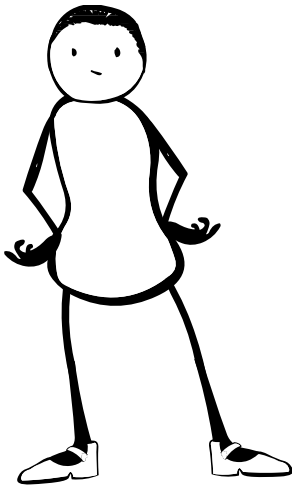
Story of Stuff Glossary

THE STORY OF STUFF
WITH ANNIE LEONARD

Brominated Flame Retardants (BFRs): a class of toxic industrial chemicals routinely added to consumer products such as clothes, furniture, and electronics to reduce fire-related injury and property damage. BFRs are applied to 2.5 million tons of plastics annually. North American industry is the largest user of BFRs globally; however, a significant proportion of products manufactured in North America are destined for international markets. Within the U.S., and worldwide, the electronics industry accounts for the greatest consumption of BFRs. In computers, BFRs are used in printed circuit boards, components such as connectors, plastic covers, and cables. BFRs are also used in a multitude of products, including plastic covers of television sets, carpets, paints, upholstery, and domestic kitchen appliances.



A 2005 report released by Health Care Without Harm called Brominated Flame Retardants: Rising Levels of Concern, has this to say: *"Whereas flame resistant products save lives and prevent property damage, there are increasing concerns about the environmental and health effects of flame-retardants such as BFRs. Overall, the available literature on BFR toxicology is incomplete. Based on the available data, however, we know that BFRs are associated with several health effects in animal studies, including neurobehavioral toxicity, thyroid hormone disruption, and possibly cancer. Additionally, there are data gaps but some evidence that BFRs can cause developmental effects, endocrine disruption, immunotoxicity, reproductive, and long-term effects, including second-generation effects."*

Byproduct: something produced while producing something else. Usually byproducts are not intentional, and often are not desired. A byproduct can be useful and marketable, or it can have severe ecological and health consequences. Some examples of industrial byproducts that may be either harmful or useful: molasses is a byproduct of making sugar; sawdust is a byproduct of processing lumber; mercury pollution is a byproduct of gold mining; **dioxin** is a byproduct of burning plastics; and CO2 is a byproduct of burning fossil fuels. When thinking about extraction, production, consumption, and waste, it is important to think about byproducts, because many industries produce more byproducts than products; many industrial byproducts can be used in other industrial processes (see **Clean Production** and **Closed Loop Production**, below).

Carcinogens: chemicals that cause cancer.

Clean Production: a way to manufacture goods that reduces total materials flow, uses minimal resources, harnesses renewable energy, and creates minimal waste. Clean production is based on the production of goods and services as part of a life cycle, rather than a linear flow: limited sustainable extraction of renewable resources >> safe processing of raw materials into non-toxic products designed for durability and re-use >> minimal consumption >> disposal that either composts or returns products to manufacturers to use as raw materials, while promoting public health and social equity throughout.

Clean Production essentially mimics natural cycles, which use resources efficiently and create no waste. Advocacy for clean production is rooted in the Precautionary Principle, which urges us to prevent possible harm from pollution by promoting sound public policies and developing industrial production systems that are ensured to be safe.

Closed Loop Production: making the chain of extraction-production-distribution-consumption-disposal work in a circle or cycle rather than as a straight line. Closed loop production means increasing productivity (thereby reducing waste) along the whole system and reusing the waste products that are made as raw materials rather than allowing them to pollute our environment; reusing the renewable energy for power rather than letting it escape into the atmosphere to cause global warming; requiring producers to take full responsibility for their products from extraction through disposal; protecting workers and communities rather than treating them as disposable; manufacturing products that will last for many years and can be repaired, reused, or recycled, rather than products that break immediately and must be dumped or burned.

Coltan: the popular name for columbite-tantalite, a metallic ore used in consumer electronics such as cell phones, DVD players, computers, and games consoles. The export of coltan from Africa helped fuel environmental and social distruption and war in the Congo that has resulted in million of deaths.

Conscious consuming: using our money to support sustainability and justice. Being a conscious consumer requires considering a product's impact on the environment, the workers, and people's health before buying it. For example, is the product made from recycled content? Is it durable, long lasting, toxics-free and easily recyclable? Was it produced nearby or far away, requiring lengthy transport? Is the store locally owned so your dollars build the local economy? Is the producer or retailer worker-owned or unionized? Is it certified **Fair Trade**, organic, or does it have some other green label? And, most importantly, do I really need it in the first place, or can I perhaps borrow one or buy one used?

Dioxins: a group of persistent, very toxic chemicals formed as byproducts of industrial processes involving chlorine, or when chlorine and organic matter are burned together. The US Environmental Protection Agency has identified burning garbage and medical waste in **incinerators** as among the largest sources of dioxin. Dioxins are known to cause cancer in humans and to have reproductive and developmental effects in animals at very low doses. Dioxin exposure damages the immune system, leading to increased risk of infectious disease, and can disrupt the proper function of hormones. Dioxin, like DDT, does not readily break down in the environment, but accumulates in the bodies of people and animals. Due to its persistence, every person on earth has some amount of dioxin in his or her body.

Externalized cost (of production): any kind of loss or damage such as illness, environmental degradation, or economic disruption caused by industries engaged in natural resource extraction, production, distribution, and disposal, but not paid for by those industries. Externalized costs may also be called "hidden costs." The radio that Annie bought cost only $4.99, but it had many hidden costs such as the loss of natural resources, the illness of workers who breathed in toxic chemicals to produce it, the global warming gases released by transporting it across the ocean, and the low wages of the person in the store who sold it. Externalized costs are most often borne by workers, community members and the environment, rather than by industries and corporations.

Fair trade: an equitable and fair partnership between businesses and organizations in the "developed world" and producers in the "developing world" (see **Third World**, below). Fair trade businesses foster long-term and direct relationships with producers, because this helps producers sustain their businesses without being forced to **externalize costs**, or be forced into poverty.

The Fair Trade Federation, which regulates fair trade, certifies that all of its members are committed to:

- Paying fair wages in their local context;
- Supporting participatory workplaces;
- Ensuring environmental sustainability;
- Supplying financial and technical support;
- Respecting cultural identity;
- Offering public accountability; and,
- Educating consumers.

Finite planet: "Finite" means having bounds or limits; so, the phrase "finite planet" recognizes that the entire planet has bounds and that its resources are not limitless. There is a limit to how quickly trees can grow, water can be re-cycled, or soil can be regenerated. There is a limit to how much oil and how many minerals we can extract. There is a limit to the amount of contamination the planet's systems can absorb before causing irreversible harm.

Many of the resources we require for economic activity and biological survival are not renewable (able to be renewed faster than they are consumed); but we use them as if they are infinite, or as if there is no tomorrow. In order to survive on the planet, human societies must learn to live within the limits of the planet's resources.

Green Chemistry: a way of approaching industrial chemistry that protects the environment not by cleaning up pollution, but by inventing new chemical processes that do not pollute in the first place. Paul Anastas and John Warner first wrote about green chemistry in their book Green Chemistry: Theory and Practice (1998); their *Twelve Principles of Green Chemistry* can be found at http://www.epa.gov/greenchemistry/pubs/principles.html. Additional information on green chemistry can be found at http://www.epa.gov/greenchemistry/ and at http://www.cleanproduction.org/Green.php

Industrial production systems: the physical, regulatory, and economic systems created to produce stuff in modern industrial society. This includes the physical facilities (the bulldozers, the factories, the highways, the dumps), the economic system (the financial institutions, the market rules) and the laws or regulations (the air pollution permits, the trade laws, the worker safety laws). In short, the whole collection of things that make up the systems for extracting, producing, distributing, and disposing of stuff in modern life.

Incinerator: a facility that incinerates or burns waste. Incinerators emit very toxic pollution such as **dioxins**; they create toxic ash; and they divert huge sums of money to burn "waste" that could have been turned into resources for future use. In a green society that uses **Clean Production**, there is no place for incinerators.

Labor rights: the rights of all workers to negotiate with their employers for fair wages, benefits, and safe working conditions, and to organize in unions in order to bargain collectively for improvements in their working situation.

Landfill: a place where waste is dumped, also known as a dump. A landfill is usually into a big hole but may also be built above ground. Some landfills are unlined holes while others have varying degrees of liners and pipe systems to capture and divert liquids. Landfills often release toxic emissions and runoff, as well as greenhouse gases that cause global warming. Using landfills to dump waste is a misuse of resources that could otherwise have been recycled or reused. In a green society that uses **Clean Production**, there is no place for landfills.

Linear system: a system that moves in a straight line rather than in a circle, or cycle, as in **closed loop production**. The problem with linear systems is that on a **finite planet**, a straight line eventually hits the wall, while a circle goes on forever.

Local Living Economies: economic systems that prioritize human and community needs and interests by providing local resources, fair wages, and low environmental impacts. Author and activist David Korten writes, "Local Living Economies are made up of human-scale enterprises locally owned by people who have a direct stake in the many impacts associated with the enterprise." A business owned by workers, community members, customers, and/or suppliers who directly bear the consequences of its actions is more likely to provide workers with safe, meaningful, family-wage jobs; to produce useful, safe, high-quality products; to encourage local investment, stable markets and fair prices for suppliers and consumers; and to promote the trust and responsibility required for a healthy and sustainable social and natural environment.

Maquiladora or maquila: a factory contracted by corporations to perform the last stages of a production process—the final assembly and packaging of products for export. Multinational corporations supply *maquilas* with pre-assembled material, such as cloth for clothing and electronic components for computers, and *maquila* workers assemble the material into finished or semi-finished products. The *maquilas* then export their products to their partners overseas. *Maquilas* make huge profits by exploiting the cheapest possible sources of labor and benefit from lax environmental regulations, low taxes, and favorable trade laws.

The poor treatment of workers in maquilas is an example of a hidden or **externalized cost of production**. The organization STITCH, Organizers for Labor Justice, tell us that, "The use of the word '*maquila*' in Central America originates from the Arabic word *maquila*, which referred to the amount of flour retained by the miller in compensation for grinding a farmer's corn in colonial times."

Materials economy: the natural and human-made structures, systems, rules, policies and practices that guide how materials move from extraction to production to distribution to consumption to disposal. In other words, those drawings behind Annie in *The Story of Stuff*—that's the materials economy. In fact, you could say *The Story of Stuff* is really…that's right… the story of the materials economy. (But that wouldn't sound as good, would it?)

Materials flow and Materials throughput: the way materials (natural and human made stuff) flow through the materials economy from extraction to disposal, and the *rate* at which these same materials move. In other words, the way stuff gets used and the rate at which we use it. In ecology, they say stuff flows from a *source*, like a well, a factory, or a farm field, to a *sink*, like the ocean, the atmosphere, or the dump. So, the materials flow is the path stuff takes on its journey from source to sink; the materials throughput is how long the trip takes. For example, a cast-iron skillet passed down to you from your grandmother moves pretty slowly, all things being relative; a paper coffee cup zooms right through. In a green society that uses **Clean Production**, there is no place for things that zoom right through, unless they're used as resources in another process. Like how compost from food scraps is used to grow more food.

Natural resource exploitation: the practice of utilizing natural resources (like wood, water, or crops) or ecological services (such as how bees pollinate crops, how trees produce oxygen for us to breathe, or how fertile soil provides food) at such a rate as to degrade those resources or services. On a **finite planet**, there is no room from natural resource exploitation.

Neurotoxin: any substance that damages the nervous system. These may cause brain damage, or damage to peripheral nerves. Many **BFRs** are known or suspected neurotoxins.

Planned obsolescence: designing and producing products in order for them to be used up (obsolete) within a specific time period. Products may be designed for obsolescence either through function, like a paper coffee cup or a machine with breakable parts, or through "desirability," like a piece of clothing made for this year's fashion and then replaced by something totally different next year.
Planned obsolescence is also known as "design for the dump."

Perceived obsolescence: the part of **planned obsolescence** that refers to "desirability". In other words, an object may continue to be functional, but it is no longer perceived to be stylish or appropriate, so it is rendered obsolete by perception, rather than by function. Fashion is all about perceived obsolescence, and it could be said that perceived obsolescence is the number one "product" of the advertising industry, if you know what we mean. Just think of how Annie's shoes heels get skinny then fat then skinny then fat again and so on, forever, in *The Story of Stuff*.

Recycling: recycling generally refers to re-using something (or a portion of something), or putting it back into use (or into the materials economy), rather than wasting it. However, there are many variations of recycling. True recycling achieves a circular closed loop production process (like turning a bottle into a bottle into a bottle); downcycling re-processes a material into a lower grade material and a secondary product (like turning a plastic jug into carpet backing). True recycling seeks to eliminate the need for natural resource input and waste output in making products. On the other hand, downcycling, at best, reduces the natural resource input for the secondary item but does not reduce the natural resources needed to make a new original item. In fact, by advertising a product as "recyclable," the demand for it may actually rise, ironically creating a greater demand for natural resource input. In other words, recycle, yes! But remember that most recycling, at present, is really downcycling, so it's not yet achieving a closed loop production system.

Renewable energy: energy from sources that are renewable, as opposed to finite. Renewable energy uses natural resources such as sunlight, wind, tides and geothermal heat, which are naturally replenished. Renewable energy technologies include solar power, wind power, and hydroelectricity, as well as biomass and biofuels for local transportation. Garbage is not renewable energy, in spite of many waste industries' attempt to have it classified as such. Energy is only renewable if the resources it came from can be renewed as quickly as they are consumed.

Slums: the U.N.-HABITAT program defines slum as a "heavily populated urban areas characterized by substandard housing and squalor, and lacking in tenure security." The term "slum" traditionally referred to housing areas that were once respectable but which deteriorated as the original dwellers moved on to newer and better parts of the city, but it has come to include the vast informal settlements found in cities in the **developing world**.

Supertoxics: toxics so powerful that they are toxic at extremely low levels. Many supertoxics are so toxic that no amount is safe.

Synergistic health impacts: the combined effects of exposure to multiple chemicals at the same time. Each chemical will not only cause its specific health impact, but the combination of chemicals may have unknown or unanticipated impacts. This is important because, with the world as polluted as it is today, none of us is ever exposed to only one chemical at a time—we are all always exposed to synergistic health impacts, the cumulative impact of which simply isn't known.

Third world: a way to refer to most of the countries in the world, where most of the world's people live, and where most of the world's resources are. Even though Annie used the term "Third World" in *The Story of Stuff*, she doesn't really like the term because it lumps together a whole lot of people and suggests that they are less important than people in the 'first' or 'second' worlds (see below). Some people use the term "developing countries" or "underdeveloped countries," but we don't like those terms either, since they imply that more industrial and consumer development is always better—and it's not. Some people call the 'Third World' the 'two-thirds world,' because 2/3 of the world's population lives there; others call it simply 'the global South,' because most of these countries are in the southern hemisphere. So, where does the term come from?

The term "Third World" was coined by the French economist Alfred Sauvy in 1952 to refer to the countries of Latin America, Africa, Oceania, and Asia which were not aligned with either U.S. bloc (the 'first world') or the Soviet Union (the 'second world') during the Cold War. "Third World" was a deliberate reference to the French Third Estate (*Tiers Etat*) from the French Revolution. (The First Estate was the clergy, the Second Estate was the nobility, and the Third Estate was the common people. "Like the third estate," wrote Sauvy, "the Third World has nothing, and it wants to be something." The term therefore implies that the Third World is exploited, much as Third Estate French commoners were exploited, and that, like the Third Estate, its destiny is a revolutionary one.

A more recent commentator, the Indian writer and scientist Vandana Shiva, says: "The third world is that part of the world which became the colonies in the last colonization. It wasn't impoverished then; in fact the reason it was colonized is because it had the wealth. Today [these countries] are the poorer parts of the world because the wealth has been drained out."

Top of food chain: the food chain is a relationship between organisms in an ecological community in which each consumes a lower member and in turn is preyed upon by a higher member: the little fish eats insects » the big fish eats the little fish » the big fish is eaten by the bear, or the eagle, or the fisherman. In this example, the bear, or the eagle, or the fisherman is at the top of the food chain. Many toxic chemicals persist in the environment and "bio-accumulate," meaning they accumulate in increasingly larger amounts as they move up the food chain; organisms higher on the food chain have higher concentrations of these chemicals in their bodies. For some foods, humans are at the top of the food chain; because Moms also bio-accumulate toxics, breast-feeding babies are at the tippy-top of the food chain.

Toxic chemicals (toxics): chemicals or physical agents that produce an adverse effect on an organism or a biological system or a community. Bad stuff.

Zero Waste: a way of thinking about, designing, and managing products and processes to reduce the volume and toxicity of materials and thus waste, to conserve and recover all resources, and to ensure materials are neither burned nor buried. Zero Waste is not the same as 100 % recycling, since Zero Waste seeks to design waste out of the entire **industrial production system**, rather than just figure out how to re-use it after the fact. The Zero Waste International Alliance (http://www.zwia.org/standards.html) says: "Implementing Zero Waste will eliminate all discharges to land, water or air that may be a threat to planetary, human, animal, or plant health. Zero Waste is a goal that is both pragmatic and visionary, to guide people to emulate sustainable natural cycles, where all discarded materials are resources for others to use."