greening our planet or working against it. The change has to start somewhere, and it might as well start with you.

Knowing what the global, regional and local problems are allows you to become part of the solution. There are many issues we should be concerned about that affect our daily lives and quality of life – garbage, agricultural land, toxic chemicals, reliance on the automobile, energy waste, and so on.

You can translate that knowledge into something as simple as a friendly tip for a neighbour, a vote at the ballot box, or a larger action, such as participation in a public debate, joining an environmental group or a group effort to make changes. With some creative ideas, you can turn problems into challenges and concerns into actions. For instance:

In your neighbourhood

Organize a community yard sale, discuss with the City a household hazardous waste day. Contact TREA to find out what neighbourhood community association is near where you live and what their concerns are.

At school

Propose an environment committee, organize carpooling, organic gardens, paper recycling, air quality testing, installation of energy saving devices, pack garbageless lunches, promote anti-litter campaigns, request non-toxic paints and cleaners, invite speakers to give presentations to classes. Join the parent's association.

At work

Help set up an energy reduction system, suggest positive technological changes, reduce paper usage, use a coffee mug/reusable plate, use alternative cleaners, organize lunch hour speakers, plan tree plantings on company property

As a member of a service group, place of worship or an environmental organization

Organize an environmental awareness event or display, participate in tree plantings or garbage cleanups, give donations to worthwhile causes. Gather reusable clothes, appliances and furniture, collect donations for environmental causes and form an environmental action committee. Research groups that interest you, compare different opinions, volunteer with an organization's working groups of your choice in ways that best use your skills.

As a voting community member

Write letters to your MP, MPP or City Councillor (see listing) or the media outlining environmental issues that concern you, support parties with strong environmental platforms, participate in public meetings, write manufacturers about packaging, advocate for more public transit and additional bike paths.

Examine the Ontario's Environmental Registry input process to comment on policies, acts and regulations that impact the environment. Contact TREA about how to attend City meetings for a specific issue or understand the process to file a concern. A great resource is the London & Middlesex Local Immigration Partnership Civic Engagement Handbook on our three governments. It is found at http://immigration.london.ca/LMLIP/Documents/CL174132%20master%20track%20english-2.pdf.

And of course, reduce your family's carbon footprint

Many products and services claim to be "green", "earth-friendly" or "environmentally appropriate." A single, generally agreed upon definition of these terms does not currently exist. "Green" products are those that are least destructive to the environment, from creation to disposal. "Green" services are provided in a way that minimizes negative impact on the environment, and/or that helps others to do the same.

Check out TREA's London Green Directory on Ecowise-Consuming to become more informed and to help you identify "green" products and services that suit your needs. Try to consider the following when contemplating any purchase:

What raw materials are used? Are they non-renewable? Are they from endangered areas? How much and what type of energy was used during manufacturing? Was the manufacturing process environmentally degrading? How far is the product transported and what type of transportation is used to get the product to the retailer? How is the product packaged? Once used, how is the product disposed of? Is it biodegradable, and if yes, how long does it take to bio-degrade? What by-products are left? Is the product reusable or recyclable? If yes, do the facilities exist for collection, reuse and recycling? Do you need this product/service? Is a better, more earth-friendly alternative available at a reasonable cost or can you rent the item for a one-time use, borrow from a neighbour or do without?

We must all do our part to encourage a complete lifecycle of a product for reuse. There are many things that go into producing an item, and what happens in the future given that product.