Anti-BPA Packaging Laws Jeopardize Public Health

By Angela Logomasini, Ph.D.*

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Preface

Let's start with a paper written by a person employed by a "conservative" think tank, **Competitive Enterprise Institute** (CEI.org). She has a PhD in politics.

The conservative think tank agenda is clear. They "analyze" current and proposed policy using their 'religious' convictions (capitalism, free market, current economic theory, libertarianism, conservative agenda, individual freedom from government regulation, second amendment, etc.) and proceed to tear down any effort in place by "progressives" regardless of any inherent value in the progressive/liberal program. To this group of people, every problem becomes a 'war.' Winner take all. Our way or the highway. In their minds, there is no possible alternative perspective with any value, hence there is no respect for differing perspectives, and there is no reason to work toward a win-win outcome.

The progressive agenda may be getting more and more extreme as well. However, we do not have a liberal analysis of BPA Packaging for similar comparison.

In this reframing exercise, we choose to be neither conservative nor progressive, but instead make the problem bigger than the "Anti-BPA Packaging laws." Using the Universe Story and the new Ecomorality (Ethics of Sustainability) as a basis, we examine this "analysis" by this CEI Senior Fellow in the Center for Energy and Environment at the Competitive Enterprise Institute.

Let's look at the logic and reason presented in this "analysis" more closely to better understand how these conservative groups present their agenda.

Anti-BPA Packaging Laws Jeopardize Public Health

By Angela Logomasini, Ph.D.*
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In public policy, bad ideas have an unfortunate tendency to spread.

The title and first sentence set the stage and construct a framework for the article. Even before we have heard any justification, we are in the "conservative" frame, immersed in their war on "government." : that what she is about to talk about i.e. Anti-BPA Packaging Laws is a "bad idea". This would be similar to starting this "Re-assessment" out by saying "When conservative think tanks "analyze" policy, their list of bad ideas have an unfortunate tendency to spread."

Lawmakers in several states are considering legislation (Event A) similar to a bill passed last week in Maryland (Event B) that may actually increase food-borne illnesses (Event C).
This is an example of how hypothetical fear of a possible but often improbably event is used in demagogy to get people's attention and make a case for opposition. Yes, Event B (the thing you are trying to eliminate) "may/could/might/" cause Event C (known by all to be a bad thing). Note this is much different from saying "Considered legislation will increase food-borne illness." But there is no such factual link between legislation and illness. To make matters worse, Event A (that might be similar to Event B) "may/could/might/" even occur further accentuating the hypothetical fear. Indeed, the sky is falling.

The Maryland legislation (SB151 and HB4) bans infant formula and baby food packaging that contains more than 0.5 parts per billion (ppb) of the chemical Bisphenol A (BPA). Fact.

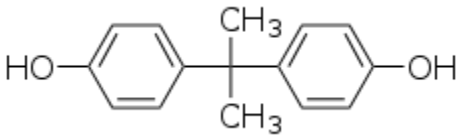
The standard is so stringent that it essentially bans BPA in these packages (Fact)—for no good reason. (Oh, really. We await your explanation of this decisive conclusion.)

In fact, regulatory bodies around the world (actually it just the European Food Safety Authority (EFSA) … agreed with the United States EPA estimate of 0.05 mg/kg body weight/day standard which translates into a higher SML of 3,000 ppb) have found BPA levels safe up to 3,000 parts per billion. [1]
(For details see section in this paper on exposure.)

Let's just stop here for a moment, take a deep breath and recall the ethics of sustainability.
The ethics of ecomorality are based on observations of the history of nature over the past 13.7 billion years. Some use the term biomimicry to suggest that humans would do well to look to the patterns provided by natural evolution as a source of wisdom for helping us determine right relations on what's in right relationship when we choose how to act. Nature has developed a symbiotic set of relationships between its community of subjects (Ref: Thomas Berry). It is our choice. We have evolved to be so complex, that much of behavior is not "hardwired" but instead our neurological development is determined by the conditions we experience prior to and immediately after birth – in fact the human has evolved with a capacity for life-long learning (and neural plasticity). We have a choice – we can respond to our pleasure centers (reptilian brain), to our socialized conditioning (and do what we observe others doing), and to our ability to differentiate from the herd, apply our own reasoning, and take responsibility for acting in an ethical manner that we understand to be in right relationship with our global/solar community.

Observation of nature indicates that evolved complex species do not spew out lethal by-products until/unless threaten (snakes will bite and inject venom when threaten, bees will sting when annoyed/threatened, etc.). Unconscious humans however behave differently and will act in a manner that is unhealthy to themselves as well as others – with seemingly disregard for anything but immediate consequences – apparently motivated by immediate gratification (including greed, maximizing profit, hoarding wealth, power, etc.).

Now let's get back to BPA.
Bisphenol A (BPA) is a molecular structure created by humans. (first synthesized by the Russian chemist A.P. Dianin in 1891.[9][10])



It is not a substance that is considered a cradle to cradle creation – in other words, it is a waste product from the plastic manufacturing process. It is not the input for another natural process or sustaining human process. It is a waste that is known to be capable of overpowering the human immune system and result in cancer (it is a known carcinogenic substance). Cancer is a disease that prevents humans and other living beings from living a full life – hence causing someone to incur cancer is a form of violence because it prevents someone from reaching their full potential. We are also aware that

> ...in general, studies have shown that BPA affects growth, reproduction and development in aquatic organisms. Among freshwater organisms, fish appear to be the most sensitive species. Evidence of endocrine-related effects in fish, aquatic invertebrates, amphibians and reptiles has been reported at environmentally relevant exposure levels lower than those required for acute toxicity. There is a widespread variation in reported values for endocrine-related effects, but many fall in the range of 1µg/L to 1 mg/L.[8]
>
> BPA will contaminate the environment either directly or through degradation of products containing BPA, such as ocean-borne plastic trash.[181]
>
> As an environmental contaminant this compound interferes with nitrogen fixation at the roots of leguminous plants associated with the bacterial symbiont *Sinorhizobium meliloti*. Despite a half-life in the soil of only 1–10 days, its ubiquity makes it an important pollutant.[182] According to Environment Canada, "initial assessment shows that at low levels, bisphenol A can (will) harm fish and organisms over time. Studies also indicate that it can be (is) currently found in municipal wastewater."[183]
>
> A 2009 review of the biological impacts of plasticizers on wildlife published by the Royal Society with a focus on annelids (both aquatic and terrestrial), molluscs, crustaceans, insects, fish and amphibians concluded that BPA have been shown to affect reproduction in all studied animal groups, to impair development in crustaceans and amphibians and to induce genetic aberrations.[184]
>
> A large 2010 study of two rivers in Canada found that areas contaminated with hormone-like chemicals including bisphenol A showed females made up 85 per cent of the population of a certain fish, while females made up only 55 per cent in uncontaminated areas.[185]
>
> A 2010 report from the United States Food and Drug Administration (FDA) raised further concerns regarding exposure of fetuses, infants and young children.[1] In September 2010, Canada became the first country to declare BPA as a toxic substance.[2][3] In the European Union and Canada, BPA use is banned in baby bottles.[4]

There are alternatives to BPA as indicated by the proactive stance of Japan.
(http://en.wikipedia.org/wiki/Bisphenol_A#Japan)

> Between 1998 and 2003, the canning industry voluntarily replaced its BPA-containing epoxy resin can liners with BPA-free polyethylene terephthalate (PET) in many of its products. For other products, it switched to a different epoxy lining that yielded much less migration of BPA into food than the previously used resin. In addition, polycarbonate tableware for school lunches was replaced by BPA-free plastics. As a result of these changes, Japanese risk assessors have found that virtually no BPA is detectable in canned foods or drinks, and blood levels of BPA in the Japanese people have declined dramatically (50% in one study).[256]

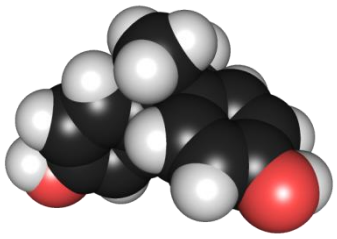
"In general, plastics that are marked with recycle codes 1, 2, 4, 5, and 6 are very **unlikely** to contain BPA. Some, but not all, plastics that are marked with recycle codes 3 or 7 may be made with BPA."[25]
http://www.hhs.gov/safety/bpa/

Bisphenol A (BPA) is a high production volume (HPV) chemical widely used in manufacturing polycarbonate plastics and epoxy resins used in many industries. Humans appear to be exposed primarily through food packaging uses of products manufactured using BPA, although those products account for less than 5% of the BPA used in this country.

Releases of BPA to the environment exceed one million pounds per year.
http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/bpa_action_plan.pdf

A sustainable world with an evolving consciousness does not engage in human behavior that consciously damages, destroys, degrades, or shortens the life of any other living species on this planet. Taking a life in a respectful manner to sustain our own life is considered natural. After all, we humans evolved as heterotrophs and are not capable of producing our energy from the Sun – we must take in autotrophs and other heterotrophs for daily energy needs for survival. But to needlessly and consciously destroy other life for no sustainable reason is unethical – indeed immoral in the context of the Universe Story.

A sustainable world encourages creativity and the extension of human capabilities but considers it unethical to create a product that is a waste. Waste is a creation that cannot be used as input to the next natural or human process. In the case of BPA, the act of creating more of this substance, while aware that it is harmful to humans and other living species is unethical.



The concept of beauty might also be introduced here – beauty is a hard concept to define, but one that we tend to be able to appreciate upon experiencing it. The diagram of a BPA molecule ($C_{15}H_{16}O_2$) could be considered a creative and beautiful thing
– it illustrates yet another possible creation possible using nothing but the basic building blocks (elements) collected from star stuff on planet earth – stuff available for or mindful use to continue the creative celebration started 13.7 billion years ago.

Likewise the blueprints for a nuclear weapon might be considered a thing of beauty because it represents the creativeness of the human species in assembling Earth's elements into a device that has been ongoing within the Sun for the past 4.5 billion years. But to actually make a nuclear weapon would be considered unethical. To use a nuclear weapon knowing about (being conscious of) effective alternatives would be considered immoral.

This anti-BPA legislation is based on environmental activists' wrongheaded claims (that BPA poses an unreasonable risk to human health—specifically to children—but the overwhelming body of research suggests otherwise. Unfortunately, as more of these misguided bans succeed, policymakers are likely to begin targeting BPA use in all types of food packaging, as several bills already introduced in Congress do.

Ironically, these policies threaten to undermine food safety because BPA is used to make resins that line metal cans and other packaging to prevent the development of dangerous pathogens and other contamination. And there are few good alternatives should lawmakers eventually ban BPA.

In other words, misguided bans on use of BPA in food packaging could have serious, adverse public health implications.

Anti-BPA Legislation in the States and Beyond.

BPA has been the subject of state and federal legislation for several years. The Maryland law follows the bad precedent set by a 2009 Connecticut law that banned BPA for infant formula packaging and baby food containers starting in October 2011.[2] Apparently, implementation of that law is proving problematic, and the legislature is considering delaying implementation until October 2012. Yet delaying implementation is only a short-term solution to this unworkable public policy.

Several states and localities also have passed BPA regulations, including Minnesota (effective January 2010), Chicago (effective January 2010), and Suffolk County, New York (effective June 2009). Most of these laws focus on banning plastic sippy cups for toddlers and baby bottles made with BPA, but the focus of new legislation is now shifting to food packaging.

This year in California, Assembly member Betsy Butler (D-Marina del Rey) has introduced the "Toxin-Free Infants and Toddlers Act, (AB 1319),[3] which would mandate a standard even more absurdly stringent than the one that passed in Maryland—setting the BPA limit at 0.1 parts per billion for infant formula and baby food containers. In Missouri, Rep. Kevin McManus (D-Kansas City) has introduced HB 728, which would set the same ridiculous standard for Missouri.[4] Both bills call on manufacturers to provide the "least toxic" alternative for BPA, which is meaningless if such alternatives simply do not exist. In fact, the absence of good alternatives is likely why the state of Connecticut is considering delaying its 2009 ban on BPA use for infant formula and baby food packaging.[5]

The Oregon Senate recently voted in favor of SB 695, which would ban BPA use for children's food containers, baby bottles, and sippy cups starting in January 2013.[6] The Oregon House has yet to vote on the bill. Green activists were unable to get an all-out ban a BPA in other food packaging, but they did get a provision they can use to build momentum for such bans in the future: The bill creates a panel to "study" the potential for similar bans on other food packaging. However, BPA has already been studied extensively around the world. This new state-level panel is unlikely to discover any new information, but instead will simply be used to push the activist's agenda to ban more uses of BPA.

Outright BPA bans in food packaging have been considered at the federal level. Last Congress, Sen. Charles Schumer (D-N.Y.) introduced the BPA-Free Kids Act of 2009 (S. 753), which would ban BPA in containers used for products for children under three, excluding metal cans. Also last Congress, in the House, Rep. Edward Markey (D-Mass.) introduced the Ban Poisonous Additives Act (H.R. 1523), an extreme proposal to ban BPA in *all* food-contact containers. And Sen. Diane Feinstein (D-Calif.) attempted to attach an amendment to the Food Safety Act (S. 510) last year that would have banned BPA in all food packaging, which fortunately the Senate leadership convinced her to remove.

Heading north of the border, a recent ban in Canada is particularly instructive of the politicized nature of the anti-BPA campaign. In 2010, the Canadian government banned BPA use for making baby bottles. However, it issued the ban after its own scientific review of BPA could find no risks associated with existing exposures through consumer products. Health Canada noted in a statement: "The scientists concluded in this assessment that Bisphenol A exposure to newborns and infants is below levels that cause effects; however, due to the uncertainty raised in some studies relating to the potential effects of low levels of Bisphenol A, the Government of Canada is taking action to enhance the protection of infants and young children."[7]

The likely real reason for the move can be gleaned from this comment from Canadian Environment Minister John Baird: "Many Canadians, especially mothers of babies and small children in my own constituency of Ottawa West-Nepean, have expressed their concern to me about the risks of Bisphenol A in baby bottles."[8] Hence, the government felt the political need to regulate because media and activist hype had created unwarranted fears among parents.

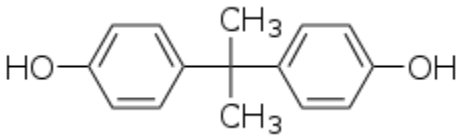
What Is BPA?

Bisphenol A is a chemical intermediary used in the manufacturing of certain products, including polycarbonate plastics and epoxy resins.

Let's stop for a moment. As we homo sapiens observe the expanding Universe, we see that for the past 13.7 billion years it appears to promote several basic concepts – three will be mentioned here:

1) Emergence (complexification): creating something more from nothing but – as a result of new relationships.
   The natural evolution of Life on planet Earth has resulted in an amazing diversity of species. As we following the fossil record, we see the patient persistence emergence of the phylogenic tree of life – now categorized to have three distinct major branches (Archea, Bacteria, and Eukaryotes). Of the more than 1.9 million documented species living today, homo sapiens are among the latest arrivals and claim a spot on one of the outer branches. It is estimated that for every 1 species alive today, there are 1000 that now extinct – unable to adapt to the ever changing environment in an expanding Universe.
2) Sustainable living with total dependence on the flow of energy originating from the Sun – collected / harvested and stored for use by a living being. Harvesting involves the transformation of sunlight (electromagnetic radiation /light) into chemical energy that other forms of life can harvest and use for their other forms and transformed into assembled from the basic materials on the Earth –
3) No Consumption – only Borrowing / Returning. Consumption comes in different flavors.
   a. Every living species uses Earth's materials and the energy from the Sun to assemble star stuff into a living system.
   b. Every living being (with the exception of some homo sapiens in "developed" countries), Borrows these materials and Returns these materials when they are finished using them – when their life has ended. As a result materials used to assemble life have been Borrowed / Returned (recycled) sustainably for the past 3.5 billion years.
   c. Extracting a raw material, say the element copper (Cu), and using it to help assemble a new 'tool' for human use is entirely consistent with sustainable living - assuming the energy used in extracting the copper from the earth, smelting it, and shaping it into something more was derived sustainably from renewable energy sources.

d. Humans can make choices to mimic other life forms that have evolved with sustainable behavior. When we are through using a "tool," we can return it to be 100% recycled into other "tools." This can go on forever because basic stable elements do not wear out. Every atom of the returned tool is again available for future generations to create something more.
e. My ancestors were farmers. My grandfather was still farming in a manner that was largely sustainable until he retired. As a three old in the early 40s, I can still remember his draft horses and the complicated leather harnesses he used to hitch them up to various implements (i.e. plow, harrow, drag, planter, (hay) mower, (corn) binder, wagons, sleighs, buggies, etc.). My grandmother cooked on a wood burning stove. Wood was also burned in a pot bellied stove to heat the living room. The firewood was harvested from a 20 acre 'woods' that was an integral part of the farm. Looking back at their life style, I can recall only a few unsustainable practices. They did burn 'coal oil' lamps for light in the evening before rural electrification. Steam engines used to drive their monstrous threshing machines often burned coal as well as wood.
f. After WWII, the horses were sold, and replaced with petroleum burning tractors and the road to unsustainable living opened up big time. wasThat is until the recent appearance of "modern human."
g. Humans with their wonderful 'free will' make choices. If the economic system within which they live (and some actually worship) indicates that when a tool reaches the end of its useful life, it is 'cheaper' to throw it away (in the ocean, land fill, or burn pile) and buy a new one than repair or recycle the original item, then the materials contained in that tool are no longer available for future generations – this is true consumption – this is unsustainable human behavior – this is immoral behavior albeit encouraged by a broken economic system.
h. The problem arises when we toss the tool into a land fill or the bottom of the ocean of burn it and spread it to the winds. This unsustainable behavior results in the loss of the basic materials so they are no longer available for future generations. This is consumption.
i. Another way we can make raw materials "unavailable" is when we use them to create a "toxic material" - a product that damages Life. Assembling C,H, and O into BPA (a chemical intermediary) is a simply example.



These plastics are used in a variety of products: baby bottles, five-gallon water jugs used in water coolers, medical equipment, sports safety equipment, cell phones and other consumer electronics, household appliances, and many other products. The resins are used for industrial flooring, adhesives, primers, coatings, and computer components.

BPA makes polycarbonate plastics exceptionally strong and resistant to breakage and to relatively high heat. It is remarkably durable and easily sterilized, making it well suited for reuse and recycling.

In contrast, glass can break easily before reaching recycling facilities and mix with other glass, ceramics, and other items. Mixed broken glass is difficult to recycle and often discarded. Glass breakage also poses obvious safety risks and increases the potential for significant food waste.

Us older folks grew up in a society that used glass (or ceramic or pottery) containers for everything. We learned how to handle empty pop bottles, empty milk bottles, empty glass gallon jugs, crocks & pots, etc. and we learned how to recycle them without breaking them. Of course it will cost a few more cents to have to recycle the packaging. Our economic system tells us it's cheaper to use BPA plastic. Our economic system could GARA about an infant's health or the well being of life in the ocean or the well being of the micro-organism in the soil that are essential to healthy plant growth, etc. What's important is that our religion of economics influences us to make choices that are based on maximizing the producers profit and minimizing the price presented to the consumer.

Incidentally, Japan and a number of European countries have banned the use of BPA, found there are viable substitutes and are doing quite well thank you without creating this substance known to be toxic.

The transparency of polycarbonate plastics offers unique benefits over non-transparent plastics. Transparency has value for such things as safety goggles or in settings, such as in hospitals, where it is important to have a clear view of contents in various containers. It is also relatively lightweight in comparison to alternatives like metal or glass, a characteristic that offers important safety attributes for individuals who must lift polycarbonate products during shipping and stocking, as well as for consumers. The lightweight material also requires less fuel to transport, saving energy and money. BPA is also used to make resins and coatings that are suitable for application to a wide range of surfaces at a wide range of temperatures. As a result, it helps prevent corrosion and increases product durability.

Specific applications of BPA-related products include:
Safety products. Polycarbonate plastics are valuable for safety goggles, break-resistant lenses, helmets, kneepads, and a wide variety of sporting goods. If the production of these plastics containing BPA utilizes zero discharge principles, and no BPA is released outside the manufacturing facility, and if there is no opportunity for the BPA in these plastics to make their way into a living system during the actual use of these safety goggles, break-resistant lenses, helmets, kneepads, etc. and these plastics containing BPA are properly recycled (sorted and recombined with the same class of plastic for recycling), then there should be no problem.

Sanitary food packaging. When used to make coatings for canned foods and beverages, BPA resins prevent food from bacterial and rust-related contamination—a critical public health need. It (along with numerous non-toxic alternatives) also reduces food spoilage, maintains food quality and taste, and extends food shelf life.

> [Ironically the retardation of bacterial development by BPA is probably linked to its toxicity – adding a toxic material to our food to prevent bacterial contamination seems to be an insane approach when there are viable alternatives in use for generations called sterilization and canning .]

And so do a number of other alternatives – BPA is not our only choice. Unfortunately our economic system influences manufacturers who are trying to maximize their profits to select plastics containing BPA because their lower cost speaks louder than the violent effects of BPA on living systems.

Medical devices. BPA is used in kidney dialysis equipment, cardiac surgery products, surgical instruments, connection components to transport fluids to and from patients, and many other vital applications. This has the appearance of being a potentially dangerous application because of the direct contact with human blood.

One chemist representing the 'medical division of Bayer Corporation' notes the importance of polycarbonate plastics in providing good medical treatment: "Possessing a broad range of physical properties that enable it to replace glass or metal in many products, polycarbonate offers an unusual combination of strength, rigidity, and toughness that helps prevent potentially life-threatening material failures. In addition, it provides glasslike clarity, a critical characteristic for clinical and diagnostic settings in which visibility of tissues, blood, and other fluids is required."[9] I can think of no one to be giving better unbiased advice on the use of BPA than a member of a for-profit corporation – in particular Bayer, known for its decades-long dedication to respecting all Life – especially during WW II.

Sanitary water distribution and recycling. When used to make five-gallon water jugs, BPA has important public health and environmental benefits and obvious overwhelming health and environmental concerns. The bottles offer sanitary transport of bulk supplies of bottled water as the BPA material leeches from the plastic into the water.~~, which~~ Bulk transport of bottled water is particularly considered necessary by manufacturers of plastic bottles in locations where tap water is compromised (generally by other human unconscious or profit-motivated behavior) or where quality is low in terms of taste. In addition, the structural durability of this packaging/delivery product means that few of these bottles ever enter a landfill. These bottles are reused, on average, 35 to 50 times and then are recycled. They are a true private-sector recycling success story. Sorry but delivery of water in five-gallon water jugs is not sustainable behavior; it is inappropriate except in emergency situations.

Environmental applications. BPA is used in a variety of environmental products. For example, resins are used in "green building" products, including solar panels, skylights, walls, and windows,[10] as well as numerous other building components. We repeat: If the production of these plastics containing BPA utilizes zero discharge principles, and no BPA is released outside the manufacturing facility, and if there is no opportunity for the BPA in these plastics to make their way into a living system during the actual use of these solar panels, skylights, walls, and windows and these plastics containing BPA are properly recycled (sorted and recombined with the same class of plastic for recycling), then there should be no problem.

Corrosion prevention. BPA-related resins are used not only to prevent corrosion and bacterial development in food cans, but also to protect many other things—including cars, bicycles, and components of homes—from corrosion. The resins are also used in a variety of industrial applications. Thus, it reduces the waste and costs associated with more conventional repairs and replacements. Again there are numerous alternatives to corrosion prevention that do not involve BPA.

Consumer products. BPA-related products make possible a host of consumer goods that we often take for granted, yet contribute greatly to modern life. Polycarbonate plastics are used for CD cases, cell phones, cameras, hair dryers, computers, televisions, automobile parts, appliances, and many more items. Should be no problem with the caveats mentioned earlier.

Negligible Risk or Not.

The following section acknowledges that BPA is a toxic human-made chemical.
It then argues that even though it is known to be toxic to humans and non-humans, we should set the exposure standards to "practical levels" that allow its wide spread use so manufacturers, wholesalers and retailers can continue to make their profits – according to Logomasini, it is a matter of "Negligible Risk." We disagree.

The reason provided below is just one reason but it is sufficient to ban further production of BPA or its substitute BPS for making plastic packaging/containers of any solid or liquid that might find its way into the food chain of humans or non-humans.

BPA crosses the placenta, remains active in the fetus, show rat and human studies.
Jun 07, 2010

> "Two new studies - one human and one rat - show that active BPA and its inactive metabolite freely cross the placenta from a pregnant mother to the fetus. Even more important are the chemical transformations that occur in the fetus: the active form of BPA remains active while the inactive form can be converted to the active form. Together, these studies provide evidence that prebirth exposures occur in people and may pose a bigger risk to the developing fetus than previously thought."
>
> http://www.environmentalhealthnews.org/ehs/newscience/bpa-crosses-placenta-is-active-form-in-fetus/

This reviewer sees no need to reframe the remainder of this article by Logomasini – although we have reframed the conclusions.

BPA's applications for food packaging and containers, particularly uses for water cooler jugs, canned foods, and baby bottles, have been the focus of much debate. In wide use for over 50 years, BPA has been extensively studied for potential impacts on human health. Some studies report no linkages between BPA and health effects. Others allege potential links between BPA and cancer, while others suggest that BPA can produce "endocrine mimicking" effects. Some have even claimed a link between BPA and obesity.

This large body of research has failed to find a 'strong' relationship between current consumer exposures to BPA and health effects – strong enough to influence plastic manufacturers to make other choices – to abandon BPA in favor of other non-toxic alternatives. Yet the issue continues to get considerable media coverage as environmental activist groups (also known as concerned individuals who are not influenced by profit but rather human and non-human health and welfare – neither of which are considered of value in our current broken economic system) and sensationalist news reports allege that BPA poses serious public health threats which warrant increased regulations and bans. It really is sad that our economic system is so broken that an external system (e.g. politically / legally imposed regulations & bans) must be imposed on the corporate sector so it behaves responsibly. If the economic system we currently use in America did include the value of human and non-human life, then these "increased regulations and bans" would not be necessary. By alas, Free Enterprise wishes to remain irresponsible and unaccountable to Life on the planet. Making a profit and hoarding wealth, power and common resources is much more important.

Washington State Rep. Mary Lou Dickerson (D-Seattle) said in March 2009: "BPA is a dangerous chemical that should never get anywhere near a baby or young child's lips.…Imagine giving a baby a bottle laced with a cancer-causing chemical."[11] Such comments may spark fear and garner press coverage for lawmakers, but to someone who has a PhD in politics, they have little ground in ~~reality~~ my human-created 'real world' that is dominated by profit motive. The "Real World" issue is whether developing embryos, children, or any other subset of the Earth's living population (human and non-human), are ever exposed to any toxic materials created by humans not whether the levels are **high enough to pose problems**. The data we choose to examine in this article indicate that they are not exposed to high enough to pose problems, as detailed below.

Exposures. Risks associated with various substances are related to the dose and duration of exposure and the vulnerability of the living being that comes into intimate contact with the toxic substance. High exposures to certain substances over decades can pose significant cancer risks. Different substances will have effects at different exposure levels, but the **basic rule for all is that risk decreases with declining exposure level**. So obviously the best scenario is one where humans do not create toxic materials (human-made chemicals) and add any increment to the exposure level. At trace-level doses, risks are negligible. This is good news because humans are constantly exposed to thousands of trace chemicals every day, from human[1]-made chemicals to naturally occurring ones.

God, grant me the serenity to accept the naturally occurring chemicals,
The courage to eliminate the human-made ones,
And the wisdom to know the difference.
.....Adaptation of the Serenity Prayer by Reinhold Niebuhr[2].

Concerns arise when exposure to a specific chemical reaches levels that cause adverse reactions, either acute effects (i.e., poisoning) from extremely high doses or long-term effects (i.e., cancer) from relatively high doses over several decades. Accordingly, U.S. regulators assess the levels at which certain chemicals might trigger a response and set targets to keep human exposures below levels of concern, usually hundreds if not thousands of times lower than the lowest level that could have an adverse effect.

The U.S. Environmental Protection Agency (EPA) set such targets for BPA relying on dosing studies with rodents. It determined that the exposure level for BPA in animals at which there was no observed effect is 50 milligrams per kilogram of body weight per day (mg/kg body weight/day). It then assumed the risk to humans would be much higher and estimated that a safe human dose is 0.05 mg/kg body weight/day.

Like the EPA, the European Food Safety Authority (EFSA) estimates the safe BPA exposure level. In 2004, it estimated a safe level of BPA exposure at 0.01 mg/kg body weight/day. However, the European Commission (EC) also translates its safe exposure level into what it calls a "specific migration limit" (SML). This limit is designed to ensure that the amount migrating into food does not produce public exposures above the pre-determined safe level. Accordingly, the Commission determined that a SML for BPA is 0.6 parts per million (ppm), or 600 ppb, which it included in its 2004 directive on plastics.[12] However, this estimate was considered temporary until the EFSA could further evaluate the science.

In 2006, the EFSA determined that its safe level was needlessly restrictive—and it agreed with the EPA estimate of 0.05 mg/kg body weight/day standard,[13] which translates into a higher SML of 3,000 ppb.[14] However, the EC has not changed its official SML, probably out of fear of prompting criticism from the green lobby. The Japanese government set its SML for BPA at 2.5 ppm or 2,500 ppb.[15]

Accordingly, safe BPA levels most likely range somewhere higher than the very cautious government assessments ranging from 2,500 and 3,000 ppb. Yet the Maryland law limits BPA from packaging to the absurdly low 0.5 ppb, which makes no scientific sense. In fact, it is completely unnecessary. According to a National Academy of Science report, total BPA exposures in the U.S. amounts to about 6.3 ppb from food cans—leagues below scientifically determined safe levels.[16]

[1] Obviously females are now involved as well.
[2] Twentieth century American theologian,

Moreover, a peer-reviewed analysis by Michael A. Kamrin, professor emeritus at Michigan State University, published in *Medscape General Medicine*, assesses the best available data on consumer exposure to BPA. It reveals that consumers are most likely exposed to BPA at levels that are 100 to 1,000 times lower than EPA's estimated safe exposure levels. Kamrin notes further that the research on BPA also shows that the exposure levels per body weight are similar for adults and children, which indicates that infant exposure is not significantly higher. Moreover, the risk to humans is probably much lower than these estimates suggest because humans metabolize BPA faster and better than rodents. Accordingly, attempting to shrink existing exposure levels with Maryland's absurdly stringent standard is highly unlikely to produce any public health benefit.[17]

Endocrine Science. The Environmental Working Group dubs BPA "a potent endocrine disrupting chemical" that regulators should ban.[18] The science does not support such claims.[19] Scientific research identifies BPA as "weakly estrogenic"—hardly potent—and such effects are observed at levels far higher than existing consumer exposure levels.[20] But even safe, natural food products, like soy, have such attributes. A broader understanding of this issue helps place it in perspective.

Humans are regularly exposed to such chemicals, both manmade and natural. Again, the dose level is critical. Humans are regularly exposed to estrogen-mimicking compounds produced by plants—so-called phytoestrogens—in our everyday diet. Phytoestrogens, for example, are found in all legumes, with a particularly high level found in soy.

The impact of weakly estrogenic synthetic substances like BPA is insignificant compared to human exposures to naturally occurring phytoestrogens in the human diet. According to data from a 1999 National Academy of Sciences study, exposure to natural phytoestrogens is 100,000 to 1 million times higher than exposure to estrogen-mimicking substances found in BPA.[21] "Given the huge relative disparity between the exposure to phytoestrogens as compared to BPA concentrations, the risk of BPA in consumer products appears to be about the same as tablespoon of soy milk," notes researcher Jonathan Tolman.[22] We have little to fear from soy milk, so we have even less to fear from BPA and similar synthetic compounds.

Research does indicate that BPA, like soy, can bind to estrogen receptors on the human body. At high levels (probably quite high), this attribute in theory could produce hormone-related effects, such as early sexual development in females. Yet such impacts have not been observed in humans exposed to BPA at existing exposures from consumer products. Effects have been observed in rodents that were exposed to very high levels of BPA via injections and, in some cases, among animals that were orally fed high levels of the chemical.

Rodent Tests. Most of the concerns about BPA are related to findings from rodent tests alleging a link between this substance and various potential health problems from obesity to cancer.[23] Regulatory bodies have found these findings unreliable for a variety of reasons, including:

- In many studies, the animals were exposed to levels far above existing human exposures.
- These studies fail to account for interspecies differences.
- Exposure routes were different: The animals were injected with BPA, while humans ingested it.

Exposure disparities. As noted, the dose level in many rodent studies is excessive—far beyond human exposure levels. In fact, even healthy foods, from carrots to celery, produce cancer in rodents

when administered in high doses.[24] Fortunately, BPA exposures from consumer products are extremely low and highly unlikely to pose public health impacts.

These studies are not definitive and have been subject to criticism for problems associated with methodology and consistency. The European Union (EU) assessment notes: "The Panel considered that low-dose effects of BPA in rodents have not been demonstrated in a robust and reproducible way, such that they could be used as pivotal studies for risk assessment." [25] Similarly a U.S. National Toxicology Program study also explained the problems with relying on these studies to draw conclusions:
These "low" dose findings in laboratory animals have proven to be controversial for a variety of reasons including concern for insufficient replication by independent investigators, questions on the suitability of various experimental approaches, relevance of the specific animal model used for evaluating potential human risks, and incomplete understanding or agreement on the potential adverse nature of reported effects.[26]

Interspecies differences. The risk of BPA is probably even lower than the EPA estimates of 50 mg/kg body weight/day because humans are less sensitive to BPA than are the lab animals that were used to set the standard. Humans tolerate far higher doses than animals because the human body breaks down BPA more easily and passes it out via urination. Indeed, we see this effect with many substances.

For example, humans can consume moderate doses of Ibuprofen, chocolate, or grapes without ill effect. But these substances are toxic to the family dog, which lacks the same capacity to metabolize them. Such interspecies differences highlight the limitations of animal studies. In the case of BPA, we use animal studies to set standards, but should remain aware that the science indicates that the effects on humans are different. For this reason, BPA is not only less toxic; it is less likely to pose endocrine-related effects. The human body quickly breaks down BPA into substances that do not bind with estrogen. The EU study reports:

> [T]he species differences in toxicokinetics, whereby BPA as parent compound is less bioavailable in humans than in rodents, raise considerable doubts about the relevance of any low-dose observations in rodents for humans. The likely high sensitivity of the mouse to estrogens raises further doubts about the value of that particular species as a model for risk assessment of BPA in humans.[27]

Exposure routes. Many studies rely on injection of BPA in high concentrations into rodents rather than feeding them the substance. This approach is of limited relevance to human exposures, which occur via trace amounts in our diets. However, some studies suggest that rodents have suffered health effects from exposures to BPA at levels equivalent to current estimated human exposures.

Human data. Absent a compelling body of evidence from rodent studies, activists have turned to human studies which they say show the dangers of BPA. However, these studies are limited and have been unable to produce conclusions about BPA impacts on humans. The National Toxicology Program report notes:
Drawing firm conclusions about potential reproductive or developmental effects of Bisphenol A in humans from these studies is difficult because of factors such as small sample size, cross-sectional design, lack of large variations in exposure, or lack of adjustment for potential confounders.

However, the NTP Expert Panel on Bisphenol A (2) concluded that several studies collectively suggest hormonal effects of Bisphenol A exposure (24, 92, 97) including one in occupationally exposed male workers likely exposed through multiple routes including inhalation (24).

The NTP concurs with findings of the recent evaluations (2, 3) that while these studies may suggest directions for future research, there is currently insufficient evidence to determine if Bisphenol A causes or does not cause reproductive toxicity in exposed adults. There is also insufficient evidence in humans to determine if Bisphenol A does or does not cause developmental toxicity when exposure occurs prenatally or during infancy and childhood.28

In other words, studies have been unable to establish a significant risk to humans even where humans were exposed to relatively high levels in occupational settings. The risks to consumers are much lower.

Absent any strong data showing actual effects associated with trace BPA exposures in the human diet, some activists have devised studies that do not even bother to make associations. Instead, they try to indict the substance *based on exposure alone*. For example, the Environmental Working Group produced a paper that measures BPA levels in human urine.[29] But such measurements actually support the fact that BPA is having little impact since it passes through the body quickly.

Moreover, the mere presence of any chemical BPA in human urine, blood, or body fat does not mean there is a public health problem. At every point in human history, the body has been exposed to, contained, or passed chemicals from a variety of environmental sources—natural and made-made. Stone-age hunter-gatherers were sure to have more chemical byproducts of burning wood for fuel, while people living today are likely to have industrial chemicals associated with urban living. The issue is not whether the chemicals derive from primitive lifestyles or modern ones; the issue is the risk level. Substances that are toxic at one level often have no impact at trace levels.

For example, most people's urine might contain traces of cyanide. According to the Agency for Toxic Substances Disease Registry (ASTDR) of the Centers for Disease Control and Prevention (CDC), "Exposure to high levels of cyanide harms the brain and heart, and may cause coma and death."[30] Yet trace levels of cyanide in our urine results from eating some very healthy foods that are loaded with many beneficial anti-oxidant chemicals—such as almonds or Brussels sprouts—but contain natural traces of cyanide.

Hence, low-levels of this toxic substance in our urine are still not evidence of a problem. Rather, it is evidence that trace cyanide passes through our bodies without any measurable ill effect. Thus, the benefit of eating these good foods well outweighs risks of trace chemicals they contain.

The CDC noted in a report on this same topic: "Just because people have an environmental chemical their blood or urine does not mean that the chemical causes disease. The toxicity of a chemical is related to its dose or concentration in addition to a person's susceptibility."[31] A key point to remember is the fact that, although we have chemicals of modern lifestyles in our bodies, it is those lifestyles that have extended the human lifespan. In fact, humans are living longer than ever before, even as we synthesize and use a host of chemicals.[32]

Comprehensive Studies and Reviews.

Myriad studies on BPA continue to become available, each with its own claims and limitations. However, even when studies claim to have discovered a new link, it is important to remember that no single study is likely to overturn the complete body of research. In fact, methodological problems and applicability of new studies continues to be an issue with new peer-reviewed research.

Scientific panels around the world have reviewed, and continue to review, the complete body of evidence and none report serious concerns about BPA. Instead, they affirm findings of a very low risk. Accordingly, regulatory bodies around the world have determined that the benefits of using BPA to protect our food and perform other functions outweigh any risks. In the United States, the regulatory body in charge of BPA is the U.S. Food and Drug Administration (FDA). After a review of all the studies on the topic, the FDA released a 2008 draft risk assessment that concluded: "An adequate margin of safety exists for BPA at current levels of exposure from food contact uses." On its website the FDA notes:

Based on our ongoing review, we believe there is a large body of evidence that indicates that FDA-regulated products containing BPA currently on the market are safe and that exposure levels to BPA from food contact materials, including for infants and children, are below those that may cause health effects….This position is consistent with two risk assessments for BPA conducted by the European Food Safety Authority (EFSA) Scientific Panel on Food Additives, Flavourings, Processing Aids and Materials in Contact with Food and the Japanese National Institute of Advanced Industrial Science and Technology. Each of these documents considered the question of a possible low-dose effect and concluded that no current health risk exists for BPA at the current exposure level."[33]

There has been some controversy regarding this FDA assessment with environmental activists maintaining that the agency relied solely on industry studies to draw its conclusions. In reality, the agency simply excluded studies that did not meet rigorous scientific standards as have other scientific review panels. The excluded studies suffered from serious defects, which limited their value in the assessment. The agency's outside peer review board offered some criticisms on such exclusions. The FDA responded to those criticisms and is continuing its assessment, which is expected in the near future.[34]

The FDA has little scientific basis for reversing its position because it is consistent with many other scientific reviews around the world. These include:

- ***The European Union Risk Assessment.*** The EU's risk assessment in 2006[35] found no compelling evidence of BPA-related health effects at estimated human exposure levels. In July 2008 and again in September 2010, the European Food Safety Authority reaffirmed the 2006 review.[36]
- National Institute of Advanced Industrial Science and Technology (Japan). This extensive study of the issue found that "the risks posed by BPA were below the levels of concern, it will be unnecessary to prohibit or restrict the use of BPA at this time."[37]
- ***U.S. National Toxicology Program (NTP).*** This review found no direct evidence of any problems among humans. It expressed minimal to negligible concern for almost all factors. It called for more research in one area and expressed only "some concern" (more significant findings would state "concern" or "serious concern") because rodent studies showed some association of potential effects on behavior. Yet as the NTP report noted:
"These studies in laboratory animals provide only limited evidence for adverse effects on development and more research is needed to better understand their implications for human health."[38]
- ***Health Canada.*** After its review of the science, Canada's public health agency determined: "Based on the overall weight of evidence, Health Canada's Food Directorate has concluded that the current dietary exposure to BPA through food packaging uses is not expected to pose a health risk to the general population, including newborns and young children."[39]
- ***World Health Organization (WHO).*** In November 2010, the WHO released a report on BPA and public health. It found no compelling evidence that BPA posed health risks at current exposure levels

from food packaging.[40] The report stated: "[A]t present, there appears to be no single replacement for BPA for all food contact applications. Furthermore, data on the safety of some of these replacement materials are limited or non-existent."[41]

Potential Consequences of BPA Bans.

Lawmakers often support bans based on unscientific misinformation. Worse, they rarely consider the potential unintended consequences. Placing onerous restrictions on the use of BPA would place all of its benefits—recyclability, reusability, energy efficiency, and durability for protection of food and consumer products—at risk. Likely substitutes may be more expensive, not work as well, and produce new risks.

For example, bans may compromise food safety by eliminating BPA resins used to protect the integrity of canned foods. In addition, policies that force the food industry to switch to glass would prove problematic. BPA has replaced glass containers in many cases, including glass baby bottles, because plastics are less expensive and lighter and eliminate the hazards associated with glass breakage.

Children are at a greater risk from broken glass than they are from BPA, particularly if they are given glass baby bottles. This is a totally absurd and unsubstantiated claim.

FDA notes that parents who are concerned about BPA risks—risks which the agency says are not a concern—can turn to glass bottles if they wish.[42] But anyone who has ever seen a baby toss a bottle on the floor should be well aware of potential dangers, particularly if small pieces of glass are accidentally not picked up in areas where children crawl. I personally would much rather have a child incur a small cut that will heal rather than incur the risk of a permanently compromised immune system or an altered endocrine system for the rest of its life.

BPA's use in medical products is also threatened. In 2008, Rep. Rosa DeLauro (D-Conn.) called on the FDA to review that issue while Congress began to look into regulatory measures on BPA. She remarked in a letter to the FDA: "The potential risks posed to patients by BPA leaching from medical devices, especially implantable ones, would be very significant….I strongly urge you to expand your request, and have the Science Board also assess the safety of BPA in medical devices."[43]

Other plastic products might provide some alternatives, but unfortunately, many of those are under attack by the same groups targeting plastics and resins made with BPA. For example, activists also have specious campaigns to ban polyvinyl chloride plastic (PVC) products used for hospital tubing, blood bags, and other things for which they allege a host of unsubstantiated problems.[44] Even where adequate substitutes exist, they are often (but not always?) more expensive (based on actual experience in the hospital, I seriously doubt that the added cost of replacing potentially toxic 'hospital tubing, blood bags, and other things' could even be seen in the $10,000 / day hospital bill), which simply makes it harder for families to meet basic needs associated with putting food on the table. Another reason why in a civilized society, there is a universal health care system – but not in America. We prefer to pay more than citizens of any other country for our health care and receive poorer results than 30 countries who pay less. That's to protect our free enterprise for-profit health care system – where an increase in pain and suffering translates to enhanced profit.

Such anti-technology, environmentalist crusades already have had an impact on medicine. For example, *New York Times* science writer Gina Kolata reported in 2002 how a crusade against mercury led hospitals to rely on less effective blood pressure equipment that did not contain mercury. Resulting

misdiagnoses from the replacement products have led to inappropriate administration of medications that produced a stroke for one patient and other health problems for other patients.[45]

Elimination of BPA in food packaging poses serious problems because there are not good alternatives for these uses. Packaging manufactures have been trying to remove BPA from their products because of public pressure, but they are having a very difficult time finding safer alternatives. One industry representative told *The Washington Post*, "We don't have a safe, effective alternative, and that's an unhappy place to be … No one wants to talk about that."[46]

Political pressures should not lead to the removal of BPA products without a complete understanding of the value BPA brings and the serious risks associated with arbitrarily removing valuable medical tools. Lawmakers should seriously consider whether the alternative products will be safer. Are we willing to risk more children and adults suffering from E-coli or getting cut from broken glass? Supposedly, some of the state level legislation addresses that issue by demanding that manufactures replace BPA products with less toxic, safer alternatives. But you cannot mandate something that might not exist. Such laws will simply force manufacturers to use inferior, more expensive packaging and then cross their fingers with the hope that doesn't result in increased food borne contamination.

Conclusion.

Our current economic / political system as represented by Logomasini, influences her to callously describe a known toxic human-made chemical, BPA, as having no significant risk – hence: BPA bans will do little for public health, since they do not address significant risks.

Our current economic / political system influences Logomasini to state that "They [BPA bans] are part of an ever-expanding arbitrary regulatory state…" – another human-created system necessary to protect human and non-human life on this planet BECAUSE corporations refuse to take responsibility for their violent actions, for creating chemicals and products that do measurable harm to people and prevent them and other forms of life from reaching their potential. Ironically, if corporations did act as people (as they pretend to be) and take responsibility for the products they create to make their profit, then they would not be producing toxic materials, they would not be dumping toxic intermediary products into the atmosphere, in the oceans, or burying them in the soil AND there would be no need for yet another system needed to "ban" or regulate these irresponsible corporation hell-bent on maximizing profit no matter what. People do not deliberately hurt other people or any other form of life. In a civilized social order, people who hurt people go to jail – CEOs of corporations who hurt people should go to jail. When corporations begin to act like the people that pretend to be, then they will not violate the rights of 'We the People' to live without having to breath or injest toxic chemicals. …that places many valuable products (- valuable in the sense BPA plastic products make a profit for manufacturers, wholesalers, and retailers – but detrimental in the sense that these products adversely affect the health of humans and non-humans) and freedoms (- specifically the freedom to make a profit no matter who is injured in the process) at risk of being exposed for the shameless unsustainable behavior making toxic materials really is.

The fact that some states and localities and even Congress are considering proposals to ban all BPA use in cans and other food and beverage containers illustrates this dangerous progression of irresponsible corporations who GARA[3] about the real people they harm with known toxic chemicals. First, they claim they are trying to protect the children – obviously a human behavior that is of no value to the Free Enterprise economic system Logomasini vehemently defends. And even worse than trying to

[3] G stands for Give; R stands for Rat's

protect our children, these democratically elected states and local representative AND Congress, ~~but~~ then they end up controlling *everyone*'s access and exposure to a wide array of harmful applications and toxic products – all because corporations refuse to act responsibly. Go figure.

Notes

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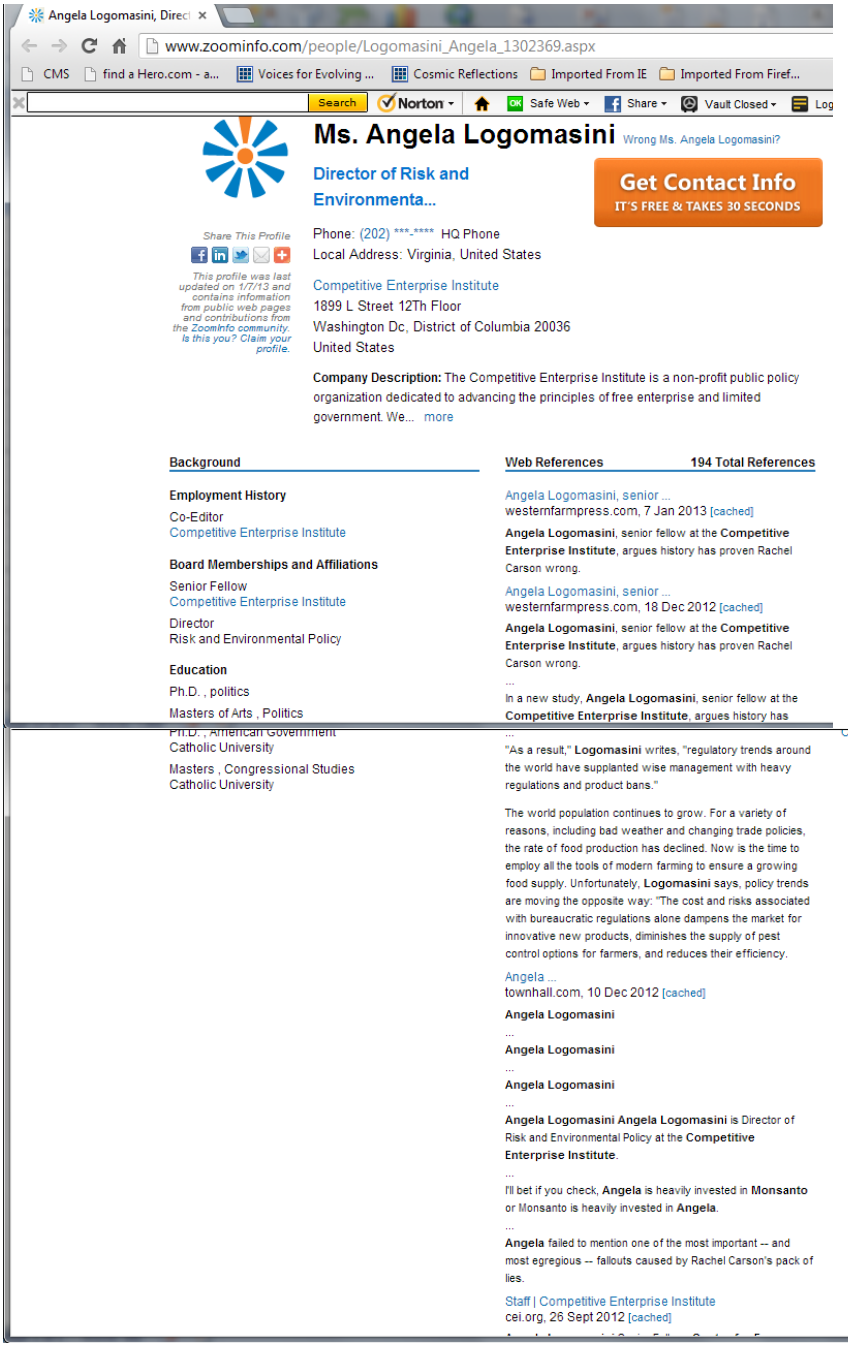
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Employment History
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Director
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Masters of Arts , Politics
Ph.D. , American Government
Catholic University
Masters , Congressional Studies
Catholic University
Web References
194 Total References
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Angela Logomasini, senior fellow at the Competitive Enterprise Institute, argues history has proven Rachel Carson wrong.
Angela Logomasini, senior ...
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Angela Logomasini, senior fellow at the Competitive Enterprise Institute, argues history has proven Rachel Carson wrong.
...
In a new study, Angela Logomasini, senior fellow at the Competitive Enterprise Institute, argues history has
...
"As a result," Logomasini writes, "regulatory trends around the world have supplanted wise management with heavy regulations and product bans."
The world population continues to grow. For a variety of reasons, including bad weather and changing trade policies, the rate of food production has declined. Now is the time to employ all the tools of modern farming to ensure a growing food supply. Unfortunately, Logomasini says, policy trends are moving the opposite way: "The cost and risks associated with bureaucratic regulations alone dampens the market for innovative new products, diminishes the supply of pest control options for farmers, and reduces their efficiency.
Angela ...
townhall.com, 10 Dec 2012 [cached]
Angela Logomasini
...
Angela Logomasini
...
Angela Logomasini
...
Angela Logomasini Angela Logomasini is Director of Risk and Environmental Policy at the Competitive Enterprise Institute.
...
I'll bet if you check, Angela is heavily invested in Monsanto or Monsanto is heavily invested in Angela.
...
Angela failed to mention one of the most important -- and most egregious -- fallouts caused by Rachel Carson's pack of lies.
Staff | Competitive Enterprise Institute
cei.org, 26 Sept 2012 [cached]

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