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Plastic Bag Bans Are Bad for the Environment

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The past several years have seen a groundswell of regulations on plastics, particularly plastic bags and cups and food containers made from polystyrene or Styrofoam. Supporters of these bans mostly claim that such policies promote environmental protection, when in reality they carry considerable environmental tradeoffs and impose needless burdens on consumers and economic growth.

In the United States, California has taken the lead in passing anti-plastic policies, encouraging localities and other states to follow suit. This past summer, the California State Senate passed a bill, sponsored by Sen. Alan Lowenthal (D-Long Beach), banning foam cups and food containers statewide. This statewide ban failed in the California State Assembly, but localities around the state have already imposed foam packaging bans—including Los Angeles, Palo Alto, Monterey, San Francisco, and more. Plastic grocery bags have been banned in several California cities, including Los Angeles, Santa Monica, and Long Beach. California is not alone. Plastic grocery bags are banned in Aspen, Colorado, and the trend is spreading as other cities, including Austin, Boulder, Philadelphia, and Portland, Oregon, consider potential plastic bans. Some cities have opted for a tax on plastic bags, such as Washington, D.C.[1]

Anti-plastic crusades are ongoing in other nations as well. In September, British Prime Minister David Cameron called on supermarkets to reduce usage of plastic bags—or prepare for national restrictions.[2] Public officials in Europe are considering banning plastic bags for the entire European Union. In January 2011, Italy banned their use at supermarkets. Plastic packaging bans are being advanced in places as far off as India[3] and the Phillippines.[4]

Lawmakers provide some silly justifications for such policies. For example, California Sen. Lowenthal explained that he advanced his bill to ban foam cups and packaging "because it's a job booster for California."[5] Earlier this year, Italy's Minister of the Environment exclaimed that

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the nation's ban on plastic bags was "a great innovation."[6] Others suggest that elimination of plastics is simply good environmental policy.[7]

In reality, bans never promote innovation or growth—they do the opposite. Bans destroy the investment, productivity, and creativity of those who invent and develop products, and they divert resources from useful enterprises in order to find alternative products, which are usually inferior to those they replace. Accordingly, lawmakers should never ban products for arbitrary or political reasons. They should have clear and convincing evidence that such bans are the only means for protecting the public—a situation that rarely exists. It is obvious to see that plastics industry workers can lose jobs as markets shift to supposedly "environmentally better" products, and consumers lose convenience from such bans. Less obvious is the fact that these anti-plastics policies are not the slam-dunk for Mother Nature that supporters claim.

Energy and Economically Efficient. First consider why plastic products have prevailed in the marketplace. In addition to being very convenient for carrying groceries (plastic bags) and carrying food (foam cups keep our coffee hot and food warm), these products are highly energy and water efficient as well as sanitary. That also makes them very inexpensive to produce and transport. Numerous life-cycle studies, which track a product's cradle-to-grave environmental impact, demonstrate this fact. For example, a review of several life-cycle assessments produced for a group called Use Less Stuff found that plastic bags:

- Generate 39 percent less greenhouse gas emissions than regular paper bags;
- Require 6 percent of the water necessary to make paper bags;
- Consume 71 percent less energy during production than paper bags; and
- Produce one-fifth the amount of solid waste compared to paper bags.[8]

Despite these findings, Use Less Stuff suggests that people use reusable bags or recycle, but neither option is without its own trade-offs.

Reusable bags require far more energy and other resources to make. It is not clear they save resources unless they are used many, many times over. For example, a study produced for the Environment Agency in the United Kingdom found that cotton bags would have to be used 103 times before they yielded environmental benefits. But the government study estimated that cotton bags are only used 51 times, making them worse for the environment than plastic. This study did not even consider the energy and water use associated with washing the bags, which increases their environmental impacts and costs.[9]

In addition, such washing is important to control another drawback associated with reusable bags—the development of bacteria. A study conducted by researchers at the University of Arizona and Loma Linda University measured bacteria in a sample of reusable bags, finding many containing dangerous bacteria, such as coliform (found in half the bags) and E. coli (found in 12 percent of bags).[10] They also noted that consumers reported that they rarely wash the bags in an attempt to control the development of such pathogens.

Foam plastic products are similarly energy efficient. Foam cups are even more energy efficient than reusable ceramic cups in many cases. One of the "classic" life cycle studies was conducted

back in the 1990s by University of Victoria chemistry professor Martin B. Hocking.[11] It measured energy-use requirements for foam, paper, and ceramic cups throughout each product's lifecycle—including production, disposal, and washing (for the ceramic cups). Foam cups were far more energy efficient than paper cups and even more energy efficient than ceramic cups that were used less than 1,006 times.[12]

In February 2011, the research group Franklin Associates released findings from its life-cycle assessment of polystyrene packaging and alternative paper products. It found that the average 16-ounce polystyrene cup uses a third less energy, produces 50 percent less solid waste by volume, and releases a third less of greenhouse gases than does a 16-ounce paper cup with a sleeve.[13] Over their life cycles, polystyrene packaging products require 20 to 30 percent less water than do paper alternatives.[14]

Manageable Impacts. There is one other very important environmental consideration: litter. There are many stories about trash collecting in the ocean to form several massive trash "islands" made mostly of plastics that kill or deform wildlife. One activist website reports that the largest patch, which appears in the Pacific Ocean, "is roughly the size of Texas,"[15] and *The New York Times* reported in 2009 that it was believed to be twice the size of Texas.[16] Plastic in the area near the Pacific "garbage patch" outweigh the amount of plankton by as much as 6 percent, claims the Environment California Research & Policy Center.[17]

Yet many of these stories are not completely accurate, according to university researchers. "There is no doubt that the amount of plastic in the world's oceans is troubling, but this kind of exaggeration undermines the credibility of scientists," reports Angelicque "Angel" White, an assistant professor of oceanography at Oregon State University. "We have data that allow us to make reasonable estimates; we don't need the hyperbole,"[18] she stated after a research expedition in the North Pacific to evaluate the situation. Specifically, she sets the record straight on a number of issues:

- The patch is not really a dense island of trash. White reports: "You might see a piece of Styrofoam or a bit of fishing line float by at random intervals after hours or 20 minutes, but greater than 90 percent of the plastic was less than 10 millimeters in diameter."
- The plastic in these areas do not outweigh plankton.
- There has not been an exponential increase in plastic. In fact, Research by the Woods Hole Oceanographic Institution reports that the size has not increased since the mid-1980s.
- The Pacific patch is not twice the size of Texas, but a "small fraction" of the land composing Texas.[19]

However, while the scope has been exaggerated, it is true that plastics can be a problem. Such dispersed litter is difficult to impossible to clean up and it poses threats to wildlife that consume it. These impacts alone offer good reason to control litter. Yet is not clear that banning some plastic products will have much impact on litter at sea. If we could ban all plastics in the world, we would have negative environmental impacts related to greatly increased energy and water usage. Fortunately, there is a more effective, proven solution than banning helpful, otherwise environmentally sound technologies like plastics: litter control.

Efforts to control litter in recent decades have done far more to limit this problem than bans. Keep America Beautiful (KAB), which has taken the lead in the United States to fight litter since 1953, demonstrates that private, voluntary efforts can have a dramatic impact. KAB educates the public through public service announcements and mobilization of businesses, individuals, and local governments around the nation to implement litter control programs. In fact, KAB reports that litter in the United States has declined by 61 percent since 1969, which may explain why the Pacific garbage patch has not been growing much in recent decades. Litter control does come with a price, which KAB estimates as $11.5 billion each year in the United States. Private sector efforts cover most of this cost, with businesses paying $9.1 billion. The remaining balance is covered by governments, schools, and other organizations.[20]

Controls should focus on the source of the problem. According to KAB, roadway litter comes largely from motorists (52 percent), pedestrians (22 percent), poorly covered trucks (16.4 percent), and improperly secured trash containers (1.5 percent). Roadside trash consists of cigarette butts (38 percent), paper (22 percent), and plastics (19 percent).[21] Other litter appears around entrances to businesses, transportation, and other places, and this is mostly candy wrappers, gum, and cigarette butts.

Conclusion. Contrary to the rhetoric, plastic bans do not serve the environment, as they carry serious tradeoffs in terms of energy and water usage, and they do not solve problems associated with ocean litter. Policy makers who desire to address the real problem, which is litter, should look to existing programs that have a proven record of success. Those consist largely of private initiatives supported by local policies that raise awareness about litter. Government officials could also ensure that government enterprises, such as government trash collection, are conducted in a way that limits litter, and they could patrol government-owned and managed properties, particularly highways, to penalize individuals and businesses—such as trash haulers, both public and private—for littering of highways. Such policies may not offer the same opportunities for high-profile media coverage and credit claiming as do bans. They do, on the other hand, accomplish environmental goals without harming individual freedom, private enterprise, or the environment.

Notes

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[6] Wendy Koch, "Italy Joins Growing Global Push to Ban Plastic Bags," *USA Today*, January 3, 2011, http://content.usatoday.com/communities/greenhouse/post/2011/01/italy-more-us-cities-ban-plastic-bags/1.

[7] For example, see, Earth Resources Foundation, "Campaign Against the Plastic Plague Background Info," undated Web document, accessed October 12, 2011, http://www.earthresource.org/campaigns/capp/capp-background-info.html.
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[12] Ibid.
[13] *Life Cycle Inventory of Foam Polystyrene, Paper-Based, and PLA Foodservice Products*, Prairie Village, Kansas: Franklin Associates, February 4, 2011, http://plasticfoodservicefacts.com/Life-Cycle-Inventory-Foodservice-Products.
[14] Ibid.
[15] "Ocean Trash Plaguing Our Sea," undated article on Smithsonian website called "Ocean Portal," accessed October 14, 2011, http://ocean.si.edu/ocean-news/ocean-trash-plaguing-our-sea.
[16] Lindsey Hoshaw, "Afloat in the Ocean, Expanding Islands of Trash," *New York Times*, November 9, 2009 http://www.nytimes.com/2009/11/10/science/10patch.html.
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