

The thin plastic grocery bags –Is it a Sustainable Product?

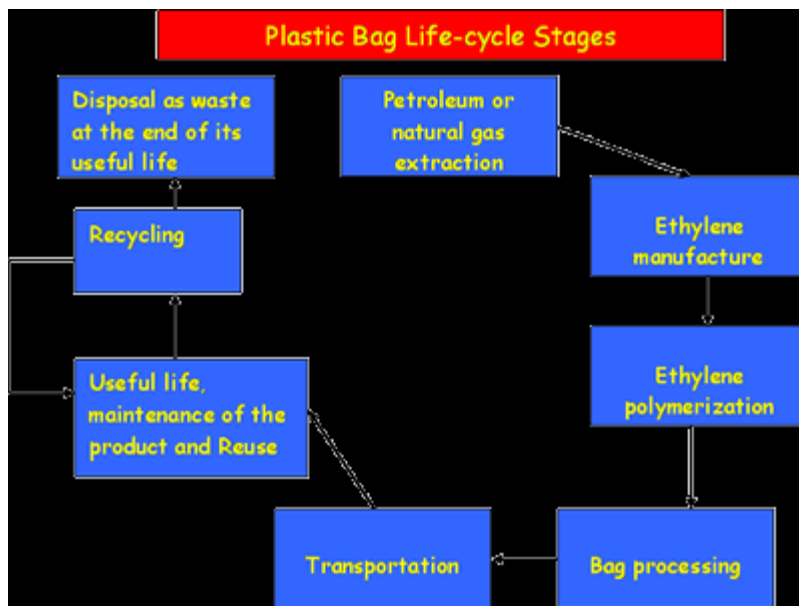
The plastic bags were first introduced in 1977 to the U.S. They started off with just been a sandwich bag. It was initially viewed as a more sanitary and environmentally friendly alternative to the deforesting paper bag. They are very cheap to produce and costs only one cent per bag. The plastic bags are mostly produced in India, China, Malaysia and Thailand. In addition, to be sturdy and easy to carry it takes less space to pack than a paper bag. For example according to Michigan Department of Environmental Quality study a 1000 paper bag sack weights 140lbs and a 1000 plastic sack weights only 15.6lbs. Today somewhere between 500 billion and a trillion plastic bags are consumed worldwide each year. (The National Geographic, 2003)

Moreover, grocery plastic bags are usually made from flimsy plastic. They are hard to recycle and easily blow into trees and waterways, where they are blamed for killing marine life. They also occupy much needed landfill space.

Therefore, to assess the environmental impacts of plastic is not a simple matter. It requires consideration of the inputs of matter and energy throughout each stage of the life cycle of each product . My paper will look at the environmental implications from plastic grocery bags. In addition, identify some possible solutions.



The Life Cycle of a Plastic bag



<http://tecalive.mtu.edu/meeec/module14/title.htm>

Plastic is a byproduct of oil refining. The by product is called polyethylene. This is a non renewable source. The oil used for plastics accounts for 4% of the world's total oil production. (Greenfeet website). For the most part, the energy requirement for the whole process of making plastic bags requires only electricity. The electricity used in the actual production and manufacturing of plastic bags comes from coal fire power plants, where 50% of that electricity is generated from the burning of old tires (made from rubber which is essentially, plastic). Dyes are used to give color and are printed with supermarket logos in the Asian factories. Then the bags are packed and transported to different parts of the U.S. Where they will be handed out in their billions to customers. They are used only for a few minutes then discarded to pollute the earth for hundreds of years. Scientists estimate they take 400 to 1,000 years to vanish.

Only 6.8 percent of plastics are recycled annually (U.S EPA). Plastic bags are cheaper than paper bags, but may be worse for the environment. Four times as much energy is used to produce them

and 85 times as much to recycle them (U.S. Environmental Protection Agency). Thus we trace the life cycle of a plastic bag.

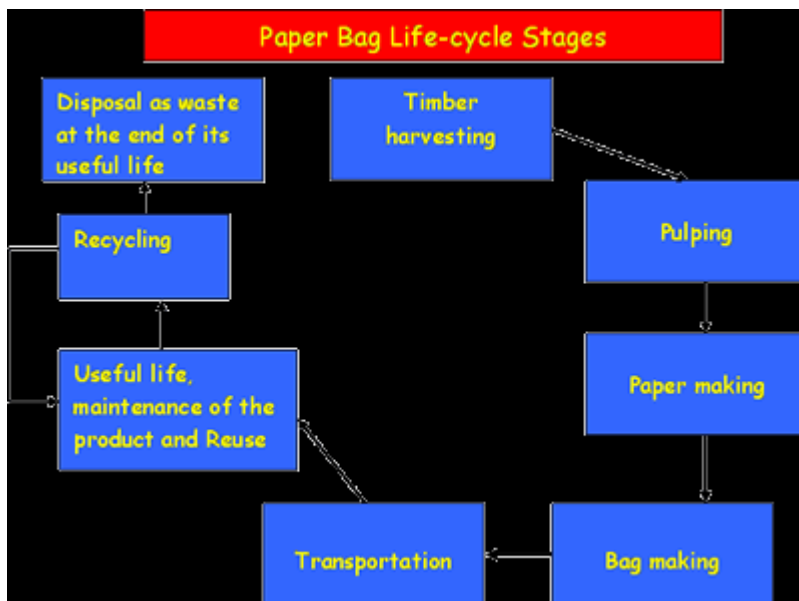
Environmental and Human Impacts by Plastic Grocery bags

- Plastics use oil to produce which is a non renewable source.
- Chemicals in some bags, particularly the inks used in printing, can leak and pollute the soil and the groundwater.
- The Chemicals and ink in bags turn into noxious compounds if burned and therefore dangerous to human health.
- In the oceans, they can survive intact for years and thus choke, strangle and starve marine life ex: sea birds, whales, dolphins, turtles and seals. Once the animal's body has rotted, the bag is released back into the sea, to kill again and again.
- Plastic does not break down for many years in other words they do not biodegrade.
- Plastic if ingested can block the stomach and cause starvation. For example Sea turtles mistake plastic bags for jellyfish.
- Stray plastic bags can also clog sewer pipes, leading to stagnant, standing water and impose health hazards to humans and wildlife.
- Many millions of plastic bags end up in the litter stream outside of landfills and streets. Thus pollute the environment.
- Thin plastic bags have the potential for causing suffocation. About 25 children in the United States suffocate each year due to plastic bags. They are mostly under one year.(Wikipedia)

Why we use plastic bags?

They are cheap and readily available. Grocery stores pay only about one cent a bag and often provide them free and as a convenience to shoppers. They are used for packaging, trash liners and crafts. They require less space to store than paper bags. Furthermore, most people are not aware that plastic is produced from a byproduct of oil refining.

The Life Cycle of a Paper Bag



<http://techalive.mtu.edu/meec/module14/title.htm>

The paper bags are made from trees, which are a renewable resource. The wood chips, which come from logs, are chemically or mechanically separated into individual wood fibers in a process called pulping. After the fibers have been separated, the paper mill washes and decontaminates the pulp. It is then pumped onto rolling wire screen mats that allow the water to drain out of the pulp and to help the fibers interlock into sheets. The sheets then pass through a long series of rollers that press out any remaining moisture, followed by steam-heated drums that dry the paper.

Then the paper is made into bags. It is transported in trucks throughout the U.S. Paper requires more space for packing than plastic. Therefore, there is a higher transportation cost. Thus the

reason that paper bags are more expensive and are not readily available in grocery stores as plastic bags are.

The environmental impacts of paper bags depend on whether the logs were obtained from a sustainably managed forest .According to Washington post most logs for paper production in the U.S. come from plantations and environmentally managed paper processing plants.

Benefits of paper bags over plastic bags

- Paper bags are made from a renewable natural resources.
- They can be reused again and again. Whereas plastic bags can tear easily. Therefore, the reusability is less.
- They are biodegradable.
- They are safe for small children to play with than plastic bags. They do not suffocate children.
- They pose less of a threat to wildlife than plastic bags.
- Require less energy than plastic to be recycled.
- Paper bags can be shipped to paper mills to be made into new paper.
- Saves considerable landfill space as most of the paper can be recycled.
- They also make great weed barriers and break down to natural compost.

The benefits of recycling paper

A great way to recycle paper is to use it over and over again. Paper has the ability to be made into different products. For example: a great way to re use newspaper is to make them into grocery bags. It requires less energy and resources. Newspaper bags can be customized and even made into a trend. These bags can be reused to take lunch, carry items to the gym etc.

The more we extend the use of a paper the more we can contribute to a healthier environment.

According to the U.S Environmental Protection Agency recycling one ton of paper can save enough energy to power the average American home for six months. In addition save 7,000 gallons of water. Also save 3.3 cubic yards of landfill space and reduce greenhouse gas emissions by one metric ton of carbon equivalent (MTCE).

Furthermore, according to Jared Blumenfeld, director of the San Francisco Department of the Environment, “it takes 430,000 gallons of oil to manufacture 100 million bags. Compostable bags can be recycled in the city's green garbage bins and will make it more convenient for residents to recycle food scraps, he said.” (San Francisco Chronicle, March 28, 2007)

Paper production from Elephant Dung

Paper can be produced in a very eco friendly manner. A great example is paper made from Elephant Dung. This paper is made in Sri Lanka by a company called Maximus. The papers are manufactured by using 100% recycled materials with 75% elephant dung. (Elephant dung paper). The materials used are card board, cotton waste, fruit, vegetable fibers and elephant dung along with additives such as paddy husks, dried flowers and straw. They are colored using vegetable dyes and organic ingredients to minimize toxic contamination to the environment. Then the paper

is sanitized. Variations in the elephant's diet, age and dental state give each batch of paper a unique color and texture. Color varies with the type of food consumed by the elephant. The main diet of an elephant is coconut, sugar cane or jak fruit. The texture of the paper depends on whether the elephant is able to chew the food or not. The fully digested fiber gives the paper a smooth finish while half digested fiber makes the paper coarser. In addition, the paper is chlorine and acid free causing minimal damage to the environment and people's health.

A percentage of the proceeds of sales from paper products goes to the Millennium Elephant Foundation – affiliated to the World Society for protection of Animals (WSPA) – which maintains a home for elderly and disabled elephants. The company is committed to the ideal of sustainable development and the health and well being of humans, animals and the environment.



Summary

Plastic Bags	Paper Bags
Non Biodegradable	Are biodegradable
Made from non renewable resources-oil	Made from renewable resources-trees
Takes a lot of energy to recycle	Easily recycled with less energy and resources
Less space to stack	Requires about four times the space of plastic to stack
Pose a threat to environment	Threat to environment can be minimized
Costs only about 1-3 cents to manufacturer	Costs about 4-10 cents to manufacturer

Discussion and Conclusion:

There are some benefits to using plastic but mostly people use it because it is convenient and given free of charge at stores. However, there are many concerns in using plastic bags to the environment. Some cities in the US have taken an initiative to ban the use of plastic grocery bags. For example San Francisco. According to the San Francisco chronicle the city has taken action to ban the use of plastic bags at grocery stores in six months. (March 28, 2008). They are setting the lead in going toward a more sustainable environment. I hope that the other cities and states will follow in their footsteps in creating a more sustainable environment in the U.S and the world.

References:-

1-*The Money Website*. Retrieved on November 30, 2008 from:

<http://www.thisismoney.co.uk/consumer/caring/article.html>

2-*The Environmental Literacy Council*. Retrieved on November 30, 2008 from:

<http://www.enviroliteracy.org/article.php/1268.html>

3-*The National Geographic News*. Retrieved on November 30, 2008 from:

<http://news.nationalgeographic.com/news/2003/09/0902>

4- *The Michigan Department of Environmental Quality*. Retrieved on November 30, 2008 from:

<http://techalive.mtu.edu/meec/module14/title.htm>

5-*Greenfeet website*. Retrieved on November 29, 2008 from:

<http://www.greenfeet.net/newsletter/debate.shtml>

6-*U.S EPA website*. Retrieved on November 29, 2008 from:

<http://www.epa.gov/osw/conservation/materials/plastics.htm>

7-*Wikipedia website*. Retrieved on November 29, 2008 from:

http://en.wikipedia.org/wiki/Plastic_bag

8-*The office guide website*. Retrieved on December 1, 2008 from:

<http://www.theofficeguide.com/paper-bags>

9-*Elephant Dung Paper*. Retrieved on November 28, 2008 from:

<http://www.ecomaximus.com>

10- *Mr. Ellie Pooh recycled elephant poo paper products*. Retrieved on November 28, 2008 from:

<http://www.mrelliepooh.com/>

11- The San Francisco Chronicle, March 28, 2007. Retrieved on November 28, 2008 from:

<http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/03/28/MNGDROT5QN1.DTL>

