



Over the years plastic bags have replaced natural materials as a cheap, quick way to package food and carry shopping. The problem is that most plastics are non-biodegradable. They won't rot down for 10,000 years or more. When they are carelessly thrown away, they collect around the city, choking drains, threatening small animals, damaging the soil and polluting beaches. This action sheet looks at ways to stop plastic bag from becoming a menace to society and the environment.

### Plastic waste looks bad

"Plastic waste has had a terrible impact on tourism, particularly on the beaches east of Accra, where rain water carries the waste,"

Ghana's Tourism Minister Jake Obetsebi Lamptey told the IRIN News Service.

"And the visible mountains of refuse in Accra give foreign tourists the impression that Ghana is a filthy country."



**Plastic waste kills wildlife**

More than 1 million birds, 100,000 whales, seals and turtles and countless fish worldwide are killed by plastic rubbish every year (Laist, 1997). This mainly happens by marine creatures becoming entangled in or accidentally swallowing or choking on floating plastic. In April 2002, a Minke whale was found stranded on a beach in France with approximately 2 pounds of plastic bags and packaging inside (GECC, 2002). Estimates run as high as one million pieces of plastic per square mile floating in the Pacific Ocean!

**Plastic waste kills livestock**

Plastic bags littering the countryside are also a danger to livestock. Grazing cattle eat them and die when the bag becomes entangled in their stomachs. Farmers, especially those who farm near towns, often report this problem (Dreyer et al, 1999, Rasmussen, 1999).

**Plastic poisons and pollutes**

Plastic is made from oil and coal, materials that are both unsustainable and non-renewable. Mining, transport, energy production and petrochemical processes all damage the environment. In this way, plastic production contributes to problems such as oil spills, toxic emissions, and global warming through the release of greenhouse gases. If you decide to burn plastic to try to get rid of it, there are also problems. Dioxins and furans are two highly toxic chemicals created unintentionally during plastic incineration.

**What can we do about the plastic problem?**

Reduce, re-use, recycle!

Plastic bags are everywhere and they don't disappear when we throw them away. It makes sense for everyone to reduce their use of plastic bags. The more people who bring their own re-useable non-plastic bag to the shops, the less plastic bags are needed.

If you already have plastic bags, you could re-use them several times yourself. Thick plastic bags are easier to re-use, and they are also easier and more profitable to recycle. Find out whether plastics can be recycled where you live.

**Campaign!**

Campaigns to change the law about plastic bags have been very effective in many African countries. Here are some success stories from countries that are dealing with the plastic bag problem.

### **Using water hyacinth as a fertilizer**

Water hyacinth can be used on the land either as a green manure or as compost. As a green manure it can be either ploughed into the ground or used as a mulch. The plant is ideal for composting, an elegant solution to the problem of water hyacinth and poor soil quality. After removing the plant from the water, leave it to dry for a few days. Mix the dried plant with ash, soil and some animal manure. Microbial decomposition breaks down the fats, lipids, proteins, sugars and starches. The mixture is then left in piles to compost, producing a rich safe compost which can be applied directly to the soil. Compost increases soil fertility and crop yield.

1. Collect Water Hyacinth.
2. Dry in the open until semi-crispy.
3. Cut off stems – use the leaves and roots for other purposes.
4. Cut the stems into small cubes.
5. Take one large handful of the cubes.
6. Put these cubes into a blender with 3 ? cups of water a mix for 30 seconds (given no electric power, you could use a pestle and mortar).
7. Pour in to bowl half full of water.
8. Repeat this sequence with 4 handfuls.
9. Make a wooden frame with a fine gauze. Slide it under the hyacinth and put on the bottom of the bowl. When the water has settled, gently raise the frame.
10. Using a small, dry cloth, pat the water hyacinth to make it as dry as possible.
11. Spread a larger cloth out on the floor. Turn the frame over, lay it on the cloth and pat more with the small cloth.
12. Lift the frame so that the water hyacinth pulp falls on the cloth. Place another cloth on top of the water hyacinth, and several newspapers on top of that. On top again, place a wooden board, and a rock or something heavy.
13. After 30 minutes, take everything off the water hyacinth pulp, peel it carefully off the cloth and lay it out to dry for 24 hours.
14. Experiment with different proportions of Water Hyacinth pulp and wastepaper pulp, until you have the paper you like best.

### **Making furniture from water hyacinth**

Furniture is made by winding water-hyacinth rope around bamboo frames, as follows:

1. Collect water hyacinth from the lake. An entire truckload of wet water hyacinth will reduce to a sack of stems weighing only 10kg, that is, enough to make rope for one armchair or two dining chairs. Chopping at the harvesting site can reduce the volume and water content.
2. Transport the weed from the lake to the working area.
3. Remove the roots and leaves (can be used in a biogas plant)
4. Split the stems lengthways and allow to dry in the sun for a day
5. Scrape out the inner pith of the stems with a knife
6. Allow the stems to dry for another three days
7. Soak in a solution of sodium metasilphite or caustic soda and water for one hour. This preserves the fibre and stops the rope from rotting – the chemicals are entirely used up during the processing, leaving a chemical-free residue at the end of the process
8. Dry in the sun for 5 to 6 hours
9. Cut the stems lengthways into strips (The width depends on the diameter of rope required)
- 10 .Optional – the rope can be boiled in dye at this stage
- 11 .Cut off loose strands from the rope
- 12 .Weave furniture or handicrafts with bamboo frames.

### What can I do about water hyacinth?

If water hyacinth has already arrived where you live, make the most of the situation by experimenting with ways to use this free source of biomass. Help to clear it if you can. If you are clearing water hyacinth by hand, make sure it's safe and wear gloves - water hyacinth can cause itching (as if it couldn't be any more troublesome). Remove whole plants from the water and take them away to dry out. Cut weeds left in the water will decompose and cause more problems.

If you haven't yet seen water hyacinth in your area, set up an early warning system. Know what to look out for, and check out which organisations could help if you find any.

Find out about other introduced species that have gone wild where you live. Join or set up a hacking group to remove alien vegetation that has got out of control. Plant indigenous plants and trees in your garden.



Image, FAO

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ITDG Technical Brief on Water Hyacinth Control and Possible Uses  
[www.itdg.org/docs/technical\\_information\\_service/water\\_hyacinth\\_control.pdf](http://www.itdg.org/docs/technical_information_service/water_hyacinth_control.pdf)

USE WATER HYACINTH! A Practical Handbook of Uses for the Water Hyacinth from Across the World, by K. Lindsey and H.-M. Hirt. 1999. 115 pp. Order from Anamed, Schafweide 77, 71364 Winnenden, Germany.

Wittenber R. & Cock M.J.W. 2001 (eds) Invasive Alien Species: A Toolkit for Best Prevention and Management Practices. Published by GISP Download at <http://www.gisp.org/downloadpubs/Toolkiteng.pdf>

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