

Metro has compiled many facts related to waste reduction and recycling, which are organized by theme. The following list is from August 2010. They can be found on their website:

<http://www.oregonmetro.gov/index.cfm/go/by.web/id=25395>

#### Aluminum:

- ✓ The following resources are used to produce one ton of aluminum: 8,766 pounds of bauxite, 1,020 pounds of petroleum coke, 966 pounds of soda ash, 327 pounds of pitch, 238 pounds of lime and 197 million BTU of energy. –Oregon Department of Environmental Quality, “Rethinking Recycling: An Oregon Waste Reduction Curriculum,” 2001 [www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html](http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html)
- ✓ The pollutants created in producing one ton of aluminum are 3,290 pounds of red mud, 2,900 pounds of carbon dioxide (a greenhouse gas), 81 pounds of air pollutants, and 789 pounds of solid wastes. –Oregon Department of Environmental Quality, “Rethinking Recycling: An Oregon Waste Reduction Curriculum,” 2001 [www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html](http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html)
- ✓ The average aluminum can contains 40 percent post-consumer recycled aluminum. –Environmental Protection Agency, Last updated, May 2005 <http://www.epa.gov/epaoswer/non-hw/muncpl/alum.htm>
- ✓ In 2001, Americans bought 351 aluminum beverage cans per person (twice as many as in 1980) and wasted 70 more cans per person than in 1980. –Container Recycling Institute, Jennifer Gitlitz, “Trashed Cans: The Global Environmental Impacts of Aluminum Can Wasting in America,” 2002
- ✓ In 2004, 55 billion aluminum cans were landfilled, littered or incinerated, 9 billion more than were wasted in 2000. This is enough cans to fill the Empire State Building twenty times. It is also a quantity equivalent to the annual production of three to four major primary aluminum smelters. –Container Recycling Institute, “Stemming the Tide of Trashed Aluminum Cans: Industry Efforts Fall Flat,” May 23, 2005
- ✓ The recycling rate for aluminum beverage containers in the U.S. was 45.1 percent in 2004, up less than a full percentage point from 44.3 percent in 2003. –Container Recycling Institute, 2005 <http://www.container-recycling.org/>
- ✓ Container recycling rates in deposit states average 75 percent to 80 percent: two to three times higher than in non-deposit states. –Container Recycling Institute, Jenny Gitlitz and Pat Franklin, “The 10 cent Incentive to Recycling,” 3rd Edition, February 2004 <http://www.container-recycling.org/alumrate/UBCRateRelease2005.htm>
- ✓ Recycling an aluminum can saves 95 percent of the energy required to make the same amount of aluminum from virgin materials. –Environmental Protection Agency, Last updated May 17, 2005 <http://www.epa.gov/epaoswer/non-hw/muncpl/alum.htm>
- ✓ The energy required to replace the aluminum cans wasted in 2001 was equivalent to 16 million barrels of crude oil, enough to meet the electricity needs of all homes in Chicago, Dallas, Detroit, San Francisco and Seattle. –Container Recycling Institute, Jennifer Gitlitz, “Trashed Cans: The Global Environmental Impacts of Aluminum Can Wasting in America,” 2002
- ✓ Recycling one ton of aluminum is equivalent to not releasing 13 tons of carbon dioxide (a greenhouse gas) into the air. –Oregon Department of Environmental Quality, “Rethinking Recycling: An Oregon Waste Reduction Curriculum,” 2001 [www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html](http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html)

#### Batteries:

- ✓ Americans purchase nearly 3 billion dry-cell batteries (alkaline, button cell and rechargeable) every year to power radios, toys, cellular phones, watches, laptop computers, and portable power tools. Dry-cell batteries include alkaline, button cell and rechargeable batteries. –Environmental Protection Agency, Last

updated, May 17, 2005

[www.epa.gov/epaoswer/non-hw/muncpl/battery.htm](http://www.epa.gov/epaoswer/non-hw/muncpl/battery.htm)

- ✓ Though batteries generally make up less than one percent of municipal solid waste (MSW) they account for a disproportionate amount of the toxic heavy metals. Ni-cad batteries and small sealed lead-acid batteries accounted for 75 percent of the cadmium and 65 percent of the lead found in landfills in 1995. – *Environmental Protection Agency, Enforcement Alert, March 2002, EPA 300-N-02-002*
- ✓ Single-use alkaline batteries contain fewer toxic chemicals than rechargeable batteries, but there are many more of them in the waste stream. –*INFORM, Community Waste Prevention Toolkit: battery fact sheet, December 2001*  
[www.informinc.org/fact\\_CWPbattery.php#whyreduce](http://www.informinc.org/fact_CWPbattery.php#whyreduce)
- ✓ The U.S. retail market for rechargeables is growing twice as fast as the retail market for alkaline batteries. –*INFORM, “Industry Program to Collect Nickel-Cadmium (Ni-Cd) Batteries,” Bette Fishbein, Senior Fellow, 2005; and Hurd, D. J. (1992). Getting a Charge Out of the Wastestream: Feasibility Study for the Implementation of Consumer Dry Cell Battery Recycling as an Alternative to Disposal, April 17, 1992.*
- ✓ A single rechargeable nickel-metal hydride (Ni-MH) or Ni-Cd battery can replace up to 1,000 single-use alkaline batteries during its lifetime. –*INFORM, Community Waste Prevention Toolkit: battery fact sheet, December 2001*  
[www.informinc.org/fact\\_CWPbattery.php#whyreduce](http://www.informinc.org/fact_CWPbattery.php#whyreduce)
- ✓ Using metal recovered from batteries consumes 75 percent less energy and 46 percent less energy than extracting it from primary sources. –*Elizabeth Royte, “Garbage Land, On the Secret Trail of Trash,” 2005*
- ✓ On average, each person in the United States discards eight dry-cell batteries per year. –*Environmental Protection Agency, Last updated May 17, 2005*  
<http://www.epa.gov/epaoswer/non-hw/muncpl/battery.htm>
- ✓ Americans throw out approximately 179,000 tons of batteries a year. – *Environmental News Network, “San Francisco Supervisor Takes Aim at Toxic Battery Waste,” July 2001; and U.S. Battery Markets, Report 5949, Frost and Sullivan, July 1999, Figure 1-1*  
<http://www.epa.gov/epr/products/batteries.htm>
- ✓ In 2005, Americans used an average of six wireless products in their day-to-day lives, with over 30 percent of consumers owning and using eight or more wireless products. This contrasts with 1999 figures when consumers used an average of three wireless products. –*Rechargeable Battery Recycling Corporation, Survey conducted by NOP World on behalf of the Rechargeable Battery Recycling Corporation (RBRC), 2005*  
<http://www.call2recycle.org/>
- ✓ Cell phone subscriptions in the U.S. have increased from 340,000 in 1985 to more than 140 million at the beginning of 2003. –*INFORM, “Call All Cell Phones: Collection, Reuse, and Recycling Programs in the US,” Eric Most, 2003*
- ✓ If each of the 100 million cell phones discarded each year by 2005 used two sets of batteries before being retired, 200 million batteries will have entered the waste stream each year from cell phone use alone. –*INFORM, Bette K. Fishbein, “Waste in the Wireless World: The Challenge of Cell Phones,” 2002; INFORM, Eric Most, “Calling All Cell Phones: Collection, Reuse, and Recycling Programs in the US,” 2003*
- ✓ Florida, one of the few states tracking environmental release of cadmium, calculates that the recovery rate of nickel-cadmium rechargeable batteries in 2003 was 14 percent, essentially unchanged from 1995. –*Product Policy Institute,*

*“Extended Producer Responsibility Policies in the United States and Canada: History and Status,” Bill Sheehan and Helen Spiegelman, 2005*

<http://www.productpolicy.org/assets/resources/EPR-US-Canada-01-2005.pdf>

- ✓ Four million pounds of rechargeable batteries were recycled in the U.S. and Canada in 2003. This represents an 11 percent increase in business participation, 41 percent increase in community participation, and 76 percent increase in public agency participation since 2002. –*Rechargeable Battery Recycling Corporation, 2003. The Year in Review*  
<http://www.rbrcc.com/graphics/PDF/AnnualReport.pdf>
- ✓ Lead-acid batteries contain a significant amount of lead, from 8 to 20 pounds in most passenger vehicles and more in SUVs. Recycling of these batteries is more than 90 percent in the U.S. –*INFORM, Community Waste Prevention Toolkit: battery fact sheet, December 2001*  
[www.informinc.org/fact\\_CWPbattery.php#whyreduce](http://www.informinc.org/fact_CWPbattery.php#whyreduce)

### Climate Change:

The financial and economic crisis has had a considerable impact on the energy sector worldwide. Investment in polluting technologies has been deferred and CO<sub>2</sub> emissions could fall in 2009 by as much as 3 percent - steeper than at any time in the last 40 years. –*International Energy Agency, 2009* [http://www.iea.org/press/pressdetail.asp?PRESS\\_REL\\_ID=290](http://www.iea.org/press/pressdetail.asp?PRESS_REL_ID=290)

Since the beginning of the industrial revolution, atmospheric concentrations of carbon dioxide have increased nearly 30 percent, methane concentrations have more than doubled, and nitrous oxide concentrations have risen by about 15 percent. –*Environmental Protection Agency, 2002* [yosemite.epa.gov/OAR/globalwarming.nsf/content/climate.html](http://www.yosemite.epa.gov/OAR/globalwarming.nsf/content/climate.html)

Carbon dioxide concentrations in the Earth’s atmosphere are 34 percent higher today than they were at the onset of the industrial revolution in 1750 – higher than at any time in the last 400,000 years. –*Worldwatch Institute, 2004*  
<http://www.worldwatch.org/features/climate/questionsanswers/>

Carbon emissions from fossil fuels are believed to be the main factor behind increasing carbon dioxide concentrations and rising global temperatures. Nearly three times as much carbon was released in 2004 as in 1960. –*Worldwatch Institute, “Vital Signs 2005”*  
<http://www.worldwatch.org/features/vsow/2005/06/15/>

Methane is 20 times more potent when compared to CO<sub>2</sub> and accounted for 9 percent of total greenhouse gas emissions in 1999. Landfills, livestock operations and natural gas systems were the source of 75 percent of total methane emissions. –*Environmental Protection Agency, Last update, June 30 2004* <http://www.epa.gov/methane/scientific.html>

According to the National Academy of Sciences, the Earth’s surface temperature has risen by about 1 degree Fahrenheit in the past century, with accelerated warming during the past two decades. –*Environmental Protection Agency, 2002*  
[yosemite.epa.gov/OAR/globalwarming.nsf/content/climate.html](http://www.yosemite.epa.gov/OAR/globalwarming.nsf/content/climate.html)

The global average temperature in 2003 was the third hottest since record keeping began in the late 1800s (1998 was the first, 2002 was second), and the ten warmest years on record have occurred since 1990. –*Worldwatch Institute, 2004*  
<http://www.worldwatch.org/features/climate/questionsanswers/>

Rising water temperatures have caused sea levels to rise 4 to 10 inches in the past 100 years, and it is predicted to rise another 20 inches over the next century (with some estimates as high as 35 inches). –*Wood Hole Oceanographic Institute, Rob L. Evans, “Rising Sea Levels and Moving Shorelines,” 2004*  
<http://oceanusmag.whoi.edu/v43n1/evans.html>

Small island nations are at risk of inundation due to climate induced rising sea levels. The Maldives, an island country in the Indian Ocean where 65 percent of the land is less than 1 meter above sea level, has already evacuated residents from four of the lowest lying islands over the past few years. –*Worldwatch Institute*, “Fact Sheet: The Impacts of Weather and Climate Change,” September 15, 2003 <http://www.worldwatch.org/press/news/2003/09/15/>

Fifty-three percent of the U.S. population resides in coastal counties. –*Wood Hole Oceanographic Institute*, Rob L. Evans, “Rising Sea Levels and Moving Shorelines,” 2004 <http://oceanusmag.whoi.edu/v43n1/evans.html>

With less than five percent of world population, the United States is the single-largest source of carbon from fossil fuels, emitting 24 percent of the world’s total. –*Worldwatch Institute*, *Vital Signs* 2003 <http://www.worldwatch.org/features/climate/questionsanswers/>

With roughly 15 percent of the world’s current population, Europe, Japan, and North America are estimated to account for two-thirds of the carbon dioxide now in the atmosphere. –*Worldwatch Institute*, 2004 <http://www.worldwatch.org/features/climate/questionsanswers/>

The average person in China produces less than one-eighth as much carbon dioxide as the average American. –*Worldwatch Institute*, *Vital Signs* 2003 <http://www.worldwatch.org/features/climate/questionsanswers/>

With a quarter of the world’s cars, US automobiles alone emit roughly as much carbon as the entire Japanese economy, the world’s fourth-largest carbon emitter in 2000. –*Worldwatch Institute*, *Vital Signs* 2003 <http://www.worldwatch.org/features/climate/questionsanswers/>

Thirty-seven percent of carbon dioxide emissions come from electric power production, mainly through the burning of coal. –*World Wildlife Federation*, “Climate Change Threatens One Million Species,” January 7, 2004 [http://www.panda.org/about\\_wwf/what\\_we\\_do/climate\\_change/news/news.cfm?uNewsID=10481](http://www.panda.org/about_wwf/what_we_do/climate_change/news/news.cfm?uNewsID=10481)

The generation of electricity is the largest source of greenhouse gas emissions in the U.S. (nearly 38 percent, followed by transportation’s 32 percent). –*Pew Center on Global Climate Change*, “The U.S. Electric Power Sector and Climate Change Mitigation,” Granger Morgan, Jay Apt and Lester Lave, June 2005

Fossil fuels burned to run cars and trucks, heat homes and businesses, and power factories are responsible for about 98 percent of U.S. carbon dioxide emissions, 24 percent of methane emissions, and 18 percent of nitrous oxide emissions. –*Environmental Protection Agency*, 2002 [yosemite.epa.gov/OAR/globalwarming.nsf/content/climate.html](http://yosemite.epa.gov/OAR/globalwarming.nsf/content/climate.html)

The paper industry is, after chemical and steel manufacturing, the third-largest source of greenhouse gas emissions from the manufacturing sector in the United States. Each year, paper factories send 420 million metric tons of carbon dioxide, water vapor, methane, nitrogen oxides, and other heat-trapping gases up their smokestacks. –*Garbage Land, On the Secret Trail of Trash*, Elizabeth Royte, 2005; *Natural Resource Defense Council*, “OnEarth,” Winter 2004 [http://www.nrdc.org/onearth/04win/cumberland\\_popup.htm](http://www.nrdc.org/onearth/04win/cumberland_popup.htm)

Asthma among pre-school children is at epidemic levels, increasing 160 percent between 1980-1994, more than twice the national average. Higher levels of pollen and changes in the types of molds spurred by global warming, and pollution from vehicles causes damage to the respiratory systems, particularly for growing children. –*The Center for Health and Global Environment Harvard Medical School*, Paul R Epstein and Christine Rodgers, “INSIDE THE GREENHOUSE: The impacts of CO<sub>2</sub> and climate change on public health on the inner city,” May

2004

Major home appliances account for approximately one third of residential electrical consumption, a principal source of greenhouse gases. Some 13 million metric tons of greenhouse gas emissions are generated from washers and dryers in the United States each year. –Pew Center on Global Climate Change; “Appliances and Global Climate Change;” Shorey, Everett and Tom Eckman, October 2000

By recycling all of its office paper waste for one year rather than putting it in the landfill, an office building of 7,000 workers could reduce greenhouse gas emissions equivalent to taking about 370 cars off the road that year. –Environmental Protection Agency, “Climate Change and Waste Reducing Waste Can Make a Difference,” EPA 530-E-03-002, 2002

<http://www.epa.gov/mswclimate/climfold.pdf>

### **Compost:**

Yard trimmings and food scraps accounted for 25 percent of all Municipal solid waste created nationally in 2006. US EPA “Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2006”

<http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw06.pdf>

Out of the 31.1 million tons of food waste generated nationally in 2005, only 2.2% (.68 million tons) was recovered for composting. -US EPA, “Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2006”

<http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw06.pdf>

The cost-prohibitive nature of residential food waste separation and collection is the primary deterrent to expanding food waste recovery efforts.

<http://www.epa.gov/epawaste/conserves/rrr/composting/basic.htm>

Also in 2005, 32.4 million tons of yard debris was generated nationally, and 62% (20.1 million tons) were recovered for composting. -US EPA, “Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2006”

<http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw06.pdf>

About 20 million tons of yard trimmings were composted in 2006, representing a five-fold increase since 1990. -US EPA “Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2006”

<http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw06.pdf>

20.8 million tons of compostable material (including yard trimmings, food scraps, and other MSW organic material) was recovered for composting in 2006 nationally, compared with 20.6 million tons in 2005. -US EPA “Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2006”

<http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw06.pdf>

Oregon generates more than a million tons of food waste and yard debris each year. This makes up more than 20% of the total waste stream disposed. - Oregon DEQ “2007 Oregon Material recovery and waste generation report” September 2008.

<http://www.deq.state.or.us/lq/pubs/docs/sw/2007MRWGRatesReport.pdf>

In Oregon the amount of organic materials (food, yard, and wood wastes) recovered decreased approximately 5%. -Oregon DEQ “2007 Oregon Material recovery and waste generation report” September 2008.

<http://www.deq.state.or.us/lq/pubs/docs/sw/2007MRWGRatesReport.pdf>

In the state of Oregon in 2005 food waste accounted for 14.92% of total waste generated, and yard debris 4.3% of total waste. -Oregon DEQ “Recycling characterization and composition study” 2005/2006.

<http://www.deq.state.or.us/lq/sw/disposal/2005study.htm>

In the state of Oregon in 2005, wood (including pallets and dimensional lumber) accounted for 13.57% of the total waste generated. -Oregon DEQ "Recycling characterization and composition study" 2005/2006.

<http://www.deq.state.or.us/lq/sw/disposal/2005study.htm>

Organic material is bulky, takes up space in landfills, and produce methane gas that must be recovered or burned and produce liquids that contribute to leachate.

<http://www.deq.state.or.us/lq/pubs/factsheets/sw/OregonFoodYardDebris.pdf>

Disposing of food waste in a landfill contributes to global warming. Every metric dry ton of food that goes to a landfill may generate .25 metric tons of methane in the first 120 days. Thus, composting this food waste would reduce emissions by the equivalent of up to 6 metric tons of CO<sub>2</sub>. -USCC Factsheet "Greenhouse Gases and the Role of Composting :A Primer for Compost Producers"

<http://www.compostingcouncil.org/education/resources.php>

Recent waste composition studies estimate that approximately 72% of the municipal waste stream going to landfills is organic (6% wood, 7% textiles/leather, 13% yard debris, 12% food scraps, 34% paper). -USCC Position Statement: Keeping Organics Out of Landfills

<http://www.compostingcouncil.org/education/resources.php>

Currently there are 23 states that ban some fashion of organics disposal in landfills, mostly leaves, grass and other yard debris. -USCC Position Statement: Keeping Organics Out of Landfills

<http://www.compostingcouncil.org/education/resources.php>

About 3,470 community composting programs are operational, an increase from 3,227 in 2002. *Biocycle Magazine* 2006. -US EPA "Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2006"

<http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw06.pdf>

Compost can capture and destroy 99.6 percent of industrial volatile organic chemicals (VOCs) in contaminated air.

<http://www.epa.gov/epawaste/conserv/rrr/composting/basic.htm>

Half to two thirds of the material going into landfills is derived from biomass. If separated, this material could be utilized as a liquid, solid or gaseous biofuel or made into compost. - *Biocycle Magazine*, Mark Jenner, "Supercharging Solid Waste Energy Production," February 2008

The burning of leaves, brush and other vegetation releases a number of hazardous air pollutants, some of which can cause cancer and other adverse health effects -Environmental Protection Agency

<http://www.epa.gov/ttnatw01/burn/burnpg.html>

Compost-enriched soil can also reduce erosion, alleviate soil compaction, and help control disease and pest infestation in plants. -"Innovative Uses of Compost Erosion Control, Turf remediation and Landscaping" EPA530-F-97-043 October 1997.

<http://www.epa.gov/epawaste/conserv/rrr/composting/pubs/erosion.pdf>

Compost bioremediation has proven effective in degrading or altering many types of contaminants, such as chlorinated and non-chlorinated hydrocarbons, wood-preserving chemicals, solvents, heavy metals, pesticides, petroleum products, and explosives. -"Innovative Uses of Compost Bioremediation and Pollution prevention" EPA530-F97-042, October 1997

<http://www.epa.gov/epawaste/conserv/rrr/composting/pubs/bioremed.pdf>

Mature compost can control several plant diseases without the use of synthetic fungicides or fumigants. -Environmental Protection Agency, "An Analysis of

*Composting As an Environmental Remediation Technology," EPA/530-R-98-008, April 1998*

Fifty-two percent of Metro single-family households engage in home composting or some other form of onsite organics management (e.g., grasscycling). -Metro, "2004 Home Composting Survey," Conducted by Market Decisions Corporation, December 2004

Grass clippings contain valuable nutrients that can generate up to 25 percent of your lawn's total fertilizer needs when left on the lawn. -Ohio State University Extension Fact Sheet: Composting at Home, 1999

**Construction and Demolition:**

In 1998, the U.S. generated 136 million tons of waste from construction and demolition. Only 20 percent to 30 percent (mostly concrete, asphalt, metals and some wood) was recycled or reused. -EPA, "A Characterization of Building-Related Construction and Demolition Debris in the United States," 1998

The waste from building demolition removal constitutes nearly half of all building related construction and demolition debris. Renovation and remodeling projects are estimated to generate an additional 40 percent of the total debris, and new construction makes up the rest. -Environmental Protection Agency, "Analyzing What's Recyclable in C&D Waste," Ken Sandler, BioCycle, November 2003

<http://www.epa.gov/epaoswer/non-hw/debris-new/basic.htm>

Concrete and mixed rubble are estimated to make up 40-50 percent of the building-related construction and demolition debris generated annually, followed by wood at 20-30 percent, drywall at 5-15 percent, asphalt roofing at 1-10 percent, metals at 1-5 percent, bricks at 1-5 percent and plastics at 1-5 percent. -Environmental Protection Agency, "Analyzing What's Recyclable in C&D Waste," Ken Sandler, BioCycle, November 2003

<http://www.epa.gov/epaoswer/non-hw/debris-new/basic.htm>

More than 25 percent of Portland's landfill space is taken up by construction and demolition debris - half of which could have been reused or recycled. -City of Portland, Office of Sustainable Development

<http://www.green-rated.org/>

Annually, builders in the United States generate approximately 31.5 million tons of construction waste, almost 24 percent of the total municipal solid waste stream in this country. -National Association of Home Builders, "Building a Balance: Solid Waste Disposal Environmental Education Fact Sheet," 2004

<http://www.nahb.org/generic.aspx?genericContentID=379>

In the Portland metro region, building materials (including wallboard, roofing, rubble, and fiberglass insulation) accounted for 10 percent of the total materials discarded in 2002. -Oregon Department of Environmental Quality, Oregon Solid Waste Characterization and Composition, 2002

About 12 percent of the drywall used in new construction ends up as scrap. -California Integrated Waste Management Board, 2002

[www.ciwmb.ca.gov](http://www.ciwmb.ca.gov)

New homes and apartment units are being started at an annual rate of about 1.9 million. -National Association of Home Builders, 2005

<http://www.nahb.org/generic.aspx?genericContentID=43459>

The average size of new single-family homes increased from 1,500 in 1970 to more than 2,200 square feet in 2000, while the average household declined from 3.1 people per household in 1970 to 2.6 in 2002. -AmeriStat, (using US Census Bureau 2003 data)

[www.ameristat.org](http://www.ameristat.org)

A new 5,000 square foot home consumes 3 times as much material as a 2,082 square foot home, even though its square footage is only 2.4 times as large. -

*City of Portland, Office of Sustainable Development*

<http://www.green-rated.org/>

A typical 2,085-square foot, single-family house requires 13,127 board feet of lumber; 6,212 square feet of sheathing; 14 tons of concrete; 2,325 square feet of exterior siding; 3,100 square feet of roofing material; 3,061 square feet of insulation; 6,144 square feet of interior wall material; 120 linear feet of ducting; 15 windows; 13 kitchen cabinets and 2 other cabinets; 1 kitchen sink; 12 interior doors; 7 closet doors; 2 exterior doors; 1 patio door; 2 garage doors; 1 fireplace; 3 toilets; 2 bathtubs; 1 shower stall; 3 bathroom sinks; 2,085 square feet of flooring material . . . and 68 gallons of paint and coatings. –*National Home Builders Association, 1998*

<http://www.nhba.org/>

Total waste from an average 2,000-sq. ft. home adds up to about 8,000 pounds taking up 50 cubic yards of space. –*National Association of Home Builders Research Center, 2001*

[www.nahbrc.org](http://www.nahbrc.org)

Each year, 170,000 commercial buildings are constructed in the U.S., and 44,000 commercial buildings are demolished. –*Environmental Protection Agency, “A Characterization of Building-Related Construction and Demolition Debris in the United States,” 1998*

Approximately 245,000 dwelling units and 45,000 non-residential units are demolished every year in the U.S., creating 74 million tons of debris. –*National Association of Home Builders, “Deconstruction: Building Disassembly and Material Salvage,” 1998*

An initial upfront investment of \$100,000 to incorporate green building features into a \$5 million dollar project would result in savings of at least \$1 million over the life of the building, assumed conservatively to be 20 years. –*“The Cost and Financial Benefits of Green Buildings, A Report to California’s Sustainable Building Task Force,” Greg Kats, October 2003*

<http://www.usgbc.org/docs/news/news477.pdf>

If 25 percent of the buildings demolished every year were deconstructed, approximately 20 million tons of debris could be diverted from landfills. –*National Association of Home Builders, “Deconstruction: Building Disassembly and Material Salvage,” 1998*

### **Electronics:**

In 2005, Americans used an average of six wireless products in their day-to-day lives (up from an average of 3 in 1999) with over 30 percent of Americans using eight or more. –*Rechargeable Battery Recycling Corporation, Survey conducted by NOP World on behalf of the Rechargeable Battery Recycling Corporation (RBRC), 2005*

[www.call2recycle.org](http://www.call2recycle.org)

The “materials intensity” of computer manufacturing is 10 times higher than that of automobiles or refrigerators. –*Environmental Science and Technology, “Energy Intensity of Computer Manufacturing: Hybrid Assessment Combining Process and Economic Input-Output Methods,” Eric Williams, 2004; 38(22); 6166-6174.*

<http://dx.doi.org/10.1021/es035152i>

Microchip production involves more energy, water, fossil fuels, toxic chemicals, and elemental gases than any industry in history. One semiconductor plant can require enough electricity to power a city of 60,000 and several million gallons of water a day. –*Silicon Valley Toxics Coalition, “Fourth Annual Computer Report Card,” January 9, 2003*

<http://www.svtc.org/cleancc/pubs/2002report.htm>

The fossil fuels needed for the production of one memory chip are about 600 times

the weight of the chip. By comparison, the total fossil fuel needed to produce an automobile is 1 to 2 times its weight and 4 to 5 times for an aluminum can. – *Environmental Science and Technology*, “The 1.7 Kilogram Microchip: Energy and Material Use in the Production of Semiconductor Devices,” Williams, E. D.; Ayres, R. U.; Heller, M.; (Article); 2002; 36(24); 5504-5510.

<http://dx.doi.org/10.1021/es025643o>

The vast majority of the energy a computer uses over its lifetime is required during the manufacturing process (81 percent) as opposed to operation (19 percent). – *Environmental Science and Technology*, “Energy Intensity of Computer Manufacturing: Hybrid Assessment Combining Process and Economic Input-Output Methods,” Eric Williams, 2004; 38(22); 6166-6174.

<http://dx.doi.org/10.1021/es035152i>

The energy savings potential of reselling or upgrading a computer is some 5-20 times greater than recycling it. – *Energy analysis of end-of-life options for computers: Resell, upgrade, recycle*. E. Williams and Y. Sasaki. in *Proceedings of the 2003 IEEE International Symposium on Electronics and the Environment*, San Francisco, CA, 187-192 (2003)

[http://www.it-environment.org/publications/ISEE\\_03\\_RUR.pdf](http://www.it-environment.org/publications/ISEE_03_RUR.pdf)

The average lifespan for a common PC manufactured in 2005 is estimated to be two years. – *National Safety Council*, “Electronic Product Recovery and Recycling Baseline Report: Recycling of Selected Electronic Products in the United States,” May 1999

Americans are buying more computers than people in any other nation. Currently more than 50 percent of U.S. households own computers. – *The Basel Action Network, Silicon Valley Toxics Coalition*, “Exporting Harm: The High-Tech Trashing of Asia,” Feb. ‘02

The National Safety Council predicts that in the U.S. between 315 million and 680 million computers will become obsolete within the next few years. The waste will contain more than 4 billion pounds of plastic, 1 billion pounds of lead, 1.9 million pounds of cadmium, 1.2 million pounds of chromium, and nearly 400,000 pounds of mercury. – *Silicon Valley Toxics Coalition*, “Fourth Annual Computer Report Card,” January 9, 2003

<http://www.svtc.org/cleancc/pubs/2002report.htm>

In California alone, more than 6,000 computers become obsolete every day. In Oregon and Washington, it is estimated that 1,600 computers become obsolete each day. – *The Basel Action Network, Silicon Valley Toxics Coalition*, “Exporting Harm: The High-Tech Trashing of Asia,” Feb. ‘02

Consumers are storing an average of 2-3 obsolete computers in garages, closets and storage spaces. – *Silicon Valley Toxics Coalition*, “Poison PCs and Toxic TVs: California’s Biggest Environmental Crisis That You’ve Never Heard Of,” June 19, 2001

[www.svtc.org/cleancc/pubs/poisonpc.htm](http://www.svtc.org/cleancc/pubs/poisonpc.htm)

Only 6 percent of computer CPUs were recycled in 1998, with TVs and mainframes experiencing even lower rates of recycling. By comparison, over 64 percent of appliances are recycled annually in the United States. – *National Safety Council*, “Electronic Product Recovery and Recycling Baseline Report: Recycling of Selected Electronic Products in the United States,” May 1999; *Environmental Protection Agency*, 2005

<http://www.epa.gov/epaoswer/hazwaste/recycle/ecycling/trends.htm>

In 2003, 2,023 tons of electronics (including computers, monitors, and TVs) were recovered in the State of Oregon. – *Oregon Department of Environmental Quality*, *Oregon Recovery and Waste Generation Rates Report*, December 2004  
Research completed in Europe shows that electronic waste is growing at three

times the rate of other municipal waste. –*Environmental Protection Agency, “Electronics: A New Opportunity for Waste Prevention, Reuse, and Recycling,” EPS 530-F-01-006, June 2001*

[http://www.epa.gov/epaoswer/osw/elec\\_fs.pdf](http://www.epa.gov/epaoswer/osw/elec_fs.pdf)

More than 3.2 million tons of electronic waste is laid to rest in U.S. landfills each year. –*Environmental Protection Agency*

[www.epa.gov/epaoswer/osw/conserves/plugin/index.htm](http://www.epa.gov/epaoswer/osw/conserves/plugin/index.htm)

It is estimated that U.S. electronic plastic scrap amounts to more than 1 billion pounds per year. The largest volume of this plastic used in electronics manufacturing consists of PVC (26 percent). –*Silicon Valley Toxics Coalition, “Fourth Annual Computer Report Card,” January 9, 2003; and “Composition of Typical Desktop Computer,” 1996 Electronics Industry Environmental Roadmap, Microelectronics and Computer Technology Corporation, February 1996, Appendix 1*

<http://www.svtc.org/cleancc/pubs/2002report.htm>

Televisions and CRT monitors contain an average of four pounds of lead. –*Environmental Protection Agency, “Electronics: A New Opportunity for Waste Prevention, Reuse, and Recycling,” EPS 530-F-01-006, June 2001*

[http://www.epa.gov/epaoswer/osw/elec\\_fs.pdf](http://www.epa.gov/epaoswer/osw/elec_fs.pdf)

Consumer electronics constitute 40 percent of the lead found in landfills. –*Silicon Valley Toxics Coalition, “Fourth Annual Computer Report Card,” January 9, 2003*

<http://www.svtc.org/cleancc/pubs/2002report.htm>

While many computer companies have reduced or phased out the use of PVC, there is still a huge volume of PVC in the computer scrap that continues to grow - potentially up to 250 million pounds per year. –*National Safety Council, “Electronic Product Recovery and Recycling Baseline Report: Recycling of Selected Electronic Products in the United States,” 1999*

Every month approximately 100,000 pounds of CDs become outdated, useless, or unwanted. –*Environmental Protection Agency, “The Life Cycle of a CD or DVD”, Solid Waste and Emergency Response (5305W) EPA530-H-03-002, April 2003*

<http://www.epa.gov/epaoswer/osw/students/finalposter.pdf>

Cell phone subscriptions in the U.S. have increased from 340,000 in 1985 to more than 140 million at the beginning of 2003. –*INFORM, “Call All Cell Phones: Collection, Reuse, and Recycling Programs in the US,” Eric Most, 2003*

In 1992, only one in 237 people worldwide used a mobile phone. By 2002, this had soared to one in five. –*Worldwatch Institute, Vital Signs 2003*

By 2005, approximately 100 million cell phones will be retired each year in the U.S., over 25 times more than in 1990. Toxic substances contained in cell phone are associated with cancer and a range of reproductive, neurological and developmental disorders. –*INFORM, “Cell Phones: A Poster Child For Extended Producer Responsibility”, January 2004*

[http://www.informinc.org/fact\\_cellEPR.pdf](http://www.informinc.org/fact_cellEPR.pdf)

Between 1999 and 2003, cell phone collection programs recovered approximately 2.5 million cell phones, about 1 percent of the phones discarded during this period. –*INFORM, “Cell Phones: A Poster Child For Extended Producer Responsibility”, January 2004*

[http://www.informinc.org/fact\\_cellEPR.pdf](http://www.informinc.org/fact_cellEPR.pdf)

More than 400 electronics recyclers operate in the US employing more than 7,000 people to process more than 750,000 tons of e-scrap (or more than 40 million computer units) per year. –*The International Association of Electronics Recyclers, 2003*

**Energy:**

People in the United States and Canada consume 2.4 times as much energy at home as those in Western Europe. –*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, I SBN: 0-393-32539-3*

The average American consumes five times more energy than the average global citizen, 10 times more than the average Chinese, and nearly 20 times more than the average Indian. –*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, I SBN: 0-393-32539-3*

If the average Chinese consumer used as much oil as the average American uses, China would require 90 million barrels per day – 11 million more than the entire world produced each day in 2001. –*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

With less than five percent of the world's population, the U.S. consumes 26 percent of global oil, 25 percent of coal, and 27 percent of natural gas. –*Worldwatch Institute, Vital Signs 2003*

<http://www.worldwatch.org/features/vsow/2003/10/29/>

During 2004, 50 percent of the nation's electric power was generated at coal-fired plants. Nuclear plants contributed 19.9 percent, 17.7 percent was generated by natural gas-fired plants, and 3.0 percent was generated at petroleum-fired plants. Conventional hydroelectric power provided 6.6 percent of the total, with other renewables and miscellaneous sources making up the balance. –*Energy Information Administration U.S. Department of Energy, "Electric Power Month, March 2005", DOE/EIA – 0226 (2005/03), 2005*

<http://tonto.eia.doe.gov/ftproot/electricity/epm/02260503.pdf>

Data from 2000 shows that the U.S. electricity industry was responsible for 67 percent of U.S. sulfur dioxide emissions that contribute to acid rain, 21 percent of U.S. nitrous oxides emissions that contribute to urban smog, and 40 percent of U.S. carbon emissions that contribute to global climate change. –*Environmental Defense, "Electricity Generation and Pollution," November 2002*

[http://www.environmentaldefense.org/documents/1041\\_FactSheet\\_Electricity.pdf](http://www.environmentaldefense.org/documents/1041_FactSheet_Electricity.pdf)

In 1998, 90 percent of the total U.S. coal consumption was used to generate electricity. –*U.S. Department of Energy, Energy Information Administration, "U.S. Coal Supply and Demand: 1998 Review"*

From 1990 to 1999 the U.S. increased its consumption of electricity by 21.5 percent. –*U.S. Department of Energy, Energy Information Administration, "Electric Power Annual Report, Volume 1," 2000*

In 1997, the U.S. consumed 12,133 kilowatt-hours per capita of electricity, as compared to 1,381 kilowatt-hours per capita consumed by the rest of the world. – *Calculated by dividing world consumption (minus U.S.) by the 1997 world population (minus U.S.) at the U.S. Census Bureau, Grist Magazine, March 2001*

[www.gristmagazine.com/counter/counter031601.asp](http://www.gristmagazine.com/counter/counter031601.asp)

Almost half of the average home's energy consumption is used for heating. Another 17 percent is used for water heating, 6 percent for cooling rooms, and 5 percent for refrigeration. –*U.S. Department of Energy, Energy Information Administration, "Energy Information Administration, 2001 Residential Energy Consumption Survey," 2001*

Home appliances are the world's fastest-growing energy consumers after automobiles, accounting for 30 percent of industrial countries' electricity consumption and 12 percent of their greenhouse gas emissions. –*Worldwatch Institute, State*

*of the World 2004 Special Focus: The Consumer Society, January 2004, I SBN: 0-393-32539-3*

About 80 percent of the energy used by a clothes washer is used to heat water. – *Rocky Mountain Institute, Home Energy Brief #5 Water Heating, 2004*

[http://www.rmi.org/images/other/Energy/E04-15\\_HEB5WaterHeat.pdf](http://www.rmi.org/images/other/Energy/E04-15_HEB5WaterHeat.pdf)

Using the "sleep-mode" on a desktop computer and monitor could save about 900 kilowatt-hours per year in electricity and 1,500 pounds in carbon dioxide emissions (assuming the energy saved displaces coal-generated electricity). That is equivalent to the carbon dioxide emitted from driving a medium sized car over 2,000 miles. – *Rocky Mountain Institute, Home Energy Brief #7, Electronics, 2004*

[http://www.rmi.org/images/other/Energy/E04-17\\_HEB7Electronics.pdf](http://www.rmi.org/images/other/Energy/E04-17_HEB7Electronics.pdf)

Almost one-fourth of the energy used in homes is used for lighting and appliances.

– *U.S. Department of Energy, Energy Information Administration, "Energy Information Administration, 2001 Residential Energy Consumption Survey," 2001*

The incandescent light bulb is so inefficient that about 90 percent of the energy it consumes is given off as heat, while only 10 percent is converted to light. – *U.S. Department of Energy, Energy Information Administration, "Energy Information Administration, 2001 Residential Energy Consumption Survey," 2001*

An incandescent light bulb costs 75 cents or less at the store, but it will typically cost six to 10 times that for electricity over its relatively short (750-hour) life. – *Rocky Mountain Institute, 2002*

[www.rmi.org/sitepages/pid352.ph](http://www.rmi.org/sitepages/pid352.ph)

The average American household has 2.5 incandescent light bulbs on for 4 or more hours each day. If every household replaced those bulbs with compact fluorescent bulbs, the nation would save nearly 32 billion kilowatt hours every year, or about 35 percent of all electricity used for lighting homes. – *U.S. Department of Energy, Energy Information Administration, "Residential Energy Consumption Survey," 1993*

Halogen lamps can be up to 50 percent more efficient than standard incandescent bulbs and last twice as long. – *Rocky Mountain Institute, Home Energy Brief #2 Lighting, 2004*

[http://www.rmi.org/images/other/Energy/E04-12\\_HEB2Lighting.pdf](http://www.rmi.org/images/other/Energy/E04-12_HEB2Lighting.pdf)

In 1998, the U.S. consumed 7.5 percent of its total energy from renewable sources. – *U.S. Department of Energy, Energy Information Administration, "U.S. Renewable Energy Consumption," March 2000*

Every day more solar energy falls to the Earth than the total amount of energy the planet's 6.1 billion inhabitants would consume in 27 years. – *National Renewable Energy Laboratory, March 2000*

[www.nrel.gov/documents/solar\\_energy.html](http://www.nrel.gov/documents/solar_energy.html)

In 1998, the U.S. used more than 74 trillion BTU of solar energy to provide electricity and heat to homes, businesses, and utilities. This amount of energy is equivalent to that in 3 million tons of coal or 600 million gallons of gasoline. – *National Renewable Energy Laboratory, March 2000*

[www.nrel.gov/documents/solar\\_energy.html](http://www.nrel.gov/documents/solar_energy.html)

Wind, while still a very small portion of the energy sector, recorded an average annual growth rate of 33 percent between 1998 and 2002. – *Worldwatch Institute, Vital Signs 2003*

<http://www.worldwatch.org/features/vsow/2003/10/29/>

In 2000, the national recycling rate of 30 percent saved the equivalent of more than five billion gallons of gasoline, reducing dependence on foreign oil by 114 million barrels. – *Environmental Protection Agency, "Resource Conservation Challenge: Campaigning Against Waste," EPA 530-F-02-033, 2002*

**Food and Agriculture:**

In 2003, food wastes accounted for nearly 12 percent of the total materials discarded in the United States. –EPA, *“Municipal Solid Waste in the United States: 2003 Facts and Figures” 2003*

[www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm#links](http://www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm#links)

Twenty-seven percent of the food produced for human consumption in the U.S. is thrown out as waste, equaling 48 million tons annually. –Economic Research Service, US Department of Agriculture, *“Estimating and Addressing America’s Food Losses,” 1997*

Fifty-three percent of disposed food is fresh fruits and vegetables, grains and milk. –Economic Research Service, US Department of Agriculture, *“Estimating and Addressing America’s Food Losses,” 1997*

When counting only the uneaten portions of meals and waste from food preparation (such as produce trimmings), Americans throw away an average of 163 pounds of food per person per year. –Economic Research Service, US Department of Agriculture, *“Estimating and Addressing America’s Food Losses,” 1997*

Recovering only 5 percent of U.S. food waste would represent one day’s worth of food for four million people. –Economic Research Service, USDA, *“Estimating and Addressing America’s Food Losses,” 1997*

Putting this good, usable food into landfills costs Americans \$50 million each year. –Economic Research Service, US Department of Agriculture, *“Estimating and Addressing America’s Food Losses,” 1997*

Over 190,000 tons of food waste was landfilled in 2002, constituting 16 percent of the total waste stream. –Oregon Department of Environmental Quality, *Oregon Waste Characterization and Composition Final Report, 2002*

Each year, the nation's supermarkets, restaurants and convenience stores toss out approximately 27 million tons of edible food worth \$30 billion. –University of Arizona College of Social and Behavior Sciences, *“Retailers Offer Food That Is Convenient, But Sometimes Unprofitable,” 2002*; *“University research “trashes” fast food,” Waste News, 5/12/03*

[http://sbs.arizona.edu/news/current\\_news.php?newsid=1242](http://sbs.arizona.edu/news/current_news.php?newsid=1242)

Approximately 12 percent of the food served as part of the National School Lunch Program is wasted, resulting in an estimated direct economic loss of \$600 million. –US Department of Agriculture, *“Several Strategies May Lower Plate Waste In School Feeding Programs,” Joann F. Guthrie and Jean C. Buzby, Food Review, Volume 5, Issue 2, March 2002*

The U.S. Department of Agriculture reports that animals in the U.S. meat industry produce 61 million tons of waste each year, which is 130 times the volume of human waste – or five tons for every U.S. citizen. –Johns Hopkins University’s Center for a Livable Future, *“How Sustainable Agriculture Can Address the Environmental and Human Health Harms of Industrial Agriculture,” July 1999*

Dairy cows produce 82 pounds of manure a day, beef cow 60 pounds, a sow and litter 33 pounds and a boar 11. –Waste News, Scott Merryweather, April 29, 2002

According to the U.S. Environmental Protection Agency, hog, chicken and cattle waste has polluted 35,000 miles of rivers in 22 states and contaminated groundwater in 17 states. –The Sierra Club, 1998

[www.sierraclub.org/factoryfarms/factsheets/water.asp](http://www.sierraclub.org/factoryfarms/factsheets/water.asp)

The United States devotes about 17 percent of its fossil fuel consumption to the production and consumption of food: six percent for crop and livestock production, six percent for processing and packaging, and five percent for distribution and cooking. –Worldwatch Institute, *State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

Food now travels between 1,500 and 2,500 miles from farm to table, as much as 25 percent farther than two decades ago. –*The Guardian*, Jeremy Rifkin, “*The world’s problems on a plate*,” May 17, 2002

The tonnage of food shipped between countries has grown fourfold over the last four decades. –*World Watch Institute news release*, “*Globetrotting Food Will Travel Farther Than Ever This Thanksgiving*,” Nov. 2002  
[www.worldwatch.org/press/news/2002/11/21/](http://www.worldwatch.org/press/news/2002/11/21/)

A head of lettuce grown in California’s Salinas Valley and shipped nearly 3,000 miles to Washington, D.C., requires about 36 times as much fossil fuel energy in transport as it provides in food energy when it arrives. –*World Watch Institute news release*, “*Globetrotting Food Will Travel Farther Than Ever This Thanksgiving*,” Nov. 2002  
[www.worldwatch.org/press/news/2002/11/21/](http://www.worldwatch.org/press/news/2002/11/21/)

Surveys have shown that a typical meal using local ingredients entails 4 to 17 times less petroleum consumption in transport than the same meal bought from the conventional food chain. –*World Watch Institute news release*, “*Globetrotting Food Will Travel Farther Than Ever This Thanksgiving*,” Nov. 2002  
[www.worldwatch.org/press/news/2002/11/21/](http://www.worldwatch.org/press/news/2002/11/21/)

It takes 6.9 pounds of grain, 44 gallons of gasoline and 430 gallons of water to produce 1 pound of pork. It takes 4.8 pounds of grain, 25 gallons of gasoline and 390 gallons of water to produce 1 pound of beef. –*World Watch Institute*, Alan Durning, “*Fat of the Land*,” 1991

Two quarts of gasoline and 1000 quarts of water are required to produce a quart of Florida orange juice. –*Natural Capitalism*; Paul Hawken, Amory and L. Hunter; Lovin Little Brown & Co.; September 1999  
[www.natcap.org/sitepages/pid20.php](http://www.natcap.org/sitepages/pid20.php)

Every year in the U.S., 25 million pounds of antibiotics, (about 70 percent of the total U.S. antibiotic production) are fed to chickens, pigs, and cows for non-therapeutic purposes like growth promotion, amounting to 10 million pounds used in hogs, 11 million in poultry and 4 million in cattle. –*Union of Concerned Scientists*, Jan. 9, 2001  
[www.ucsusa.org](http://www.ucsusa.org)

The Institute for Trade and Agriculture Policy estimates that U.S. fish farmers who apply conventional methods use between 200,000 and 433,000 pounds of antibiotics annually. –*Conscious Choice Magazine*, “*Rushing Waters – A Wisconsin Fish Farm the Environment Loves!*,” January 2003  
[www.organicconsumers.org/Toxic/021803\\_fish\\_farm.cfm](http://www.organicconsumers.org/Toxic/021803_fish_farm.cfm)

World cereal consumption has more than doubled in the last 30 years while meat consumption has tripled since 1961. –*World Resources Institute 2000-2001*, Gregory Mock, “*How Much Do We Consume?*” June 2000

An acre of cereal produces five times more protein than an acre devoted to meat production. An acre of legumes (beans, peas, lentils) can produce 10 times more protein and an acre of leafy vegetables, 15 times more protein than an acre devoted to meat production. –*The Guardian*, Jeremy Fifkin, “*The world’s problems on a plate*,” May 17, 2002

Each year in the U.S., 157 million metric tons of cereal, legumes and vegetable protein suitable for human use is fed to livestock, which produces 28 million metric tons of animal protein for human consumption. –*The Guardian*, Jeremy Fifkin, “*The world’s problems on a plate*,” May 17, 2002

### General Environment:

Between 1970 and 2000, terrestrial species have declined by 30 percent, marine

species have declined by 30 percent, and freshwater species have declined by 50 percent. –*World Wildlife Fund, Living Planet Report 2004*

[www.panda.org/downloads/general/lpr2004.pdf](http://www.panda.org/downloads/general/lpr2004.pdf)

Industry moves, mines, extracts, shovels, burns, wastes, pumps and disposes of four million pounds of material in order to provide one average middle-class American family's needs for a year. –*Natural Capitalism; Paul Hawken, Amory and L. Hunter; Lovin Little Brown & Co.; September 1999*

[www.natcap.org/sitepages/pid20.php](http://www.natcap.org/sitepages/pid20.php)

The United States, with less than 5 percent of the global population, uses about a quarter of the world's fossil fuel resources, burning up nearly 25 percent of the coal, 26 percent of the oil, and 27 percent of the world's natural gas. –

*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

<http://www.metro-region.org/article.cfm?articleID=5562>

For the entire world to live as an American or Canadian, we would need two more earths to satisfy everyone, three more still if population should double and 12 earths altogether if worldwide standards of living should double during the next 40 years. –*Natural Capitalism; Paul Hawken, Amory and L. Hunter; Lovin Little Brown & Co.; September 1999*

[www.natcap.org/sitepages/pid20.php](http://www.natcap.org/sitepages/pid20.php)

The 12 percent of the world's population that lives in North America and Western Europe accounts for 60 percent of private consumption spending, while the one-third living in South Asia and sub-Saharan Africa accounts for only 3.2 percent.

–*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

As many as 2.8 billion people on the planet struggle to survive on less than \$2 a day, and more than one billion people lack reasonable access to safe drinking water. –*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

Urban sprawl requires more kilometers of pavement and more sewer, water and telephone lines (2.5 times more, in the case of Chicago) to service a given population than compact development. –*World Watch Institute, December 1998*

[www.worldwatch.org/alerts/981217.html](http://www.worldwatch.org/alerts/981217.html)

Humanity is now consuming over 20 percent more natural resources than the Earth can produce, causing rapid declines in wild animal populations. –*World Wildlife Fund, Living Planet Report 2004*

The area of forest required to provide for each U.S. citizen's annual wood needs is 1.7 acres, compared to the global average of 0.7 acres. –*Forest Products Journal, pp. 10-21, January 2001*

At current growth rates, 150 million cars could jam China's streets by 2015—18 million more than were driven on U.S. streets and highways in 1999. –

*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

Materials use has grown 18-fold in the United States since 1900. Substances such as aluminum and plastic were virtually unknown at the turn of the century. Since that time, aluminum production has climbed more than 3,000-fold, and synthetic chemicals production has increased 1,000-fold since 1930 in the U.S. alone. –*World Watch Institute, December 1998*

[www.worldwatch.org/alerts/981217.html](http://www.worldwatch.org/alerts/981217.html)

Materials have become more complex this century, drawing from all 92 naturally occurring elements in the periodic table, compared with the 20 or so in use in 1900. –*World Watch Institute, December 1998*

[www.worldwatch.org/alerts/981217.html](http://www.worldwatch.org/alerts/981217.html)

Cancer, asthma, birth defects, developmental disabilities, autism, endometriosis, infertility and Parkinson's disease are becoming increasingly common: these serious health problems are linked to chemical exposures from air, water and food, homes, schools and workplaces. –*World Bank Group, "Toxics and Poverty", 2002*

More than 100,000 new chemical compounds have been developed since the 1930s. The U.S. National Academy of Sciences reports that insufficient information exists for health assessments of 95 percent of chemicals in the environment. –*World Watch Institute, December 1998*

[www.worldwatch.org/alerts/981217.html](http://www.worldwatch.org/alerts/981217.html)

On average, 18 pounds of pesticides per acre, per year are used on golf courses, compared to 2.7 in agriculture. –*Worldwatch Institute, "Matters of Scale: Planet Golf," March/April 2004*

<http://www.worldwatch.org/pubs/mag/2004/172/mos>

According to the EPA, mining operations in 2003 released nearly 3 billion pounds, or 45 percent of all toxics released by U.S. industries. –*Garbage Land: On the Secret Trail of Trash, Elisabeth Royte, Little, Brown and Company, 2005*

The average cruise ship passenger produces 10 gallons of concentrated sewage every day, which is dumped overboard. The cruise ship industry has been fined a combined \$33.5 million in recent years for polluting the environment. –*Cruise Ship Blues: The Underside of the Cruise Industry, Ross Klein, New Society Publishers, November 1, 2002*

Coal-burning power plants are the largest human-caused source of airborne mercury emissions in the United States, accounting for over 40 percent of all human-caused mercury emissions. The EPA has estimated that about one quarter of these emissions are deposited within the U.S. while the remainder enters the global cycle. –*Environmental Protection Agency, "Mercury Basic Facts," 2005*

<http://www.epa.gov/mercury/about.htm>

EPA studies of human exposure to air pollutants indicate that indoor air levels of many pollutants may be two to five times, and occasionally more than 100 times, higher than outdoor levels. –*Environmental Protection Agency, "The Inside Story: A Guide to Indoor Air Quality," EPA 402-K-93-007, April 1995*

Lawn and garden equipment (lawn mowers, leaf blowers, chain saws) that run on gasoline currently contribute 16 percent of hydrocarbon emissions and 21 percent of carbon monoxide emissions from mobile sources nationwide. –*Environmental Protection Agency, "Reducing Air Pollution From Nonroad Engines," EPA420-F-03-011, April 2003*

The air pollution from cutting grass for an hour with a gasoline-powered lawn mower is about the same as that from a 100-mile automobile ride. –*Environmental Science Technology, "Measurement of Regulated and Unregulated Exhaust Emissions from a Lawn Mower with and without an Oxidizing Catalyst: A Comparison of Two Different Fuels," Christensen, A.; Westerholm, R.; Almen, J.; (Article); 2001; 35 (11); 2166-2170.*

<http://dx.doi.org/10.1021/es0002565>

### **General Recycling:**

Energy savings for 2008 from recycling in Oregon equals approximately 30 trillion BTU - the equivalent of 243,000,000 gallons of gasoline, or roughly 2.7 percent of total energy used (2008) by all sectors of the economy in Oregon. This is equivalent to enough energy to fuel 289,000 homes. –*Oregon DEQ, 2008 Oregon Material Recovery and Waste Generation Rates Report, September 2009*

The amount of greenhouse gas reductions from recovery is significant. Recycling, in particular, is an important tool to reduce greenhouse gas emissions. Recycling cardboard produces the greatest benefit with nearly 1.32 million ton of

CO2 equivalent, followed by paper with a little more than 800,000 tons, scrap metal with 550,000 tons and aluminum with 448,000 tons. –*2008 DEQ Oregon Material Recovery and Waste Generation Rates Report, September 2009*

By recycling all of its paper, plastic, and corrugated waste generated in a year, an office building of 7,000 workers could reduce greenhouse gas emissions by 1,200 metric tons of carbon equivalent. This is equivalent to taking 900 cars off the road in one year. –*Environmental Protection Agency, “Solid Waste and Emergency Response,” EPA 530-F-02-034, 2002*

[www.epa.gov/osw](http://www.epa.gov/osw)

In 2000, the national recycling rate of 30 percent saved the equivalent of more than five billion gallons of gasoline, reducing dependence on foreign oil by 114 million barrels. –*EPA, “Resource Conservation Challenge: Campaigning Against Waste,” EPA 530-F-02-033, 2002*

There are more than 4,500 products available with recycled content. –*Center for a New American Dream, May 2001*

[www.newdream.org/procure/factoids.html](http://www.newdream.org/procure/factoids.html)

In 2002, the almost 900,000 tons of paper, glass, metals and plastics recycled in the Metro region had an average economic value of almost \$64 million. –*Metro, internal report, 2005*

<http://www.metro-region.org/article.cfm?articleID=5561>

Incinerating 10,000 tons of waste creates one job; landfilling 10,000 tons of waste creates six jobs; recycling 10,000 tons of waste creates 36 jobs. –*EPA, “Resource Conservation Challenge: Campaigning Against Waste,” EPA 530-F-02-033, 2002*

In 2000, the U.S. recycling industry employed over 1.1 million people and generated an annual payroll of \$37 billion, representing a significant force in the country’s economy, job creation and economic development. –*National Recycling Coalition, “US Recycling Economic Information Study, Final Report,” Prepared for the National Recycling Coalition by R.W. Beck Inc., July 2001*

<http://www.nrc-recycle.org/resources/rei/docs/fullreireport.pdf>

The global recycling industry employs more than 1.5 million people. –*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, I SBN: 0-393-32539-3*

### **Glass:**

An estimated 6.4 million tons of glass beverage bottles were wasted in 2002. –*Container Recycling Institute, “The 10 cent Incentive to Recycle,” Jenny Gitlitz and Pat Franklin, 3<sup>rd</sup> Edition, February 2004*

The average American generates 79.5 pounds of glass per year.

–*Environmental Protection Agency, “Municipal Solid Waste In the United States: 2000 Facts and Figures,” 2002*

[www.epa.gov/osw](http://www.epa.gov/osw)

It takes approximately one million years for a glass bottle to break down at the landfill. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

In 2003, glass accounted for 5 percent of the total materials discarded (by weight) in the United States. –*EPA, “Municipal Solid Waste in the United States: 2003 Facts and Figures,” 2003*

<http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw05rpt.pdf>

The U.S. glass recovery rate for 2003 was 19 percent. –*Environmental Protection Agency, “Municipal Solid Waste In the United States: 2003 Facts and Figures,” 2003*

<http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw05rpt.pdf>

Recovery rates for glass in other countries in 2001: Austria: 83 percent, Sweden:

84 percent, Germany: 87 percent, Belgium and Norway: 88 percent, Finland: 91 percent and Switzerland: 92 percent. –*European Glass Container Federation (FEVE), February 2003*

[www.affaldsinfo.dk/user/1007/4379.pdf](http://www.affaldsinfo.dk/user/1007/4379.pdf) (page 36)

Only amber glass bottles are manufactured from recycled bottles in Oregon; Oregon's other colored recycled glass is trucked to plants in either Washington or California for glass re-manufacture. –*Metro, internal document, 2005*

Producing glass from virgin materials requires 30 percent more energy than from crushed, used glass. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

Used glass or "cullet" melts at a lower temperature than raw materials, reducing the demand for energy and lowering production costs. –*Clean Washington Center, "Saving Energy with Cullet and Preheating," November 1996*

[www.cwc.org/gl\\_bp/gbp3-0104.htm](http://www.cwc.org/gl_bp/gbp3-0104.htm)

While a glass bottle can have up to 70 percent recycled content, U.S.-produced bottles only contain an average of 26 percent recycled content. –*Waste Age, Chaz Miller, "Profiles in Garbage: Glass Containers," February 2003*

[www.wasteage.com/ar/waste\\_glass\\_containers/index.htm](http://www.wasteage.com/ar/waste_glass_containers/index.htm)

Recycling one ton of glass saves the equivalent of 10 gallons of oil. –*Wisconsin Department of Natural Resources, "Recycling Facts and Figures," PUBL CE-163, 2002*

[www.dnr.state.wi.us/org/aw/wm/publications/](http://www.dnr.state.wi.us/org/aw/wm/publications/)

The energy saved from recycling one glass bottle will operate a 100-watt light bulb for four hours. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

The energy saved from recycling one wine bottle will operate a 100-watt light bulb for three hours. –*Calculation, courtesy of Robert Kirby, manager for R & D, Sandhill Industries, June 2003*

[kirbgood@aol.com](mailto:kirbgood@aol.com)

Glass container companies employ over 20,000 people in glass manufacturing plants in 24 states. –*Glass Packaging Institute*

<http://www.gpi.org/>

### **Household Hazardous Waste:**

According to national estimates, each home contains from three to eight gallons of hazardous materials in kitchens, bathrooms, garages, and basements. Examples include pesticides, herbicides, poisons, corrosives, solvents, fuels, paints, motor oil, antifreeze, and mercury and mercury-containing wastes.

<http://www.deq.state.or.us/lq/sw/hhw/index.htm>

The three most dangerous cleaning products in the average home are drain cleaners, oven cleaners and acid-based toilet cleaners, and should be labeled "DANGER. Corrosive." –*Washington Toxics Coalition, "Safer Cleaning Products," Philip Dickey* <http://www.watoxics.org/publications>

The outcome of improper use and handling of household hazardous wastes is the potential contamination of surface water, groundwater, and air resulting in exposure to humans. <http://www.deq.state.or.us/lq/sw/hhw/index.htm>

520 of Oregon's largest hazardous waste generators, also called "regulated generators," generated 114 million pounds of hazardous waste in 2005. <http://www.deq.state.or.us/lq/pubs/factsheets/hw/SB103HWFee.pdf>

Pesticides contain both "active" ingredients that kill pests and so-called "inert" ingredients, which may be identified as "other" ingredients. The inert ingredients often make up 90 percent of a product and can sometimes be more hazardous than the active ingredients. –*Washington Toxics Coalition*

The term *pesticide* includes many kinds of ingredients used in products, such as

insecticides, fungicides, rodenticides, insect repellants, weed killers, antimicrobials, and swimming pool chemicals, which are designed to prevent, destroy, repel, or reduce pests of any sort. <http://www.epa.gov/pesticides/factsheets/stprf.htm>

The Environmental Protection Agency estimates that 10,000-20,000 physician-diagnosed pesticide poisonings occur each year among the approximately 3,380,000 U.S. agricultural workers. Agricultural workers, groundskeepers, pet groomers, fumigators, and a variety of other occupations are at risk for exposure to pesticides including fungicides, herbicides, insecticides, rodenticides, and sanitizers. <http://www.cdc.gov/niosh/topics/pesticides/>

The Harvard School of Public Health examined 72 children ages 7-8 in a flower-growing region of Ecuador whose mothers were exposed to pesticides during pregnancy and found they had developmental delays of up to four years on aptitude tests. -"Cut Flower Industry Relies Heavily on Pesticide Use" *International Herald Tribune*, Feb. 2007, <http://www.iht.com/articles/ap/2007/02/12/america/LA-GEN-Colombia-Toxic-Flowers.php>

Cotton cultivation comprises only 3 percent of global acreage, but accounts for 25 percent of world insecticide use. -*Beacon Press, Juliet Schor and Betsy Taylor, "Sustainable Planet: Solutions for the 21<sup>st</sup> Century," 2003*

Toxic wastes from steel mills, paper mills and other industries are allowed to be used in fertilizers, which can contain the highly toxic heavy metals lead, cadmium and arsenic, as well as dioxins. Information on metals levels is not widely available or shown on product labels. -*Washington Toxics Coalition, "Holding the Bag, How Toxic Waste in Fertilizers Fails Farmers and Gardeners," 2001* <http://www.watoxics.org/content/pdf/HoldingtheBagreport2.pdf>

In July of 2002, the US EPA finalized standards for regulating the practice of turning zinc-bearing industrial waste into fertilizer used on farms, gardens and lawns and limiting the level of contaminants allowed. The rule falls short by not requiring consumer labeling of fertilizers made from hazardous waste. Furthermore, the rule covers only zinc micronutrient fertilizers made from waste, leaving the question of the safety of heavy metal contaminants in other types of fertilizers unanswered. -*Children's Health Environmental Coalition, "New Fertilizer Standards will Regulate Use of Toxic Waste," August 2002, http://www.chechnet.org/HealththeHouse/education/articles-detail.asp?Main\_ID=486*

In 2005, ten Washington residents agreed to have their hair, blood, and urine tested for the presence of toxic chemicals. The study revealed that every participant had at least 26 and as many as 39 toxic chemicals in his or her body. -*A Toxic-Free Legacy Coalition, "Pollution in People: A Study of Toxic Chemicals in Washingtonians," May 2006. http://www.pollutioninpeople.org/results/download*

Monitoring by the U.S. Geological Survey and the Washington State Department of Ecology has found 23 different pesticides in small streams around Puget Sound. More pesticides were found in urban streams than agricultural streams. -*Washington Toxics Coalition, 2001*

Surface-water testing shows five major watersheds in Pacific states are contaminated by pesticides. The U.S. Geological Survey detected 35 or more pesticides in each of the five watersheds studied in the region. Sixteen of these pesticides contaminate the region's watersheds at harmful levels. -*Washington Toxics Coalition and Northwest Coalition for Alternatives to Pesticides, "Poisoned Waters, Pesticide Contamination of Waters and Solutions to Protect Pacific Salmon," Pollyanna Lind, January 2002* <http://www.watoxics.org/files/poisoned-waters.pdf>

Testing done by the Centers for Disease Control found pesticides in 100% of the people who had both blood and urine tested. The average person in this group

carried a toxic cocktail of 13 of the 23 pesticides that were analyzed. Many of the pesticides found in the test subjects have been linked to serious short- and long-term health effects including infertility, birth defects and childhood and adult cancers. -*Pesticide Action Network*, "Chemical Trespass: Pesticides in Our Bodies and Corporate Accountability," May 2004, <http://www.panna.org/docsTrespass/chemicalTrespass2004.dv.html>

Children who have been exposed to household insecticides and professional extermination methods within the home are three to seven times more likely to develop non-Hodgkin's lymphoma compared with children who have not been exposed to pesticides. -*American Cancer Society* [http://www.cancer.org/docroot/NWS/content/NWS\\_1\\_1x\\_Pesticides\\_May\\_Increase\\_Risk\\_of\\_Non\\_Hodgkin%E2%80%99s\\_Lymphoma\\_in\\_Children.asp](http://www.cancer.org/docroot/NWS/content/NWS_1_1x_Pesticides_May_Increase_Risk_of_Non_Hodgkin%E2%80%99s_Lymphoma_in_Children.asp)

Women who are regularly exposed to pesticides in the workplace are twice as likely to develop a common form of brain cancer. -*National Cancer Institute*, "Occupational Exposure to Pesticides and Risk of Adult Brain Tumors," September 2008 <http://www.medscape.com/viewarticle/578419>

On average, 18 pounds of pesticides are used, per acre, per year on golf courses. This compares to 2.7 pounds used, per acre, per year, in agriculture. - *Worldwatch Institute*, "Matters of Scale: Planet Golf," March/April 2004 <http://www.worldwatch.org/pubs/mag/2004/172/mos>

A common chemical used in pyrethroid insecticides (3-phenozybenzoic acid) is found in much of the U.S. population. -*U.S. Centers for Disease Control and Prevention*, "Third National Report on Human Exposure to Environmental Chemicals," July 2005 [http://www.cdc.gov/exposurereport/pdf/factsheet\\_pyrethroids.pdf](http://www.cdc.gov/exposurereport/pdf/factsheet_pyrethroids.pdf)

About 5 percent of the U.S. population aged 20 years and older has cadmium levels that put them at risk for kidney injury and low bone-mineral density. -*U.S. Centers for Disease Control and Prevention*, "Third National Report on Human Exposure to Environmental Chemicals," July 2005 [http://www.cdc.gov/exposurereport/pdf/factsheet\\_cadmium.pdf](http://www.cdc.gov/exposurereport/pdf/factsheet_cadmium.pdf)

Phthalates are a family of chemicals used in a variety of consumer products such as cosmetics and other personal care products, pesticides, building maintenance products, lubricants, adhesives, film, and medical devices. Data from the Centers for Disease Control show an estimated 5% of women of reproductive age from the general population are contaminated with 75% or more of the amount of just one of the phthalates, DBP, that may begin to impair normal reproductive tract development in their baby boys. -*Health Care Without Harm*, "Aggregate Exposures to Phthalates in Humans," July 2002, <http://www.noharm.org/details.cfm?ID=813&type=document>

Parabens, which are used as preservatives in many thousands of cosmetic, food and pharmaceutical products to which the human population is exposed, were discovered in a sample of 20 breast tumors from women with breast cancer. - "Concentrations of parabens in human breast tumours," *Journal of Applied Toxicology*, Vol. 24, January 2004.

Two ounces of ethylene glycol antifreeze can kill a dog, 1 teaspoon can be lethal to a cat and 2 tablespoons can be hazardous to children. <http://www.seco.noaa.gov/ENV/Factsheets/antifreeze.html>

A chemical used to make polycarbonate plastic, Bisphenol-A, is one of the top 50 chemicals produced in the U.S. and a known hormone disrupter. Polycarbonate plastics are used to make reusable food and beverage containers, including most baby bottles and many five-gallon water jugs. -*National Research Council*,

2000

Exposure to phthalates is widespread in the U.S. Phthalates are “plasticizers,” the name given to a group of chemicals that soften and increase the flexibility of plastics and vinyl, which have demonstrated reproductive toxicity in animal studies. –U.S. Centers for Disease Control and Prevention, “Third National Report on Human Exposure to Environmental Chemicals,” July 2005

<http://www.cdc.gov/exposurereport/3rd/pdf/thirdreport.pdf>

The average level of bromine-based fire retardants in the milk of 20 first-time mothers was 75 times the average found in recent European studies. Brominated fire retardants (found in many consumer products such as children’s pajamas, mattresses and major electronics) impair attention, learning, memory, and behavior in laboratory animals at surprisingly low levels. The most sensitive time for toxic effects is during periods of rapid brain development. –Environmental Working Group, “Mothers’ Milk Record Levels of Toxic Fire Retardants Found in American Mothers’ Breast Milk,” Sonya Lunder and Renee Sharp, September 2003

[http://www.ewg.org/reports\\_content/mothersmilk/pdf/mothersmilk\\_final.pdf](http://www.ewg.org/reports_content/mothersmilk/pdf/mothersmilk_final.pdf)

An average of 200 industrial chemicals and pollutants were found in umbilical cord blood from 10 randomly selected babies born in August and September of 2004 in U.S. hospitals. –Body Burden: The Pollution in Newborns, Environmental Working Group, 2005

<http://www.ewg.org/reports/bodyburden2/>

The percentage of children aged 1 to 5 years with elevated blood lead levels has decreased from 4.4 percent in the early 1990s to 1.6 percent for the period between 1999 and 2002 due to federal programs to reduce lead emissions and exposure. –U.S. Centers for Disease Control and Prevention, “Third National Report on Human Exposure to Environmental Chemicals,” July 2005

<http://www.cdc.gov/exposurereport/3rd/pdf/thirdreport.pdf>

Nearly 6 percent of women of childbearing age in the U.S. have levels of mercury close to those associated with causing neurodevelopmental effects in a fetus. – U.S. Centers for Disease Control and Prevention, “Third National Report on Human Exposure to Environmental Chemicals,” July 2005

<http://www.cdc.gov/exposurereport/3rd/pdf/thirdreport.pdf>

Mercury emissions from factories and power plants travel thousands of miles in the air and drop into oceans and lakes. Some mercury found in rain may have come from sources as far as 1,550 miles away. –The Agency for Toxic Substance and Disease Registry, “Mercury: Toxicological Profile for Mercury,” March 1999, Section 5.3.1

<http://www.atsdr.cdc.gov/toxprofiles/tp46-c5.pdf>

Nine chlorine factories are among the nation’s largest sources of mercury in 2002. Each factory reported emitting an average of 1,097 pounds of mercury into the air in 2002, five times more than the average coal-fired power plant. –Oceana, “Poison Plants: Chlorine Factories are a Major Source of Global Mercury,” Dawn Winalski, Sandra Mayson, Jacqueline Savitz January 2005

<http://www.oceana.org/index.php?id=686>

#### **Metals:**

In 2003, metals accounted for 8 percent of the total materials discarded in the United States. –EPA, “Municipal Solid Waste in the United States: 2003 Facts and Figures,” 2003

Gold mining is among the most polluting industries in the world, generating a staggering 79 tons of mine wastes for every ounce of gold produced. –Worldwatch Magazine, “Moving Glaciers to Mine Gold?” Payal Sampat, September/October 2005

[www.worldwatch.org/pubs/mag/2005/185](http://www.worldwatch.org/pubs/mag/2005/185)

Some 220 tons of earth are excavated to produce just a ton of copper. –  
*Worldwatch Institute, Payal Sampat, "From Rio to Johannesburg: Mining Less in a Sustainable World," Aug. 6, 2002*

[www.worldwatch.org/press/news/2002/08/06/](http://www.worldwatch.org/press/news/2002/08/06/)

Recycling copper takes seven times less energy than processing ore, but only 13 percent of copper consumed worldwide comes from recycled sources. –  
*Worldwatch Institute, Payal Sampat, "From Rio to Johannesburg: Mining Less in a Sustainable World," Aug. 6, 2002*

[www.worldwatch.org/press/news/2002/08/06/](http://www.worldwatch.org/press/news/2002/08/06/)

Recycling steel and tin cans saves between 60 and 74 percent of the energy used to produce them from raw materials. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

Recycling one pound of steel saves enough energy to power a 60-watt light bulb more than 26 hours. –*Oregon DEQ, "Rethinking Recycling: An Oregon Waste Reduction Curriculum," 2001*

[www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html](http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html)

Every ton of steel recycled saves 2,500 pounds of iron ore, 1,400 pounds of coal and 120 pounds of limestone. –*Steel Recycling Institute, 2000*

[www.recycle-steel.org/index2.html](http://www.recycle-steel.org/index2.html)

Recycling one ton of steel reduces air pollution by 86 percent and water pollution by 76 percent and saves 74 percent energy and 40 percent of the water that would have otherwise been used. It also reduces the need for virgin materials by 90 percent. –*Oregon DEQ, "Rethinking Recycling: An Oregon Waste Reduction Curriculum," 2001*

[www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html](http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html)

One ton of recycled steel saves the energy equivalent of 3.6 barrels of oil and 1.49 tons of iron ore over the production of new steel. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

More than 5,400 BTU of energy are conserved for every pound of steel recycled. –  
*Environmental Protection Agency, "Resource Conservation Challenge: Making the Connection with Solid Waste Facts and Figures," EPA 530-F-02-034, 2002*

Enough energy is saved annually by recycling steel in the U.S. to supply the city of LA with electric for almost 10 years. –*Environmental Protection Agency, "Resource Conservation Challenge: Making the Connection with Solid Waste Facts and Figures," EPA 530-F-02-034, 2002*

Collection, crushing and melting of scrap metal back into new production makes steel the second most recycled material in the U.S. (asphalt pavement is the first). –*Sustainable Industries Journal Northwest, "Steel recyclers feverish to feed China's demand," April 2004 and Sustainable Industries Overview, 2004 Edition*

#### Oil:

Two hundred million gallons of used oil are improperly disposed of each year. –  
*Environmental Protection Agency, "Municipal Solid Waste, Oil," Last Updated, May, 17, 2005*

<http://www.epa.gov/osw/conserve/materials/usedoil/oil.htm>

Just one gallon of used oil has the potential to contaminate up to one million gallons of drinking water. –*"The Importance of Recycling Motor Oil," Earth 911*

U.S. consumption of oil in 2008 was almost 300 billion gallons. To meet this demand, last year the U.S. produced over 75 billion gallons of crude oil and imported almost 198 billion gallons of crude oil and petroleum products. –*US Energy Information Administration, Petroleum Basic Statistics*

<http://www.eia.doe.gov/basics/quickoil.html>

Extensive laboratory testing and field studies conducted by the National Institute of Standards and Technology, the U.S. Army, the U.S. Department of Energy, the U.S. Postal Service and the EPA concluded re-refined oil is equivalent to virgin oil, passes all prescribed tests, and can even outperform virgin oil. – *Environmental Protection Agency, “2000 Buy-Recycled Series: Vehicular Products,” EPA 530-F-00-016, 2000*

<http://www.epa.gov/osw/consERVE/materials/usedoil/usedoil.htm>

It takes 42 gallons of crude oil, but only 1 gallon of used oil, to produce 2.5 quarts of new, high-quality lubricating oil. – *Environmental Protection Agency, Managing Used Oil: Advice for Small Businesses*

<http://www.epa.gov/osw/consERVE/materials/usedoil/usedoil.htm>

Re-refining used oil takes only about one-third the energy of refining crude oil to lubricant quality. – *Environmental Protection Agency, “Managing Used Oil: Advice for Small Businesses,” EPA 530-F-96-004, 1996*

<http://www.epa.gov/osw/consERVE/materials/usedoil/usedoil.htm>

Recycling just 2 gallons of used oil can generate enough electricity to run the average household for almost 24 hours. – *American Petroleum Institute; Environmental Protection Agency, “Municipal Solid Waste, Oil,” Last Updated, May, 17, 2005*

<http://www.epa.gov/osw/consERVE/materials/usedoil/oil.htm#benefits>

An estimated 380 million gallons of used oil are recycled each year. Recycled used oil can sometimes be used again for the same job or can take on a completely different task. For example, used motor oil can be re-refined and sold at the store as motor oil or processed for furnace fuel oil. – *Environmental Protection Agency, Managing Used Oil: Advice for Small Businesses*

<http://www.epa.gov/osw/consERVE/materials/usedoil/usedoil.htm>

#### **Paper:**

In 2003, paper and paperboard accounted for 35 percent of the total materials discarded in the United States. This is up from 29 percent in 2000. – *EPA, “Municipal Solid Waste in the United States: 2003 Facts and Figures,” 2003*

<http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw05rpt.pdf>

In the metro region, paper accounted for 22 percent of the total materials discarded in 2002 (14 percent was recyclable, while 8 percent was non-recyclable). – *Oregon Department of Environmental Quality, Waste Composition Study, 2002 (draft)*

One ton of paper requires the use of 98 tons of various resources. – *Natural Capitalism; Paul Hawken, Amory and L. Hunter; Lovin Little Brown & Co.; September 1999*

[www.natcap.org/sitepages/pid20.php](http://www.natcap.org/sitepages/pid20.php)

In the United States, we use enough office paper each year to build a 10-foot-high wall that’s 6,815 miles long, or two and a half times the distance from New York to Los Angeles. – *Wisconsin Department of Natural Resources, “Recycling Facts and Figures,” PUBL CE-163, 2002*

[www.dnr.state.wi.us/org/aw/wm/publications/](http://www.dnr.state.wi.us/org/aw/wm/publications/)

In 2002, United States per capita consumption of paper and paperboard was 677 pounds (308 kg). This is down from 728 pounds (331 kg) in 2000. – *World Resources Institute, (with information from the Food and Agriculture Organization of the United Nations), 2003*

[earthtrends.wri.org/index.cfm](http://earthtrends.wri.org/index.cfm)

Demand for paper and paperboard products is growing rapidly. Globally, paper consumption increased by a factor of 20 in the 20th century and has more than tripled over the past 30 years. – *World Resource Institute, “From Forests to Floorboards: Trends in Industrial Roundwood Production and Consumption,”*

*Emily Matthews, Adapted from PAGE/Forests 2000*

[http://earthtrends.wri.org/features/view\\_feature.cfm?theme=9&fid=6](http://earthtrends.wri.org/features/view_feature.cfm?theme=9&fid=6)

Paper consumption in the industrialized countries is currently about 440 pounds per capita per year in Western Europe compared to more than 660 pounds per capita year in North America. However, total paper and paperboard consumption in Asia already exceeds that in Europe, and is projected to grow nearly 4 percent per year until 2010. This rate of increase would make the region the biggest paper consumer in the world. –*World Resource Institute, “From Forests to Floorboards: Trends in Industrial Roundwood Production and Consumption,” Emily Matthews, Adapted from PAGE/Forests 2000*

[http://earthtrends.wri.org/features/view\\_feature.cfm?theme=9&fid=6](http://earthtrends.wri.org/features/view_feature.cfm?theme=9&fid=6)

Industrialized nations, with 20 percent of the world’s population, consume 87 percent of the world’s printing and writing paper. –*A Common Vision for Transforming the Paper Industry: Striving for Environmental and Social Sustainability, Ratified at The Environmental Paper Summit, Sonoma County, California, November 20, 2000; Source: Klaus Toepfer, Executive Director, United Nations Environment Programme, Keynote Address UNEP’s 7<sup>th</sup> International High Level Seminar on Cleaner Production, 29-30 April 2002*

Global production in the pulp, paper and publishing sector is expected to increase by 77 percent from 1995 to 2020. –*A Common Vision for Transforming the Paper Industry: Striving for Environmental and Social Sustainability, Ratified at The Environmental Paper Summit, Sonoma County, California, November 20, 2000; Source: OECD Environmental Outlook (Paris: OECD, 2001), p. 215*

Every year, the U.S. catalog industry mails some 19.5 billion catalogs, or 71 for every man, woman and child - producing and disposing 3.6 million tons of paper in 2000. –*Environmental Defense, May 2002*

[www.environmentaldefense.org/article.cfm?contentid=2040](http://www.environmentaldefense.org/article.cfm?contentid=2040)

In the U.S. we have lost 95 percent of our old growth forests. –*World Resources Institute, “The Last Frontier Forests: Ecosystems and Economies on the Edge,” 1997; US Forest Service, 1997 Resource Planning Act Assessment, Final Statistics, July 2000*

More than 90 percent of the printing and writing paper made in the U.S. is from virgin tree fiber. –*Worldwatch Institute, “Paper Cuts: Recovering the Paper Landscape,” Abromovits & Mattoon, 1999*

Seventy-five percent of a tree harvested for paper does not wind up as paper product. –*NRDC, “The Upstream Benefits: Reducing Pollution and the Use of Virgin Resources,” February 1997*

[www.nrdc.org/cities/recycling/recyc/chap1.asp](http://www.nrdc.org/cities/recycling/recyc/chap1.asp)

In 1998, 24 percent of globally harvested wood not used for fuel was used to produce paper and paperboard products. –*World Resource Institute, “From Forests to Floorboards: Trends in Industrial Roundwood Production and Consumption,” Emily Matthews, Adapted from PAGE/Forests 2000*

[http://earthtrends.wri.org/features/view\\_feature.cfm?theme=9&fid=6](http://earthtrends.wri.org/features/view_feature.cfm?theme=9&fid=6)

Worldwide, just 10 percent of all paper pulp comes from non-wood sources; in the U.S. the figure is less than one percent. –*Emagazine, “The Paper Chase,” Jim Motavalli, (Accessed 8/05)*

<http://www.emagazine.com/view/?1735&src=>

Industrial wood plantations occupy only about 3 percent of global forest area, but provide about 22 percent of the world’s non-fuel wood supply. –*World Resource Institute, “From Forests to Floorboards: Trends in Industrial Roundwood Production and Consumption,” Emily Matthews, Adapted from PAGE/Forests 2000*

[http://earthtrends.wri.org/features/view\\_feature.cfm?theme=9&fid=6](http://earthtrends.wri.org/features/view_feature.cfm?theme=9&fid=6)

Old-growth and secondary-growth forests produce 78 percent of all lumber, pulp

and other industrial wood, forest plantations provide the rest (22 percent). – *World Resources Institute, Gregory Mock, “How Much Do We Consume?” June 2000*

The virgin pulp and paper industry is the largest industrial process water user in the U.S. Approximately Annually, 1,551 billion gallons of wastewater are generated by pulp, paper, and paperboard manufacturers. –*NRDC, “The Upstream Benefits: Reducing Pollution and the Use of Virgin Resources,” February 1997*

[www.nrdc.org/cities/recycling/recyc/chap1.asp](http://www.nrdc.org/cities/recycling/recyc/chap1.asp)

According to the Federal Network on Sustainability, the U.S. pulp and paper industry is the second largest consumer of energy and uses more water to produce a ton of product than any other industry. –*Sustainable Industries Journal, “Recycling’s Pushed ‘Reduce, Reuse’ Out of Equation,” commentary by Debra Taevs, June 2005*

One ton of uncoated virgin (non-recycled) printing and office paper uses 24 trees. – *Conservatree, September 2002*

[www.conservatree.com/learn/Enviro\\_Issues/TreeStats.shtml](http://www.conservatree.com/learn/Enviro_Issues/TreeStats.shtml)

One ton of 100 percent virgin (non-recycled) newsprint uses 12 trees. – *Conservatree, September 2002*

[www.conservatree.com/learn/Enviro\\_Issues/TreeStats.shtml](http://www.conservatree.com/learn/Enviro_Issues/TreeStats.shtml)

One ton of coated, higher-end virgin magazine paper (used for magazines like National Geographic and many others) uses a little more than 15 trees (15.36). – *Conservatree, September 2002*

[www.conservatree.com/learn/Enviro\\_Issues/TreeStats.shtml](http://www.conservatree.com/learn/Enviro_Issues/TreeStats.shtml)

One ton of coated, lower-end virgin magazine paper (used for news magazines and most catalogs) uses nearly eight trees (7.68). –*Conservatree, September 2002*

[www.conservatree.com/learn/Enviro\\_Issues/TreeStats.shtml](http://www.conservatree.com/learn/Enviro_Issues/TreeStats.shtml)

One tree makes 16.67 reams of copy paper or 8,333.3 sheets. –*Conservatree, September 2002*

[http://www.conservatree.com/learn/Enviro\\_Issues/TreeStats.shtml](http://www.conservatree.com/learn/Enviro_Issues/TreeStats.shtml)

While paper can be recycled using fewer than a dozen nonhazardous chemicals and bleaching solutions, most virgin pulp and paper is made using literally hundreds of highly corrosive and hazardous chemicals, including chlorine. –*Natural Resources Defense Council, “The Upstream Benefits: Reducing Pollution and the Use of Virgin Resources,” February 1997*

[www.nrdc.org/cities/recycling/recyc/chap1.asp](http://www.nrdc.org/cities/recycling/recyc/chap1.asp)

Recycling newsprint results in almost 40 percent reduction in total energy demand compared with virgin fiber use. –*Energy Implications Of Integrated Solid Waste Management Systems, prepared for the New York State Energy Research And Development Authority (Boston: Tellus Institute, 1992)*

Producing recycled paper requires about 60 percent of the energy used to make paper from virgin wood pulp. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

Manufacturing one ton of office and computer paper with recycled paper stock can save between 3,000 and 4,000 kilowatt-hours more than the same ton of paper made with virgin wood products. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

Recycling one ton of newspaper saves the equivalent of 100 gallons of gasoline. – *Wisconsin Department of Natural Resources, “Recycling Facts and Figures,” PUBL CE-163, 2002*

[www.dnr.state.wi.us/org/aw/wm/publications/](http://www.dnr.state.wi.us/org/aw/wm/publications/)

Producing recycled paper causes 74 percent less air pollution, 35 percent less water pollution, and creates 5 times the number of jobs than producing virgin pa-

per. –*Center for a New American Dream, May 2001*

[www.newdream.org/procure/factoids.html](http://www.newdream.org/procure/factoids.html)

Recycling one ton of newspaper is equivalent to not releasing 2.5 tons of carbon dioxide into the air. –*Oregon DEQ, “Rethinking Recycling: An Oregon Waste Reduction Curriculum,” 2001*

[www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html](http://www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html)

Recovered paper currently accounts for 37.7 percent of the paper industry’s fiber needs, up appreciably from 26.6 percent in 1990. –*American Forest and Paper Association, 2002*

Americans set aside 47.6 million tons of paper to be recycled in 2002, an increase of 18.5 million tons, or 64 percent, since 1990. –*American Forest and Paper Association, 2002*

The national recovery rate for corrugated cardboard approached 74 percent in 2002. –*American Forest and Paper Association, 2002*

Regionally, 72 percent of all recyclable paper in the Portland metro area was recovered. The most common recycled paper is newspaper. –*Metro, Internal Document, 2005*

Almost 85 percent of recycled residential paper (including magazines, newspapers and junk mail) can now be used by two of Oregon’s paper mills in Oregon City and Newberg to create newsprint. –*Metro, Internal Document, 2005*

The Metro Region recycled 436,983 tons of paper in 2003, which is the equivalent of stacking paper on a football field to the height of 2/3 mile. The U.S. recycled 49.3 millions tons of paper in 2003, which would be a football field stacked with paper to a height of 67 miles. –*Metro, Internal Document, 2005*

#### **Plastic:**

Plastic generation increased tenfold from 1960 to 2000. –*EPA, “Municipal Solid Waste in the United States: 2000 Final Report,” EPA 530-R-02-001M, 2000*

[www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm#links](http://www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm#links)

Electronics, health care, construction, transportation, automotive, and food packaging industries use the most plastic products. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*

<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

It’s estimated that Americans go through about a hundred billion plastic bags a year, or 360 bags per year for every man, woman and child in the country. –*Garbage Land: On the Secret Trail of Trash, Elizabeth Royte, Little, Brown and Company, 2005*

Five 2-liter recycled PET bottles produce enough fiberfill to make a ski jacket. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

Toothbrushes represent more than 100 million pounds of plastic waste each year. –*Office of the Federal Enviro. Executive, White House task force on recycling, “Recycling for the Future,” June 1999*

In 2003, plastics accounted for 11 percent of the total materials discarded in the U.S. by weight. –*EPA, “Municipal Solid Waste in the United States: 2003 Facts and Figures,” 2003*

<http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw05rpt.pdf>

The 2003 recovery rate for plastic soda, water and other PET (#1) bottles fell for the eighth consecutive year since 1995. The recovery rate was 39.7 percent in 1995 and 19.6 percent in 2003. –*National Association for PET Container Recycling (NAPCOR), 2003 Report on Post Consumer PET Container Recycling Activity, Final Report*

[http://www.napcor.com/2003\\_Report.pdf](http://www.napcor.com/2003_Report.pdf)

In 2002, only 11 percent of plastic water bottles were recycled in the U.S. –

*Garbage Land: On the Secret Trail of Trash, Elizabeth Royte, Little, Brown and Company, 2002*

Bottled water is the single largest growth area among all beverages. Per capita consumption has more than doubled over the last decade. –*Beverage Marketing Corporation, 2005*

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

About 1.3 million tons of PET (#1) bottles went into the trash or were littered in 2002, more than double the amount wasted in 1995. –*Container Recycling Institute, “The 10 cent Incentive to Recycling,” Jenny Gitlitz and Pat Franklin, 3<sup>rd</sup> Edition, 2004*

Plastics used in durable goods (such as cars, electronics, and appliances) account for the largest proportion by weight of plastics in U.S. municipal solid waste. –*Environmental Protection Agency, “Fact Sheet, Recycling the Hard Stuff,” EPA 530-F-02-023, July 2002*

<http://www.epa.gov/>

Although recycling is the most common method of plastic waste pollution prevention, less than one percent of all plastics products are recycled in the U.S. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*

<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

Of the estimated 22.4 million tons of plastics produced in the United States in 1998, only about 5.4 percent were recovered for recycling. –*Environmental Protection Agency, “Fact Sheet, Recycling the Hard Stuff,” EPA 530-F-02-023, July 2002*

<http://www.epa.gov/>

The recycling rate for rigid plastic containers in Oregon climbed slightly in 2003 to 27 percent. –*Oregon Department of Environmental Quality, “Rigid Plastic Container Recycling Rate Report,” 2003*

<http://www.deq.state.or.us/wmc/solwaste/documents/rpc2003-05reprot.pdf>

Producing new plastic from recycled material uses only two-thirds of the energy required to manufacture it from raw materials. –*Environmental Protection Agency, 2002*

[www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm)

The number of plastics recycling businesses has nearly tripled over the past several years, with more than 1,700 businesses handling and reclaiming post-consumer plastics. –*American Plastics Council, 2004*

In 2003, U.S. manufacturers consumed 552 million pounds of post-consumer recycled PET (#1) plastic. Fiber product manufacturers (which include carpet makers) used 54 percent of the material, followed by food and beverage bottle manufacturers at 19 percent, and the strapping industry at 14 percent. Sheet and film producers, nonfood bottle makers and engineered resin producers used 6 percent, 4 percent and 2 percent respectively. –*National Association for PET Container Recycling (NAPCOR), 2003 Report on Post Consumer PET Container Recycling Activity, Final Report*

[http://www.napcor.com/2003\\_Report.pdf](http://www.napcor.com/2003_Report.pdf)

Forty-five percent of recycled HDPE (#2) bottles go into making new bottles. The plastic pipe industry consumes 14 percent of the recycled HDPE. Other strong markets for HDPE are lawn and garden products (such as edging), plastic lumber (decks, benches, picnic tables), film and sheet, and a variety of injection molded products (buckets, crates and automobile parts). –*American Plastics*

*Council, 2002 National Post-Consumer Plastics Recycling Report*

In an EPA ranking of the twenty chemicals whose production generates the most total hazardous waste, five of the top six are chemicals commonly used by the plastic industry. –*Garbage Land: On the Secret Trail of Trash, Elizabeth Royte, Little, Brown and Company, 2005*

According to the EPA Toxic Release Inventory Public Data Release for 2002, the manufacture of rubber and plastics products industry released over 71 million pounds of pollutants. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*  
<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

The plastics industry is second only to the chemical industry in generating toxic releases that damage the ozone layer, emitting more than 12 million pounds of ozone depleting chemicals in 1994. –*Environmental Protection Agency, Toxics Release Inventory, page 196, 1994*

Production of low-density polyethylene (used to make many kinds of packaging) generates 62-92 pounds of organic pollutants per ton of product manufactured. In 1995, this amounted to approximately 500 million pounds of pollutants that needed to be burned, recycled or discharged. –*Chemical and Engineering News, June 24, 1996*

In 1999 marine researcher Charles Moore found six pounds of floating plastic for every pound of naturally occurring zooplankton in the North Pacific. He repeated the study in 2002 and found ten pounds of plastic for each pound of zooplankton. –*Garbage Land: On the Secret Trail of Trash, Elizabeth Royte, Little, Brown and Company, 2005*

Each year in the North Pacific alone, nearly 100,000 marine mammals are killed by getting tangled in or ingesting plastic debris. –*World Watch, March/April 2002*  
[www.worldwatch.org/mag/2002/15-02.html](http://www.worldwatch.org/mag/2002/15-02.html)

Plastic pellets, which are unintentionally released into oceans during production, transport or disposal, can carry levels of pollution up to one million times more concentrated than that of surrounding seawater. –*World Watch, March/April 2002*  
[www.worldwatch.org/mag/2002/15-02.htm](http://www.worldwatch.org/mag/2002/15-02.htm)

Polyvinyl chloride, commonly known as "PVC" or "vinyl," is one of the most common synthetic materials. Dioxin (the most potent carcinogen known), ethylene dichloride and vinyl chloride are unavoidably created in production of PVC and can cause severe health problems. –*Healthy Building Network, “PVC in Buildings, Hazards and Alternatives” 2003*  
[http://www.healthybuilding.net/pvc/HBN\\_FS\\_PVC\\_in\\_Buildings.pdf](http://www.healthybuilding.net/pvc/HBN_FS_PVC_in_Buildings.pdf)

According to the U.S. Environmental Protection Agency, the top three sources of dioxin emissions are municipal solid waste incinerators, backyard burn barrels and medical waste incinerators. This is due primarily to the amount of PVC in the waste stream. –*Center for Health, Environment and Justice, “PVC and Solid Waste Disposal” (Accessed 8/05)*  
<http://www.safealternatives.org/solidwaste.html>

Over 14 billion pounds of PVC are currently produced each year in North America (about 75 percent is used in construction materials). –*Healthy Building Network, “PVC in Buildings, Hazards and Alternatives” 2003*  
[http://www.healthybuilding.net/pvc/HBN\\_FS\\_PVC\\_in\\_Buildings.pdf](http://www.healthybuilding.net/pvc/HBN_FS_PVC_in_Buildings.pdf)

The multitudes of additives in PVC make large-scale post consumer recycling nearly impossible. The Association of Post Consumer Plastics Recyclers declared it a contaminant in 1998. –*Healthy Building Network, “PVC in Buildings, Hazards and Alternatives” 2003*

[http://www.healthybuilding.net/pvc/HBN\\_FS\\_PVC\\_in\\_Buildings.pdf](http://www.healthybuilding.net/pvc/HBN_FS_PVC_in_Buildings.pdf)

### Textiles:

An estimated 10.6 million tons of textiles were generated in 2003, or 4 percent of total municipal solid waste (MSW) generation. –*Environmental Protection Agency, “Municipal Solid Waste, Textiles,” Last updated Tuesday, October 29, 2002, (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/textile.htm>

The textile recycling industry annually prevents 2.5 billion pounds of postconsumer textile product waste from entering the solid waste stream, according to the Council for Textile Recycling. This 2.5 billion pounds of postconsumer textile waste represents 10 pounds for every person in the United States. –*Environmental Protection Agency, “Municipal Solid Waste, Textiles,” Last updated Tuesday, October 29, 2002 (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/textile.htm>

Approximately 500 million pounds of textiles collected are used by the collecting agency, with the balance sold to textile recyclers, including used clothing dealers and exporters, wiping rag graders, and fiber recyclers. –*Environmental Protection Agency, “Municipal Solid Waste, Textiles,” Last updated Tuesday, October 29, 2002, (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/textile.htm>

Nearly half of textiles discarded are contributed to charities, according to an estimate from the Council for Textile Recycling. Charities either give away clothes or sell them at discounted prices in secondhand stores. About 61 percent of the clothes recovered for second-hand use are exported to foreign countries. –*Environmental Protection Agency, “Municipal Solid Waste, Textiles,” Last updated Tuesday, October 29, 2002, (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/textile.htm>

If all available means of reuse and recycling are utilized for textiles, the remaining solid waste that needs to be disposed of can be as low as 5 percent. Some recovered textiles become wiping and polishing cloths. Cotton can be made into rags or form a component for new high-quality paper. Other types of fabric are reprocessed into fibers for car seat stuffing, upholstery, insulation, and even building materials. Buttons and zippers are stripped off for reuse. –*Environmental Protection Agency, “Municipal Solid Waste, Textiles,” Last updated Tuesday, October 29, 2002, (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/textile.htm>

More than 500 textile-recycling companies handle the stream of used textiles in the United States. As a whole, the industry employs approximately 10,000 semi-skilled workers at the primary processing level and creates an additional 7,000 jobs at the final processing stage. Primary and secondary processors account for annual gross sales of \$400 million and \$300 million, respectively. –*Environmental Protection Agency, “Municipal Solid Waste, Textiles,” Last updated Tuesday, October 29, 2002, (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/textile.htm>

Trade in garment and textiles is worth \$350 billion, making up more than six percent of total world trade, and many countries are almost totally dependent on the industry for export earnings and manufacturing jobs. In Bangladesh for example, garments and textiles are responsible for 95% of the country's industrial goods exports, 1.8 million jobs and probably another 2 million workers who depend on the sector in an indirect way for their livelihoods. –*Ethical Trading Initiative, “ETI Forum, MFA Phase-Out, Who gains? Who loses?” ETI Seminar, 27 October 2004*

<http://www.ethicaltrade.org/Z/lib/2004/10/sem-mfa/ETI-semrep-MFAphaseout->

[200410.pdf](#)

Since 1991 the price of apparel and footwear has fallen in the U.S. At the same time the cost of the majority of consumer goods rose significantly. Between 1993 and 2003 the Consumer Price Index rose 28 percent while apparel saw a decline in price of 10 percent. –*Sustainable Planet: Solutions for the 21<sup>st</sup> Century*, “Cleaning the Closet: Toward a New Fashion Ethic,” Juliet Schor, November 2002

<http://www2.bc.edu/~schorj/closet.pdf>

In 2000, the U.S. imported 12.65 billion pieces of apparel. It produced another 5.3 billion domestically. That’s roughly 47.7 pieces per person, per year. –*Sustainable Planet: Solutions for the 21<sup>st</sup> Century*, “Cleaning the Closet: Toward a New Fashion Ethic,” Juliet Schor, November 2002

<http://www2.bc.edu/~schorj/closet.pdf>

To grow the fiber for one cotton diaper requires 105.3 gallons of water, one T-shirt needs 256.6 gallons of water, one bath towel needs 401.4 gallons of water, a man's dress shirt requires 414.5 gallons of water, and 987 gallons of water are required for one pair of jeans. –*California Cotton Ginners and Growers Associations*, “Cotton Facts,” (Accessed, 8/05)

[http://www.ccgga.org/cotton\\_information/cotton.html](http://www.ccgga.org/cotton_information/cotton.html)

<http://www2.bc.edu/~schorj/closet.pdf>

The various stages of textile production (from spinning, weaving and knitting, to dyeing and finishing) require enormous energy and water use. For example, 26.5 gallons of water are needed to process 2.2 of textiles. –*Sustainable Planet: Solutions for the 21<sup>st</sup> Century*, “Cleaning the Closet: Toward a New Fashion Ethic,” Juliet Schor, November 2002

<http://www2.bc.edu/~schorj/closet.pdf>

Together, the U.S., Brazil, China, and India currently account for 60 percent of global cotton production. –*Pesticide Action Network North American*, “Control of Cotton: The Patenting of Transgenic Cotton,” Hope Shand, *Global Pesticide Campaigner*, Volume 3, Number 4, November 1993

<http://www.panna.org/resources/pestis/PESTIS.burst.590.html>

In 2001, U.S. cotton growers produced 20 million bales weighing 480 pounds each. U.S. textile manufacturers use 8 to 9 million bales of cotton annually, enough to make nearly 2 billion pairs of jeans. –*National Cotton Women’s Committee*, “Cotton Counts” (Accessed 8/05)

<http://www.cotton.org/pubs/cottoncounts/resources.cfm>

Cotton is one of the largest consumers of insecticides. Globally, twenty five percent of all insecticides consumed each year are used on cotton. –*Pesticides Action Network UK*, “Pesticides Used on Cotton,” *Pesticides News No. 28*, June 1995

<http://www.pan-uk.org/pestnews/pn28/pn28p23.htm>

The application of pesticides to cotton is an important issue affecting the water quality of the southern United States. Cotton receives as much as 7 kilograms per hectare of herbicide and 5 kilograms per hectare of insecticide. –*U.S. Department of the Interior, U.S. Geological Survey, Toxic Substances Hydrology Program*, “Fate and Transport of Cotton Pesticides in the Southern United States,” Last modified on Monday, 07-Feb-2005

<http://toxics.usgs.gov/regional/cotton.html>

An estimated 70 percent of textile effluents and 20 percent of dyestuffs are still dumped into water supplies by global factories. In South India, where the highly toxic tanning industry grew rapidly in the 1990s, local water supplies have been devastatingly polluted by large quantities of poisonous wastes. –*Sustainable Planet: Solutions for the 21<sup>st</sup> Century*, “Cleaning the Closet: Toward a New Fashion Ethic,” Juliet Schor, November 2002

<http://www2.bc.edu/~schorj/closet.pdf>

The extensive cultivation of genetically engineered cotton over the past four years in the USA has brought no appreciable reduction in the use of insecticides and herbicides. –*No Reduction of Pesticide Use with Genetically engineered Cotton, Updated Summary of the WWF International report, Fall, 2000*

[http://www.biotech-info.net/WWF\\_inter\\_update.pdf](http://www.biotech-info.net/WWF_inter_update.pdf)

### **Tires and Rubber:**

It takes seven gallons of crude oil to produce one car tire. –*Institute of Scrap Recycling Industries, Inc., “Rubber Recycling Rolls Along,” May 2000*

[www.gristmagazine.com/grist/counter/counter101300.stm](http://www.gristmagazine.com/grist/counter/counter101300.stm)

It takes 3.6 billion gallons of crude oil to produce tires for all of the cars in the U.S. –*Calculated considering there were 129,749,000 passenger cars registered in the U.S. in 1997, four tires per car and seven gallons of crude oil per tire.*

[www.gristmagazine.com/grist/counter/counter101300.stm](http://www.gristmagazine.com/grist/counter/counter101300.stm)

Synthetic rubber accounts for about 60 percent of the total worldwide consumption of rubber and is derived from oil, whereas the remaining 40 percent is naturally derived from the rubber tree. –*International Rubber Study Group, “Rubber in a Nutshell (revised),” 2000*

[www.rubberstudy.com/Pubs.htm](http://www.rubberstudy.com/Pubs.htm)

It takes five to eight years for a rubber tree to mature to the girth, at which it can be tapped and its economic life will then be 20 to 30 years. –*International Rubber Study Group, “Rubber in a Nutshell (revised),” 2000*

[www.rubberstudy.com/Pubs.htm](http://www.rubberstudy.com/Pubs.htm)

Each year, motorists in the U.S. generate about 1 scrap tire for every man, woman and child in the country. –*Waste News, Jim Johnson, “An Active Retirement,” April 4, 2002*

Approximately 290 million scrap tires were generated in 2003. –*Environmental Protection Agency, “Management of Scrap Tires,” Last Updated April, 2005 (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/tires/basic.htm>

There are at least 275 million scrap tires in stockpiles in the U.S. –*Environmental Protection Agency, “Management of Scrap Tires,” Last Updated April, 2005 (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/tires/basic.htm>

The tire industry saw a 2.6 percent growth in 2002 and a slight increase of 0.6 percent over 2002 and 2003. The industry anticipates a growth rate of over 4 percent in 2003. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*

<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

In 2003, close to 45 percent of scrap tires were used for fuel in the U.S. Almost 20 percent were recycled or used in civil engineering projects and almost 8 percent were converted into ground rubber and recycled into products. The remainder was used in rubber-modified asphalt paving material, exported for reuse and other miscellaneous applications. –*Environmental Protection Agency, “Management of Scrap Tires, Basic Information” Last Updated April, 2005 (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/tires/basic.htm>

The use of scrap tires for fuel has increased from 24.5 million tires in 1990 to 115 million tires in 2001. Using ground rubber as an additive to asphalt paving has increased from 3 million tires in 1994 to 12 million tires in 2001. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*

<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

About 27 million scrap tires (9.3% of the total) are estimated to be disposed of in landfills in the U.S. –*Environmental Protection Agency, “Management of Scrap Tires, Basic Information” Last Updated April, 2005 (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/tires/basic.htm>

More than two-thirds of Oregon’s scrap tires are land filled. –*The Task Force on Tire Recycling, Report to the 71<sup>st</sup> Oregon Legislative Assembly and Gov. John Kitzhaber, Oct. 2002*

[www.leg.state.or.us/comm/commsrvs/int\\_tire\\_finalreport.htm](http://www.leg.state.or.us/comm/commsrvs/int_tire_finalreport.htm)

Sixty percent of tires disposed in Oregon landfills are from out-of-state (primarily Washington and Idaho). –*The Task Force on Tire Recycling, Report to the 71<sup>st</sup> Oregon Legislative Assembly and Gov. John Kitzhaber, Oct. 2002*

[www.leg.state.or.us/comm/commsrvs/int\\_tire\\_finalreport.htm](http://www.leg.state.or.us/comm/commsrvs/int_tire_finalreport.htm)

In 2001, 38 states banned the land filling of whole tires, and 11 states banned all scrap tires from landfills. In addition, 33 states charged a minimal scrap tire fee to consumers who were replacing used tires with new tires. –*Resource Recycling, “Scrap tires pave the way,” Serji Amirkhanian, September 2004; Source: Rubber Manufacturing Association, 2003*

Scrap tires pose three environmental threats: they are an extremely difficult to extinguish fire hazard; they trap rainwater which can breed mosquitoes that spread diseases; and they are bulky, virtually indestructible hazards that often work their way back up to the surface of landfills after burial. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*

<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

In 2001, approximately 33 million passenger and light duty truck tires were retreads. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*

<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

If the markets could be developed so that all suitable passenger and light truck tires were retreaded, the number of scrap tires generated per year would be reduced by almost 10 percent. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*

<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

Many scrap tires are exported to foreign countries to be reused as retreads. As many as 20 percent of tires sold in Mexico are imported as used tires from the U.S. and then retreaded for reuse. –*Environmental Protection Agency, “Management of Scrap Tires, Basic Information” Last Updated April, 2005 (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/tires/basic.htm>

In 2001, it was estimated that the United States generated approximately 300 million scrap tires. Approximately 80 percent of these tires were recycled, reused, or recovered for fuel. This represents a 50 percent increase of scrap tire use since 1994, and more than a seven-fold increase since 1990. –*Environmental Protection Agency, “Profile of the Rubber and Plastic Industry, 2<sup>nd</sup> Edition,” EPA/310-R-05-003, February 2005*

<http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/rubplasn.pdf>

In 2003, markets for scrap tires consumed 80.4 percent of the 290 million tires gen-

erated annually, up from 24.5 percent in 1990. –*Environmental Protection Agency, “Management of Scrap Tires, Basic Information” Last Updated April, 2005 (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/tires/basic.htm>

Oregon’s scrap tire recovery rate was higher than the national average in the early 1990s (between 96–99 percent) but fell to 32 percent in 2000 as a result of the decline in tire-derived fuel markets. –*The Task Force on Tire Recycling, Report to the Seventy-first Oregon Legislative Assembly and Gov. John Kitzhaber, October 2002*

[www.leg.state.or.us/comm/commsrsvs/int\\_tire\\_finalreport.htm](http://www.leg.state.or.us/comm/commsrsvs/int_tire_finalreport.htm)

Forty percent of tires recycled or recovered in Oregon are from out-of-state. –*The Task Force on Tire Recycling, Report to the 71<sup>st</sup> Oregon Legislative Assembly and Gov. John Kitzhaber, Oct. 2002*

[www.leg.state.or.us/comm/commsrsvs/int\\_tire\\_finalreport.htm](http://www.leg.state.or.us/comm/commsrsvs/int_tire_finalreport.htm)

### **Transportation:**

Transportation is the world’s fastest-growing form of energy use, accounting for nearly 30 percent of world energy use and 95 percent of global oil consumption. Even relatively small shifts in transport choices have significant impacts. –*Worldwatch Institute, State of the World 2004, January 2004, ISBN: 0-393-32539-3*

Today nearly 92 percent of downtown Tokyo travelers commute by rail, and the Japanese do only 55 percent of their traveling by car. West Europeans now use public transit for 10 percent of all urban trips, and Canadians for 7 percent, compared with Americans at only 2 percent. –*Worldwatch Institute, Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

The U.S. rate of car ownership is the highest in the world –about 50 percent higher than in Western Europe. –*Worldwatch Institute, Vital Signs 2005, “Bicycle Production Recovers,” pp. 58-59, ISBN: 0-393-32689-6*

[http://www.worldwatch.org/brain/media/pdf/pubs/vs/2005\\_bikes.pdf](http://www.worldwatch.org/brain/media/pdf/pubs/vs/2005_bikes.pdf)

Henry Ford’s world-changing Model T got about 25 miles to a gallon of gas. In 2002, all of Ford’s total fleet averaged 24.3 miles per gallon, while the entire fleet of American-made cars averaged 24.6 miles per gallon. –*National Resource Defense Council, OnEarth Magazine, “Detroit Is Still Stuck in Reverse,” Erik Ness, Winter 2005*

<http://www.nrdc.org/onearth/05win/detroit1.asp>

If fuel economy were improved by 5 mpg, American consumers would save 1.5 million barrels of oil per day, more than half of what the U.S. imports from the Middle East. –*Environmental Defense, Carbon Emissions Fact Sheet, July 2002*

[www.environmentaldefense.org/documents/2209\\_CarEmissionsFactSheet.pdf](http://www.environmentaldefense.org/documents/2209_CarEmissionsFactSheet.pdf)

In 2000, cars guzzled 8.2 million barrels of oil per day, up from 6.9 in 1990. This rise in fuel use corresponded with a 47 percent increase in petroleum imports. –*Environmental Defense, “Sinful Emissions, Weighing In on Automakers’ Carbon Burdens,” July 2002*

The 8.2 million barrels per day of fuel consumed by U.S. automobiles nearly matches the amount of oil produced by Saudi Arabia. –*Environmental Defense, “Sinful Emissions, Weighing In on Automakers’ Carbon Burdens,” July 2002*

<http://www.metro-region.org/article.cfm?articleID=5578>

In 2000, Americans drove 128 million cars, traveling 2.3 trillion miles. They consumed 8.2 million barrels of fuel per day and emitted 302 million tons of carbon. –*Worldwatch Institute, Vital Signs, 2003*

<http://www.worldwatch.org/features/vsow/2003/08/06/>

If U.S. cars and light trucks were a country, they would be the fifth most polluting nation in the world. –*Environmental Defense, “Sinful Emissions, Weighing In on*

*Automakers' Carbon Burdens," July 2002*

The typical SUV today has a fuel economy 29 percent lower than that of the average car, resulting in a CO<sub>2</sub> emissions rate roughly 40 percent higher. – *Environmental Defense, "Sinful Emissions, Weighing In on Automakers' Carbon Burdens," July 2002*

Garbage trucks in the U.S. consume approximately 1 billion gallons of diesel fuel annually and get the lowest fuel efficiency (2.8 miles per gallon) of any vehicle type. Transit buses, single-unit heavy-duty trucks, and tractor-trailers get 2.9, 7.0, and 6.1 miles per gallon, respectively. –*INFORM, "Greening Garbage Trucks: New Technologies for Cleaner Air," Contributors Deborah Gordon Juliet Burdelski James S. Cannon, 2003 INFORM, Inc. 120 Wall Street New York, NY 10005-4001*

While heavy-duty diesel-powered vehicles (including garbage trucks) make up only 7 percent of vehicles on the road, they contribute 69 percent of on-road fine particulate pollution and 40 percent of nitrogen oxide emissions. –*INFORM, "Greening Garbage Trucks: New Technologies for Cleaner Air," Contributors Deborah Gordon Juliet Burdelski James S. Cannon, 2003 INFORM, Inc. 120 Wall Street New York, NY 10005-4001*

Only 0.5 percent of the total distance people travel each year is done by air, yet planes use up about 5 percent of transportation energy. –*Worldwatch Institute, State of the World 2004, January 2004, ISBN: 0-393-32539-3*

The United States has the highest rate of carbon emissions in the world, with close to 1,600 million metric tons of carbon released annually (about 25 percent of the world's total). –*Environmental Defense, Carbon Emissions Fact Sheet, July 2002*

[www.environmentaldefense.org/documents/2209\\_CarEmissionsFactSheet.pdf](http://www.environmentaldefense.org/documents/2209_CarEmissionsFactSheet.pdf)

In 2000, 210 million motor vehicles in the United States were responsible for emitting 302 million metric tons of carbon dioxide. –*Environmental Defense, "Sinful Emissions, Weighing In on Automakers' Carbon Burdens," July 2002*

A gallon of gasoline weighs 6 pounds, but when burned and combined with oxygen in the air, the resulting compound weighs nearly 20 pounds. –*Environmental Defense, Carbon Emissions Fact Sheet, July 2002*

[www.environmentaldefense.org/documents/2209\\_CarEmissionsFactSheet.pdf](http://www.environmentaldefense.org/documents/2209_CarEmissionsFactSheet.pdf)

Cycling accounts for some 12 percent of all trips in Germany and 27 percent of trips in the Netherlands. In contrast, in the United States, bicycle infrastructure is much less extensive and less sophisticated. As a result, cycling accounts for less than 1 percent of all trips. –*Worldwatch Institute, Vital Signs 2003, "Bicycle Production Seesaws," pp. 58-59.*

Worldwide, bicycles outnumber automobiles almost 2 to 1, but of all the trips taken in the U.S. just 0.6 percent are made by bicycle. –*Northwest Environment Watch, John Ryan, "Small Wonders: Everyday Things for a Healthier Planet," 1999*

In the United States, the share of trips to work by bike fell from 0.5 percent to an even more negligible 0.4 percent between 1980 and 2000. –*Worldwatch Institute, Vital Signs 2005, "Bicycle Production Recovers," pp. 58-59, ISBN: 0-393-32689-6*

[http://www.worldwatch.org/brain/media/pdf/pubs/vs/2005\\_bikes.pdf](http://www.worldwatch.org/brain/media/pdf/pubs/vs/2005_bikes.pdf)

**Trash:**

The EPA has concluded that all landfills will eventually leak into the environment. – *U.S. Geological Survey, "What Happens to the Waste in Landfills?" Fact Sheet 040-03, 2003*

<http://pubs.usgs.gov/fs/fs-040-03>

In 2001, the garbage business – concentrated in the hands of a few major corpora-

tions – was a \$57 billion-a-year industry. –*Garbage Land: On the Secret Trail of Trash, Elizabeth Royte, Little, Brown and Company, 2005*

<http://www.metro-region.org/article.cfm?articleID=5579>

Americans waste or cause to be wasted nearly 1 million pounds of materials per person per year. –*Natural Capitalism; Paul Hawken, Amory and L. Hunter Lovin; Little Brown & Co.; September 1999*

[www.natcap.org/sitepages/pid20.php](http://www.natcap.org/sitepages/pid20.php)

About 94 percent of the materials extracted for use in manufacturing durable products become waste before the product is manufactured . . . 80 percent of what we make is thrown away within six months of production. –*Natural Capitalism; Paul Hawken; Amory and L. Hunter, Lovin Little Brown & Co.; September 1999*

[www.natcap.org/sitepages/pid20.php](http://www.natcap.org/sitepages/pid20.php)

For every garbage can placed at the curb, the equivalent of 71 garbage cans of waste is created in mining, logging, agriculture, oil and gas exploration, and the industrial processes used to convert raw materials into finished products and packaging. –*GrassRoots Recycling Network, "We can go beyond recycling to zero waste," 2001*

[www.grn.org/zerowaste/kit/briefing/brochure1.pdf](http://www.grn.org/zerowaste/kit/briefing/brochure1.pdf)

In the U.S., we generate enough trash each day to fill 44,919 garbage trucks that hold 9 tons of trash each. –*Wisconsin Department of Natural Resources, "Recycling Facts and Figures," PUBL CE-163, 2002*

[www.dnr.state.wi.us/org/aw/wm/publications/](http://www.dnr.state.wi.us/org/aw/wm/publications/)

Each year the U.S. disposes of or destroys more than 30 million tons of hazardous waste, 250 million tons of nonhazardous industrial waste, 136 million tons of construction and demolition waste and 165 million tons of municipal solid waste. –*Environmental Protection Agency, "Resource Conservation Challenge: Reducing Waste and Recovering Energy," EPA 530-F-02-032, 2002*

In the State of Oregon, per capita waste disposal rose 1.6 percent between 2002 and 2003. –*Department of Environmental Quality, 2003 Oregon Recovery and Waste Generation Rates Report, December 2004*

Total waste generation in 2003 in Oregon was almost 5 million tons. Per capita waste generation rose to a record high of 2,798 pounds per person. –*Department of Environmental Quality, 2003 Oregon Recovery and Waste Generation Rates Report, December 2004*

Residential waste (including waste from apartment houses) was estimated to be 55 to 65 percent of total municipal solid waste generated in 2003. Waste from schools and commercial locations, such as hospitals and businesses constituted 35 to 45 of municipal solid waste generated in 2003. –*EPA, "Municipal Solid Waste in the United States: 2003 Facts and Figures," 2003*

<http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw05rpt.pdf>

Organic materials continue to be the largest component of municipal solid waste by weight: paper and paperboard products account for 35 percent of the waste stream, with yard trimmings and food scraps together accounting for about 24 percent. Plastics comprise 11 percent; metals make up 8 percent; and rubber, leather and textiles account for about 7 percent. Wood follows at 6 percent, and glass at 5 percent. Miscellaneous wastes made up approximately 3 percent of the municipal solid waste generated in 2003. –*EPA, "Municipal Solid Waste in the United States: 2003 Facts and Figures," 2003*

<http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw05rpt.pdf>

Each individual generates about 1.5 tons of solid waste per year – about 4.5 pounds per person, per day. If we continue this pattern, we will have each created 90,000 pounds of trash in our lifetimes. –*Environmental Protection Agency, "Resource Conservation Challenge: Reducing Waste and Recovering Energy,"*

*EPA 530-F-02-033, 2002*

In 2003, U.S. residents, businesses, and institutions produced more than 236 million tons of municipal solid waste, which is approximately 4.5 pounds of waste per person per day. –*Environmental Protection Agency, “Municipal Solid Waste, Basic Facts,” Last updated May 17, 2005 (Accessed 8/05)*

<http://www.epa.gov/epaoswer/non-hw/muncpl/facts.htm>

Due to increased recovery, the net per capita discard rate (not including recycling and composting) in 2003 was 3.09 pounds per person per day, down from 3.14 pounds per day in 2002. –*EPA, “Municipal Solid Waste in the United States: 2003 Facts and Figures,” 2003*

<http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/msw05rpt.pdf>

Recycling 868,000 tons of materials replaces the expense of siting and operating two additional regional transfer stations in the Portland Metro region. –*Metro, internal report, 2003*

Methane produced by landfills is a major greenhouse gas 20 to 30 times more potent in its greenhouse effects than CO<sub>2</sub>. –*Environmental Protection Agency, 1996*

[www.nrdc.org/cities/recycling/recyc/chap2.asp](http://www.nrdc.org/cities/recycling/recyc/chap2.asp)

Landfills are the largest human-related source of methane in the U.S., accounting for 34 percent of all methane emissions. Methane is generated in landfills and open dumps as waste decomposes under anaerobic conditions. –*Environmental Protection Agency, “Methane, Source and Emissions,” Last Updated June 30, 2004 (Accessed 8/05)*

<http://www.epa.gov/methane/sources.html>

#### **Water:**

Less than 1% of the world's fresh water (or about 0.007% of all water on earth) is readily accessible for direct human uses. It is found in lakes, rivers, reservoirs and underground sources shallow enough to be tapped at affordable cost.

Evaporation and precipitation make this water available on a sustainable basis. –*World Health Organization*

[http://www.who.int/docstore/water\\_sanitation\\_health/vector/water\\_resources.htm](http://www.who.int/docstore/water_sanitation_health/vector/water_resources.htm)

Of all water on earth, 97.5% is salt water, and of the remaining 2.5% fresh water, some 70% is frozen in the polar icecaps. –*World Health Organization*

[http://www.who.int/docstore/water\\_sanitation\\_health/vector/water\\_resources.htm](http://www.who.int/docstore/water_sanitation_health/vector/water_resources.htm)

Agriculture now accounts for about 70 percent of world water use, industry about 22 percent, and towns and municipalities about 8 percent. –*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

Global water use has more than tripled since 1950. –*BBC News, Alex Kirby, “UN makes water point,” Jan. 27, 2003*

<http://news.bbc.co.uk/1/hi/sci/tech/2692253.stm>

Global freshwater consumption rose 6-fold between 1900-1995, more than twice the rate of population growth. –*Kofi Annan, “We the Peoples, Millennium Report,” 2000*

[www.un.org/millennium/sg/report/ch4.pdf](http://www.un.org/millennium/sg/report/ch4.pdf)

In 1999, the United Nations reported that 200 scientists in 50 countries had identified water shortage as one of the two most worrying problems for the new millennium (the other being global warming). –*BBC News, Alex Kirby, “Dawn of a Thirsty Century,” June 2, 2000*

[www.news.bbc.co.uk/2/hi/science/nature/755497.stm](http://www.news.bbc.co.uk/2/hi/science/nature/755497.stm)

Groundwater represents about 90 percent of the world's readily available freshwa-

ter resources. –*Vital Water Graphics, Executive Summary, United Nations Environment Programme, 2002*

[www.unep.org/vitalwater/summary.htm](http://www.unep.org/vitalwater/summary.htm)

There are 36 states in the US that are going to experience serious to severe water problems in the next five to ten years. –*The Progressive, "The progressive interview; Maude Barlow," Volume 72, December 2008*

Just six countries; Brazil, Russia, Canada, Indonesia, China, and Colombia account for half of Earth's total renewable freshwater supply. Canada ranks near the top of water wealth, with more than 92,000 cubic meters of water per inhabitant. At the water-poor end of the spectrum is Jordan with annual renewable supplies of 138 cubic meters per person, Israel with 124, and Kuwait with essentially none. –*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

The World Health Organization estimates that a person needs approximately 5 gallons of water each day for short term survival (drinking and cooking.) –*World Health Organization*

<http://www.who.or.id/eng/contents/aceh/wsh/water-quantity.pdf>

As many as 2 billion people won't have sufficient access to clean water by 2050.

That figure is expected to rise to 3.2 billion by 2080 - nearly tripling the number who now does without it. –*Intergovernmental Panel on Climate Change, April 2008* <http://www.ipcc.ch/meetings/session28/doc13.pdf>

Polluted water is estimated to affect the health of 1.2 billion people, and contributes to the death of 15 million children annually. –*Vital Water Graphics, Executive Summary, United Nations Environment Programme, 2002*

<http://www.unep.org/dewa/assessments/ecosystems/water/vitalwater/>

The EPA's water quality inventory found that 45 percent of lakes, 39 percent of rivers and 51 percent of estuaries in the US were not clean enough to support recreational uses such as fishing and swimming. –*Waste News, Annette Mirous, Oct. 14, 2002*

The world's golf courses require 2.5 billions gallons of water a day for irrigation.

This is the same amount of water needed to support 4.7 billion people per day. Golf courses also use pesticides and fertilizers that contribute to water pollution. –*Worldwatch Institute, "Matters of Scale: March/April 2004, Planet Golf," 2004*

<http://www.worldwatch.org/node/797>

Estimates vary, but each person in the U.S. uses about 80-100 gallons of water per day. The largest use of household water is to flush the toilet, and after that, to take showers and baths. –*U.S. Geological Survey Fact Sheet, "Water Q&A: Water Use At Home," Last modified, March 18, 2004*

<http://water.usgs.gov/wid/index-resources.html>

The average American uses over 100 gallons of water per day; the average residence uses over 100,000 gallons during a year. <http://www.epa.gov/safewater/sdwa/30th/factsheets/waterfacts.html#1>

The average North American consumes over 105 gallons of water a day compared to the average European's consumption of almost 53 gallons. The average person living in sub-Saharan Africa consumes only 2.4 – 5.3 gallons per day. –*World Water Council, World Water Vision, 2000, ISBN 1-85383-730X*

<http://www.worldwatercouncil.org/Vision/Documents/Chapter2.pdf>

The irrigation of U.S. lawns and landscapes claims an estimated 7.9 billion gallons of water a day—a volume that would fill 14 billion six-packs of beer. –*Worldwatch Institute, State of the World 2004 Special Focus: The Consumer Society, January 2004, ISBN: 0-393-32539-3*

On average, 50-70% of household water is used outdoors (watering lawns, washing cars). –*U.S. Environmental Protection Agency*

<http://www.epa.gov/safewater/sdwa/30th/factsheets/waterfacts.html#1>

Water use for electricity production in the U.S. has increased by almost 500 percent from 1950 to 2000. Irrigation water use increased by about 50 percent. – U.S. Geological Survey, “Estimated Use of Water in the United States in 2000,” USGS Circular 1268, revised April 2004, May 2004, February 2005

<http://water.usgs.gov/pubs/circ/2004/circ1268/control/revisions.html>

Estimates of water use in the United States indicate that about 408 billion gallons per day were withdrawn for all uses during 2000. This total has varied less than 3 percent since 1985. –U.S. Geological Survey, “Estimated Use of Water in the United States in 2000,” USGS Circular 1268, revised April 2004, May 2004, February 2005

<http://water.usgs.gov/pubs/circ/2004/circ1268/control/revisions.html>

A typical U.S. household washes 400 loads of laundry in one year. –U.S. Department of Energy, *Energy Star*, December 2002

A conventional washer uses 40 gallons of water per full load of clothing, while the same load done in a certified Energy Star washer only uses 18-25. –U.S. Department of Energy, *Energy Star*, December 2002

A household that does 3 loads of laundry per week will save 2,300 gallons of water each year by switching to an Energy Star appliance. –*Energy Star*, *Resource Efficient Clothes Washers Fact Sheet*

[http://www.mnpower.com/powerofone/one\\_home/energystar/appliances/factsheet\\_cw.pdf](http://www.mnpower.com/powerofone/one_home/energystar/appliances/factsheet_cw.pdf)

To continue to ensure safe drinking water, the nation's water utilities will need to make an estimated \$277 billion investment over the next 20 years. – Environmental Protection Agency, “2003 Drinking Water Infrastructure Needs Survey and Assessment, Third Report to Congress” EPA 816-R-05-001, June 2005

[http://www.epa.gov/safewater/needssurvey/pdfs/2003/report\\_needssurvey\\_2003.pdf](http://www.epa.gov/safewater/needssurvey/pdfs/2003/report_needssurvey_2003.pdf)

It takes on average 39,090 gallons of water to manufacture a new car and its four tires; 62,600 gallons of water are needed to produce one ton of steel; 1,500 gallons to process one barrel of beer; and 9.3 gallons to process one can of fruit or vegetables. –U.S. Environmental Protection Agency

<http://www.epa.gov/safewater/sdwa/30th/factsheets/waterfacts.html#1>

The production of one kilogram of beef requires 16 thousand liters of water; to produce one cup of coffee we need 140 liters of water.

<http://www.waterfootprint.org/?page=files/home>

According to government and industry estimates, about one fourth of bottled water is bottled tap water (and by some accounts, as much as 40 percent is derived from tap water) –sometimes with additional treatment, sometimes not. –*Natural Resources Defense Council*, “Bottled Water, Pure Drink or Pure Hype?”

<http://www.nrdc.org/water/drinking/bw/exesum.asp>

City tap water can have no confirmed *E. coli* or fecal coliform bacteria (bacteria that are indications of possible contamination by fecal matter). FDA bottled water rules include no such prohibition (a certain amount of any type of coliform bacteria is allowed in bottled water). –*Natural Resources Defense Council*, “Bottled Water, Pure Drink or Pure Hype?” <http://www.nrdc.org/water/drinking/bw/exesum.asp>