

## Responsible Consumption Series Summary



Arranged by: Anna Pitti, Jim Bowyer, Ashley McFarland, and Kathryn Fernholz

Authors: Jim L. Bowyer, Gloria Erickson, Kathryn Fernholz, Harry Groot, Mark Jacobs, Ashley McFarland, Ed Pepke, Ph.D.

Dovetail Partners, Inc. November 2020

## **Other Reports in the Consuming Responsibly Series**

### To Date

Consuming Responsibly: New Series Introduction – September 2018

Environmental Impacts of Tap vs. Bottled Water – September 2018

E-Waste and How Consumer Choices Can Help to Reduce It – October 2018

Environmental Assessment of Natural vs. Artificial Christmas Trees – November 2018

Comparison of Environmental Impacts of Flooring Alternatives – January 2019

Replacing that Old Refrigerator: A Bigger Decision than You Think – February 2019

Environmental Assessment of Conventional vs. Hybrid vs. Battery-Electric Vehicles – March 2019

Environmental Assessment of Intensive Lawn Care – April 2019

Consumer Food Waste: Environmental Impacts and Changing Course – May 2019

Reducing Home Energy Consumption – July 2019

Bathing and the Environment – August 2019

Environmental Assessment of House Cladding Products – September 2019

Your Television and Energy Consumption – October 2019

An Examination of Environmental Impacts of Clothing Manufacture, Purchase, Use, Disposal – November 2019

An Environmental Assessment of Transportation Alternatives – February 2020

Shopping Bags: Paper, Plastic, or Reusable Tote? An Environmental Assessment – April 2020

Selection of Printing and Writing Paper for Minimum Environmental Impact – May 2020

Household Waste Recycling – Why it is Important and Why Changes are Needed to Increase Effectiveness – July 2020

Understanding Environmental and Social Responsibility Labels – September 2020

Accepting Responsibility for Impacts of Consumption – October 2020

These reports, as well as the full collection of Dovetail reports and environmental resources, are available at [www.dovetailinc.org](http://www.dovetailinc.org)

## Consuming Responsibly Series Summary

### The Report Series

The 'Consuming Responsibly' series provides readers with information to stimulate thinking about evaluation of consumption choices, provides a basis and rationale for limiting adverse environmental and social impacts of purchases, and offers ideas as to how to satisfy needs while consuming less. This series seeks to influence consumption trends that ultimately result in lower environmental impacts of household consumption, including waste generation, and in more socially beneficial outcomes.

In developing this series, a wide variety of sources were consulted. Wherever possible, information regarding environmental impacts of a given product, product replacement decision, or consumer practice was developed based on results of third-party verified life cycle assessments (LCA). LCA is a data-based method by which raw material flows, processes, finished products, solid wastes, and emissions throughout each stage of manufacture, use, and end-of-life disposal can be examined, providing a powerful tool for evaluation of a full suite of environmental impacts linked to a product throughout its life cycle. While life cycle data is not yet commonly available at the ultimate consumer level, the findings of data-based comprehensive life cycle assessments, where available, are of enormous help in evaluating product choices. Further guidance provided in the form of third-party product certification – information which addresses issues and concerns not easily measured in precise terms – is likewise of great value to distributors and ultimate consumers alike.

Systematic assessment of products and alternatives, such as through LCA, demonstrates the importance of holistic, systematic thinking, as well as the dangers of considering only single attributes or reliance on intuition in evaluating product alternatives. These findings also illustrate the profound impact of energy efficiency on overall environmental performance of many products. Fortunately, LCA-based environmental labels for consumer products (discussed in the 18<sup>th</sup> report in this series) are now emerging that will be of great help to environmentally conscious consumers.

### Responsible Consumption

#### Responsible Consumption Defined

In his landmark 1949 book *Sand County Almanac*, Aldo Leopold coined the term 'Thinking like a mountain,' meaning to have an understanding of the interconnectedness of elements in an ecosystem, and to think in these terms with regard to individual actions. It is a sound basis for evaluating potential purchases.

Everyone is a consumer, and consumption invariably has environmental impacts. Making an effort to understand the consequences of consumption and acting upon that understanding to minimize negative impacts is the essence of responsible consumption. Aside from the *quantity* of goods consumed (a major determinant of impact), where goods originate and how they are produced are central determinants of environmental

and social impacts. Whereas it was once all but impossible for consumers to find out how and where the goods they purchase were produced, that is no longer the case. Increasingly, information is available to manufacturers, distributors, and consumers alike about impacts linked to materials used and the products made from them, allowing responsible consumers to make well-informed consumption decisions.

Becoming a responsible consumer requires that thought be routinely given to environmental and social impacts prior to purchase. A good way to start toward more responsible purchasing is to begin with the next major purchase decision – for instance a major appliance, vehicle, or new floor covering – and doing a bit of research into available product options, reported performance including energy efficiency and durability, product ratings and certifications from third parties, and so on. The same kind of thinking and evaluation can next be applied to commonly purchased items and brands – from bottled water to canned tuna and shopping bags to designer clothing.

### **Translating Concern into Action**

The Consuming Responsibly series examines only a few of the myriad choices consumers confront on a daily basis. Researching impacts associated with each one of these is clearly unrealistic, but getting into the habit of asking yourself a few simple questions before heading to the store can go a long way toward reducing impacts of your consumption.

One of the best guides for making consumption decisions is that produced a number of years ago by Viviane Simon-Brown of the Oregon State University Extension Service. Dubbed “The Unshopping Card” the wallet-sized card begins with the question “Do I really need this?” Then, assuming that the answer to the first question is “Yes” the would-be consumer is led through a series of questions (several additions have been made to Simon-Brown’s original list):

- **Do I Really Need This?**
- Could I borrow, rent, or buy it used?
- Is there a smaller model that might work just as well?
- Is it energy efficient?
- Is it water efficient?
- Is it made of renewable or recycled materials?
- Is it recyclable or biodegradable?
- Is it likely to be recycled when discarded?
- Is it worth the time I worked to pay for it?
- Is it over-packaged?
- How long is it likely to last?
- If it breaks, can it be fixed?
- How will I dispose of it?
- What are its overall environmental impacts?
- Is it associated with adverse social impacts?

For those questions for which answers are not obvious, the internet – with the caveat that it is important to seek out unbiased sources – provides a way to learn more. This is also a good source of information about specific product labels and certification programs.

Questions to be asked prior to purchase are not about doing without. They are about consuming smarter, considering environmental attributes, and satisfying needs while using less. Some questions are easier to answer than others, with a few requiring only introspection and others a bit of research prior to heading for the store.

## Reports Summarized

Brief summaries of and recommendations from each report follow. The report concludes with an infographic which provides links to each of the individual reports.

---

### [Environmental Impacts of Tap vs. Bottled Water](#)

*Examines health, safety, and environmental aspects of tap and bottled water.*

To reduce bottled water consumption, consumers can:

- Purchase refillable water bottles for mobility and convenience.
- Provide pitchers or dispensers at offices or gatherings.
- Install drinking fountains in public places.
- Support bottle deposit laws.

If bottled water is purchased, consumers can:

- Select brands bottled closest to home.
- Avoid small bottles.
- Refill bottles with tap water for re-use.
- Consume the whole bottle.
- Recycle the bottles after use.

---

### [E-Waste and How Consumer Choices Can Help Reduce It](#)

*Delves into the electronic waste problem and environmental implications and outlines what individual consumers can do to help reduce waste and associated impacts.*

To reduce e-waste generation, consumers can:

- Keep electronics beyond the available upgrade period.
- Purchase devices with replaceable batteries.
- Buy products with better quality and more available memory.
- Upgrade hardware/software rather than replacing the whole device.

To reduce the impacts of e-waste disposal, consumers can:

- Recycle electronics or donate devices using trade-in programs.
- Consider purchasing used or restored electronics.
- Promote e-waste recycling programs and policies that implement e-waste handling procedures to allow for collection, restoring, and recycling materials.
- Support policy that bans e-waste export and builds upon best practice programs.

---

[Environmental Assessment of Natural vs. Artificial Christmas Trees](#)

*Real or artificial – an annual choice. But which is the best choice from an environmental perspective and why, and how much difference is there? You'll find answers in this report.*

To reduce the impacts of buying a Christmas tree, consumers can:

- Buy natural trees close to home.
- Consider purchasing a potted tree that can be planted outside after the holiday season.
- Purchase an artificial tree and keep for many years.

To reduce the impacts of Christmas tree disposal, consumers can:

- Remove decorations from all trees before disposal.
  - Check for best disposal practices (energy recovery, reuse, donation for wildlife, landfilling).
- 

[Comparison of Environmental Impacts of Flooring Alternatives](#)

*The number of flooring alternatives is large, ranging from wood and cork, to tile and marble, to carpet. Which lead to in the least impact, the greatest? This report takes an in-depth look.*

To reduce the impacts of buying new flooring, consumers can:

- Select products made from plant-derived materials – wood, cork, linoleum.
  - Selecting vinyl or tile with recycled content over products that incorporate synthetic resin.
  - Avoid carpet, particularly made from wool.
- 

[Replacing that Old Refrigerator: A Bigger Decision than You Think](#)

*Intuition might suggest that keeping an appliance as long as it is still working yields the lowest environmental impact. But in this case, rapid energy efficiency improvements turn intuition on its head.*

To reduce the impacts of refrigeration, consumers can:

- Replace refrigerators manufactured prior to 2005, and otherwise generally within a decade of manufacture due to the rapid increases in efficiency and energy performance of new models.
- Look for U.S. ENERGY STAR labels (or products exceeding the federal efficiency standards by 15% or more), or “A” ratings in Europe.
- Purchase for only the capacity needed.
- Optimize the features contained within a single unit.
- Consider the impacts of various style setups, where freezers on the bottom increase efficiency and external ice makers can markedly increase energy use.
- Don't place refrigerators in a garage.

To reduce the impacts of refrigerator disposal, consumers can:

- Communicate with a vendor to arrange recycling rather than moving to the garage or basement, and never locate in a garage.
  - If a second refrigerator is necessary, consider replacing with a new, energy-efficient model, make sure power supplies are adequate, and keep it as full as possible.
-

---

[Environmental Assessment of Conventional vs. Hybrid vs. Battery Electric Vehicles](#)

*From an environmental perspective, the choice of vehicle is among the most important decisions an individual can make. As with transportation choices in general, the selection made is likely to dominate an individual's overall environmental footprint.*

To reduce the impacts of vehicle use, consumers can:

- Consider buying an electric vehicle with their next purchase and weigh options using The Department of Energy's [website](#) that compares alternative vehicle options side-by-side.
- Consider the mix of fuels used to generate electricity locally before selecting an electric vehicle model.
- Purchase vehicles no larger than is absolutely necessary
- Avoid driving at high speeds, accelerating rapidly, and heavily loading a vehicle.
- Recognize the impact of purchasing decisions on raw material consumption, sources and impacts of raw materials and act responsibly in influencing environmental policy with respect to raw material extraction.

---

[Environmental Assessment of Intensive Lawn Care](#)

*The beauty of a green, perfect lawn can be deceiving in that stunning beauty often translates to high environmental costs. Following a few simple guidelines can retain the attractiveness of lawns, but with markedly lower impacts.*

To reduce the impacts of lawn care, homeowners can:

- Take steps to reduce lawn size (natural plantings) and minimize needs for fertilization and irrigation.
- Conduct soil tests to inform proper fertilizer use.
- Consult state and local universities for best lawn management practices.
- Delay fertilization or herbicide applications when rain is in the forecast.
- Avoid overwatering.
- Purchase a mulching mower and recycle lawn chips.
- Avoid cutting grass too short, as longer grass is more stress tolerant, needs less water, and is more weed resistant.

---

[Consumer Food Waste: Environmental Impacts and Changing Course](#)

*A surprising quantity of food is wasted each year in households and restaurants, with much of this attributable to consumer habits. Awareness of the problem, and what can be done on an individual level to reduce waste, can lead to significant reduction of food loss at the consumer level.*

To reduce the impacts of food waste, consumers should:

- Check their refrigerator, freezer, and cupboards prior to grocery shopping to see what they have or may need.
- Write a weekly list prior to going shopping.
- Store food appropriately to optimize freshness and taste.
- Freeze, preserve, and can surplus fruits and vegetables.
- Use old ingredients and leftovers from previous meals to minimize food waste.
- Consume leftovers, both saved from meals at home and restaurants.

---

## Reducing Home Energy Consumption

*A wide range of strategies for reducing energy consumption in residential homes are discussed, as is the environmental imperative for doing so.*

To reduce the impacts of energy conservation, consumers can:

- Install a programmable thermostat and motion detector switches in high use areas.
- Replace light bulbs with LED bulbs.
- Use power strips with electronic devices to completely shut down when not in use.
- Install low-flow showerheads and faucets to reduce hot water consumption.
- Install insulated shades to increase effectiveness of windows.

To reduce the impacts of retrofitted homes, consumers can:

- Conduct a relatively low cost energy audit to provide a baseline understanding of the home's performance.
- Caulk penetrations into the building envelope like still plates, window openings, doors, and walls.
- Seal ceiling penetrations around recessed lights.
- Add attic insulation; insulate basement walls.
- Replace furnace and air conditioners with high efficiency models.
- Add storm doors or replace windows with higher efficiency products.
- Provide for controlled fresh air ventilation through use of an air exchange.
- Look for opportunities for increased wall insulation.
- Replace aging appliances, for example refrigerators or hot water heaters.

For new buildings, consider net zero, or merely innovate beyond code (ENERGY STAR Certified Homes)

---

## Bathing and the Environment

*Bathing has a higher environmental impact than you might think. Things that can be done, both with existing amenities and at the time of new construction or remodeling, are outlined.*

To reduce the impacts of bathing, consumers can:

- Avoid purchases of bathing appliances that require or encourage the use of large quantities of water.
  - Take showers rather than use bathtubs.
  - Install lower flow shower heads than are mandated by law.
  - Limit the amount of time spent in the shower.
  - Use only the amount of water needed to get clean when using a bathtub.
  - Install a high efficiency water heater (see ENERGY STAR labeling).
-

---

[Environmental Assessment of House Cladding Products](#)

*Wood, steel, aluminum, vinyl, or fiber cement? Lots of choices in house siding products. You may find the lowest impact options surprising.*

To reduce the impacts of buying new or replacing existing cladding, consumers can:

- Do research into the best regionally performing cladding options
- Consider the environmental impacts of best performing alternatives in decision-making
- Seek out builders and contractors who are known for quality installation, because improper installation and unfavorable climate conditions can significantly affect product performance and useful life.

---

[Your Television and Energy Consumption](#)

*Individual television sets use relatively little energy, although inattention to seemingly small things can significantly increase energy consumption. These are discussed as is the collective impact of TV use.*

To reduce the impacts of television (and peripheral device) energy use and emissions, consumers can:

- Unplug rarely used devices (i.e. guest room DVR).
- Use power strips with an on-off switch for devices.
- Disable quick start settings for TVs and instant-on mode for game consoles.
- Turn off TVs when not viewing.

To reduce the impacts of buying a new television or peripheral device, consumers can:

- Replace CRT and plasma units with new LED models.
- Seek out ENERGY STAR models.
- Select a screen size no bigger than needed for viewing.
- Make sure the model has an ambient light sensor (ABC) and ensure the feature is enabled.

At the end of product life, consumers should recycle electronics at designated facility or retailer. Do not put electronics in the trash.

---

[An Examination of Environmental Impacts of Clothing Manufacture, Purchase, Use, and Disposal](#)

*Fast fashion has resulted in a virtual explosion of fiber use globally, triggering a large increase in use of polyester fiber, release of microplastics to water bodies, and clothing discards. This report examines the problem and offers suggestions as to what individuals can do to address it.*

To reduce the effects of fast fashion, consumers can:

- Limit clothing purchases.
- Avoid short-life fashion trends by leveraging things like clothing rental programs.
- Inform others (especially adolescents) of the impacts of frequent apparel purchases.
- Search at used clothing outlets before buying new.

To reduce the impact of buying new clothing, consumers should seek out recycled content items, or those containing Tencel, BCI or organic cotton, or which are Fairtrade Certified.

---

[An Environmental Assessment of Transportation Alternatives](#)

*Transportation choices invariably dominate an individual's overall environmental impact. This report identifies lowest impact choices for local and long distance travel and indicates the magnitude of difference between various options.*

To reduce transportation impacts, individuals can:

- Purchase fuel-efficient vehicles.
- Carpool.
- Plan travel to reduce trips.
- Leverage public transit.
- Move closer to work, work from home.
- Fly less or more strategically.

To reduce transportation impacts, companies can:

- Purchase carbon offset credits.
- Incentivize employees to carpool or use public transit.
- Upgrade company vehicles to hybrid or electric.
- Allow and facilitate telecommunications.
- Purchase carbon offsets.
- Supporting public transit expansion.

To reduce transportation impacts, the government can:

- Plan for future development using full life cycle assessment.
- Consider direct and indirect transportation impacts.
- Strategically approach urban planning for optimization.
- Coordinate with decision-makers across jurisdictions.

---

[Shopping Bags: Paper, Plastic, or Reusable Tote? An Environmental Assessment](#)

*Paper or plastic? An ongoing debate. This report takes a close look at scientific findings regarding this issue and provides information to help guide personal choices as well as public policy decisions.*

To reduce impacts from bag purchase and use, consumers can:

- Keep several reusable bags in vehicles.
- Avoid taking a bag unless it is needed.
- Do not buy cotton bags.
- Use paper bags if reusable bags are forgotten.
- Reuse paper or plastic shopping bags for alternate purposes or donate to organizations that can use them.
- Never place plastic bags in a recycling container.
- Stay up to date on local proposals or state ordinances and add your voice to influence outcomes.

---

[Selection of Printing and Writing Paper for Minimum Environmental Impact](#)

*In recent years, recycling advocates have pushed the idea that greater recycled content is always better. But as this report shows, that isn't necessarily the case.*

To reduce the impacts from paper use, consumers can:

- Purchase recycled content paper, but restrict paper purchases to a maximum of 30% recycled content, a number that includes pre-consumer fiber.
- Encourage sorting clean office paper from general trash.
- Schedule semi-annual document shredding events for local communities and governments.

---

[Household Waste Recycling: Why it is Important and Why Change is Needed to Increase Effectiveness](#)

*Communities everywhere have made investments to make recycling participation easier – perhaps too easy. Yet, recovery and reuse of recyclables lags that of other developed countries. This report examines issues regarding waste, waste recovery, and recycling, and identifies strategies for improvement at both household and community levels.*

To optimize home recycling effectiveness, consumers can:

- Follow local recycling guidelines.
- Never place problematic materials (plastic bags, food, liquid-containing bottles, soiled diapers) into recycling bins.
- Never discard aluminum or steel cans in the trash.
- Carry a spare bag in your vehicle glove boxes for when waste is generated and recycling bins are not available.
- Teach children the importance of recycling and encouraging recycling as a part of school curricula.
- Encourage advancements to recycling policy and community expansion of curbside collection, efficiency, and dual stream outlets.

---

## **Linking to Individual Reports**

The following infographic touches on central issues in the various reports and provide a direct link to each of the individual reports. Clicking on each symbol will lead directly to the report of interest.

# Consuming Responsibly Summary



**Environmental Impacts of Tap vs. Bottled Water:** Outside of emergency situations that may require bottled water as a solution, tap water is a superior alternative that reduces both consumer expenses and adverse environmental impacts.



**Reducing Home Energy Consumption:** Energy conservation measures, retrofitting of existing buildings, and high energy efficiency standards for new buildings all hold considerable promise for reducing energy use and associated emissions, and for reducing energy bills of homeowners. It was also found that slow rates of building replacement makes retrofitting for energy efficiency a high priority objective.



**E-waste and How Consumer Choices Can Help to Reduce It:** To minimize e-waste, consumers can keep devices longer before upgrading, replace batteries, donate for restoration or reuse, or properly recycle electronics, as well as support changes to state and federal laws to reduce environmental impacts.



**Bathing and the Environment:** Consumers can minimize their water consumption and energy use associated with bathing by simply using less water, by using showers rather than bathtubs, installing efficient shower heads, and taking shorter showers.



**Environmental Assessment of Natural vs. Artificial Christmas Trees:** The environmental performance of natural and artificial trees is influenced by travel distance, years of use for artificial trees, how natural trees are disposed of, and factors of importance for the consumer.



**Environmental Assessment of House Cladding Products:** Over the assumed building life of 60 years, it was determined that vinyl, solid wood, and engineered wood siding have the lowest overall environmental impacts of the options studied and polypropylene siding and cement-based options had the highest impacts.



**Comparison of Environmental Impacts of Flooring Alternatives:** While natural materials have lower impacts overall, no flooring alternatives outperform all others in every impact category.



**You Television and Energy Consumption:** The sheer number of televisions in North America (the average U.S. household has more than one TV) has significant consumption impacts, especially as energy efficiency progress is seemingly offset by the drive for bigger and brighter screens.



**Replacing That Old Refrigerator: A Bigger Decision than You Think:** When a refrigerator reaches 10 – 11 years in use, it is best from an environmental and energy consumption perspective to recycle and replace it with a new unit.



**An Examination of Environmental Impacts of Clothing Manufacture, Purchase, Use, and Disposal:** Consumers can help to reverse recent trends toward ‘fast fashion’ by limiting purchases, avoiding trendy short-life fashion trends, helping others to understand the impacts of their purchases, purchasing recycled-content items, and seeking out second-hand outlets.



**Environmental Assessment of Conventional vs. Hybrid vs. Battery Electric Vehicles:** Electric vehicles offer significant emissions reductions when compared to internal combustion drive vehicles. The magnitude of emissions reductions offered by electric vehicles is likely to increase with progress in reducing emissions from electricity generation.



**An Environmental Assessment of Transportation Alternatives:** To decrease the carbon emissions attributable any one person, individuals should use transit systems, purchase energy-efficient vehicles, and reduce air travel.



**Environmental Assessment of Intensive Lawn Care:** In moderation, fertilizer practices can help to increase the rate of carbon capture in urban lawns, but at excessive levels, fertilizer can negate these benefits and contribute to harmful emissions.



**Shopping Bags: Paper, Plastic, or Reusable Tote? An Environmental Assessment:** No one type of bag is preferable, but bag reuse is seen as a positive. Durable bags have the potential for environmental impact reduction if used enough times, and proper disposal at the end of life is an important step.



**Consumer Food Waste: Environmental Impacts and Changing Course:** Food waste at the consumer level constitutes about 20% of total estimated food loss and waste; however, the loss of edible food once it reaches the intended ultimate consumer has a much higher environmental impact due to the impacts of producing, harvesting, transporting, processing, and distributing food to end consumers.



**Selection of Printing and Writing Paper for Minimum Environmental Impact:** Printing and writing paper with 10-30% recycled content provides the best environmental performance.



**Household Waste Recycling: Why it is Important and Why Change is Needed to Increase Effectiveness:** Recycling is an essential service for waste management, but changes in recycling guidelines and collection systems are needed to increase effectiveness.