

SUMMARY OF
UK GOVERNMENT ENVIRONMENT AGENCY
LIFE CYCLE ASSESSMENT OF PLASTIC, PAPER, AND REUSABLE BAGS

In February 2011, the United Kingdom Government's Environment Agency published a life cycle assessment of plastic, paper, and reusable bags.¹

NOTE: Conventional plastic bag carryout bags are referred to in the study as High Density Polyethylene ("HDPE") bags. Plastic carryout bags used in the USA are made from the same materials as HDPE bags used in the UK.

The study found that:

The environmental impact of all types of carrier bag is dominated by resource use and production stages. Transport, secondary packaging and end-of-life management generally have a minimal influence on their performance. (Exec. Summary)

"Recycling or composting generally produce only a small reduction in global warming potential and abiotic depletion." (Exec Summary)

40.3% of plastic bags are reused as bin liners. (Study at p. 30)

Overall it was estimated that 76% of single use carrier bags were reused. (Study at p. 30)

"Reuse as bin liners produces greater benefits than recycling bags." (Exec Summary)

"When each bag was compared with no primary reuse (i.e. no reuse as a carrier bag), the conventional HDPE bag had the lowest environmental impacts in eight of the nine impact categories, because it was the lightest bag considered." The study did not consider litter impacts. (Study at 56.)

The table and chart on the following pages summarize the conclusions of the study regarding global warming impacts. (Exec Summary)

¹ <http://www.savetheplasticbag.com/UploadedFiles/British%20LCA.pdf>

NUMBER OF TIMES THAT ALTERNATIVE BAGS HAVE TO BE USED TO PRODUCE LESS GLOBAL WARMING THAN PLASTIC BAGS

Plastic bag = 1

Type of carrier	HDPE bag (No secondary reuse)	HDPE bag (40.3% reused as bin liners)	HDPE bag (100% reused as bin liners)	HDPE bag (Used 3 times)
Paper bag	3	4	7	9
LDPE bag	4	5	9	12
Non-woven PP bag	11	14	26	33
Cotton bag	131	173	327	393

What does this table mean? If you use a cotton bag only 130 times and then discard it, you will have created more global warming than if you had used 130 conventional plastic carryout bags. You need to reach that 131 figure. If you have two cotton reusable bags and you discard one of them without reusing it, you have to reuse the other one 262 times.

Based on the study, a Greenhouse Gas and Sustainability Engineer writing for *Treehugger.com* concludes as follows:

“What ultimately matters is if you actually use your disposable bags, or if you collect them dutifully from vendors and at conferences but then forget them at home every time you go to the store. **If you can commit to using your canvas bag 171 times, or something like a Chicobag eleven times or more, then you have made a good decision. If you can't commit to this, chose plastic over paper bags**, reuse the bags at the store, repurpose them as trash can liners, and recycle the rest at your local grocery store.”²

² *Treehugger.com*: “Are Plastic Bags Better After All?”

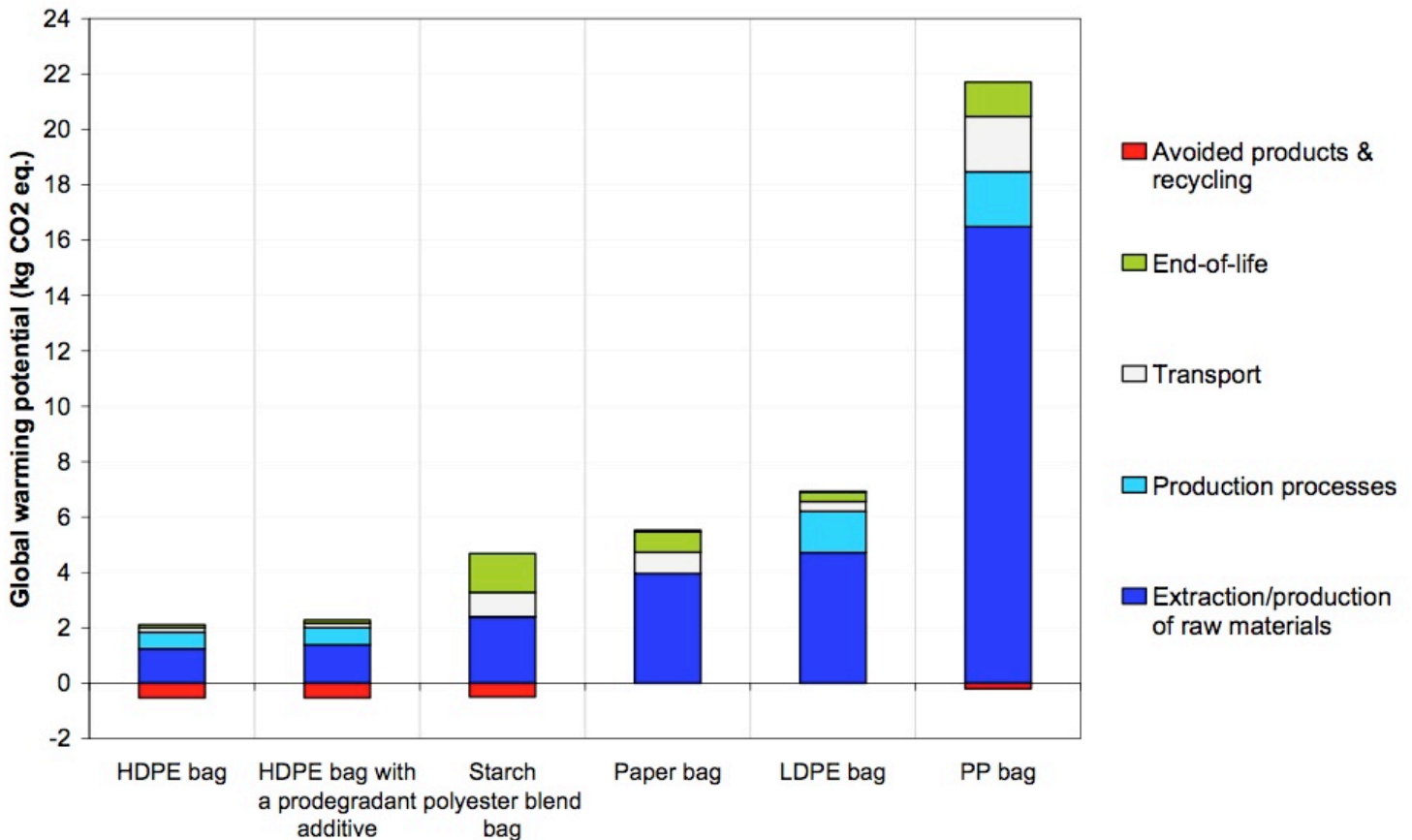
www.treehugger.com/files/2011/02/ask-pablo-are-plastic-bags-better-after-all.php.

The *Treehugger* article is based on a report in *The Independent* that used the 171 times figure for canvas bags apparently based on an earlier unpublished version of the study. (“Plastic fantastic! Carrier bags ‘not eco-villains after all’

www.independent.co.uk/environment/green-living/plastic-fantastic-carrier-bags-not-ecovillains-after-all-2220129.html.)

GLOBAL WARMING POTENTIAL
(Study at 33)

"The cotton carrier bag is not shown in [the following table], because its GWP is more than ten times that of any other carrier bag." (Study at 33)



What does this chart mean? It means that the most important factor in determining the degree to which a bag produces global warming is the **material** from which the bag is made. Clearly, the best material is HDPE.

The UK study confirms that reusable bags are not inherently better for the environment than plastic bags. Reusable bags have to be used a **tremendous** number of times to provide an environmental benefit compared to conventional plastic carryout bags. The reality is that huge numbers of reusable bags are being thrown away before they are used the requisite amount of times.³

Reusable bags have other critically important issues such as the accumulation of potential dangerous bacteria in unwashed bags and heavy metals content in bags that are imported from China. Also, polypropylene, canvas, and cloth bags cannot be recycled while HDPE, LDPE, and paper bags can be recycled. These issues were not considered in the UK study.

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³ *The age.com*: "Bag the bag: a new green monster is on the rise"
www.theage.com.au/national/bag-the-bag-a-new-green-monster-is-on-the-rise-20100123-mrqp.html.