

5. ENVIRONMENTAL HEALTH

Number	Objective
1	Air quality
2	Emission reduction
3	Cleaner alternative fuels
4	Waterborne disease
5	Water-related adverse health effects
6	Surface water health risks
7	Beach closings
8	Discharge from livestock production operations
9	Watersheds with contaminant problems
10	Poisonings from contaminated fish
11	Blood lead levels
12	Risks to human health and environment by hazardous waste sites
13	Pesticide poisonings
14	Energy recovery
15	Municipal solid waste
16	Exposure to tobacco smoke
17	Testing for lead-based paint
18	Exposure to household hazardous chemicals
19	Household levels of lead dust and allergens
20	Carbon monoxide poisonings
21	Radon testing
22	Exposure to pesticides that inhibit cholinesterase
23	Exposure to persistent chemicals
24	Monitoring of exposure to selected chemicals
25	Monitoring of exposure to other chemicals
26	Environmental and environmental health information systems
27	Monitoring diseases caused by environmental hazards
28	Global burden of disease
29	Infectious and parasitic diseases
30	Consultation on environmental issues
31	Tracking mechanism for exported pesticides
32	Diseases among U.S. travelers overseas
33	Total pesticide exposure
34	Uniform international guidelines for environmental quality

Environmental Health

Goal

Health for all through a healthy environment.

Terminology

(A listing of all acronyms used in this publication appears on page 27 of the Introduction.)

Biomarker: A substance that can be measured in humans that indicates a certain level of exposure to another substance not normally found in the human body.

Brownfields: Denotes abandoned, idle, or underused industrial or commercial sites where expansion or redevelopment is complicated by real or potential environmental contamination perceived by the community.

Community water system: A public water system that serves year-round residents of a community, subdivision, or mobile-home park that has 15 service connections or an average of 25 residents.

Cotinine: A chemical substance found in the blood of people exposed to tobacco smoke either through smoking or exposure to secondhand smoke.

Fish advisories: Recommendations to limit consumption of certain species of fish taken from waters where chemical contaminants are present. Each advisory is different: they may recommend no consumption or limited consumption; they may be targeted to men, women, or children.

Greenhouse gas (GHG): The World Health Organization (WHO) defines greenhouse gas (GHG) as a gas that absorbs radiation of specific wavelengths within the infrared spectrum of radiation emitted by Earth's surface and clouds. The effect is a local trapping of part of the absorbed energy and a tendency to warm Earth's surface. Water vapor, carbon dioxide, nitrous oxide, methane, and ozone are the primary greenhouse gases in Earth's atmosphere.

Waterborne disease outbreak: An incident in which (1) two or more people experience a similar illness after consumption or use of water intended for drinking and (2) epidemiologic evidence implicates water as the source of illness. The stipulation that at least two people be ill is waived for single cases of laboratory-confirmed, primary amebic meningoencephalitis and for single cases of chemical poisoning if water-quality data indicate contamination by the chemical.

Overview

“In its broadest sense, environmental health comprises those aspects of human health, diseases, and injury that are determined or influenced by factors in the environment. This includes the study of both the direct pathological effects of various chemical, physical, and biological agents, as well as the effects on health of the broad physical and social environment, which includes housing, urban development, land-use and transportation, industry, and agriculture.”¹

Environmental factors play a central role in the processes of human development, health, and disease. Human exposure to hazardous agents in the air, water, soil, and food and to physical hazards in the

1 environment is a major contributor to increased morbidity and mortality. Furthermore, deteriorating
2 environmental conditions in many parts of the world hinder sustainable development. The WHO estimates
3 that poor environmental quality is directly responsible for around 25 percent of all preventable ill health in
4 the world today, with diarrheal diseases and respiratory infections heading the list. This burden varies
5 considerably from place to place but has its greatest impact on those population groups in the United States
6 whose current health status may be compromised and on the inhabitants of developing countries.²⁻⁴ Given
7 the importance of the environment on human health, the protection of the environment has long been a
8 mainstay of public health. National, State, and local efforts to ensure clean air and safe supplies of food
9 and water, to manage sewage and municipal wastes, and to control or eliminate vectorborne illnesses have
10 contributed substantially to public health improvements in the United States. But these achievements
11 cannot be taken for granted, and additional achievements are within reach.

12
13 Infectious agents continue to taint food and water. Animals continue to carry diseases to human
14 populations. Outbreaks of once-common intestinal diseases, although less frequent, still occur. These
15 outbreaks serve as a warning that environmental health programs developed in the first half of the 20th
16 century must be maintained and improved. Public health program managers will be challenged to retain
17 this basic capacity in the next century, even as they face additional responsibilities for dealing with other
18 potential hazards, many of them chemical. Maintaining activities to prevent effects of well-known and
19 familiar hazards must be pursued carefully in tandem with work to conduct research and monitor
20 developments related to newer, often poorly characterized or understood hazards.

21
22 Many environmental hazards can and do cross international political boundaries, regardless of their
23 country of origin. As a result, “global” is now an important word used in defining the future scope of
24 public and environmental health. International environmental issues must be addressed to achieve good
25 health for all and to seize opportunities in creating effective worldwide human disease prevention efforts.
26 Consequently, in addressing these issues, the United States will work with other governments,
27 nongovernmental organizations, and international organizations to help improve human health on a global
28 scale.

29
30 Efficient programs to improve environmental health must be based on primary prevention and several
31 focus areas of Healthy People 2010 are devoted to the prevention of illnesses, injuries, and disabilities to
32 which environmental factors contribute. The prevention of illnesses caused by environmental biological
33 agents is addressed in the infectious disease, immunization, and food safety focus areas; the prevention of
34 injuries caused by physical agents is addressed in the injury and physical disability focus areas; the
35 prevention of illnesses and injuries resulting from the work environment is addressed in the occupational
36 health focus area; the prevention of respiratory illnesses caused by environmental factors is covered in the
37 tobacco and lung focus areas; and the prevention of illnesses caused by environmental chemical agents and
38 agents and settings not addressed elsewhere is addressed in this focus area.

39
40 Given the diversity of environmental chemical agents and the settings in which they affect health, these
41 objectives are divided into six sections. Two of these sections deal with health problems related to specific
42 media: air and water; one with health problems related to an environmental setting shared by all: housing;
43 and one with health problems related to the release of toxic agents into the environment; and one with the
44 infrastructure necessary to support other environmental health programs. Because of the importance of the
45 environment to the health of the world’s people, a special section in this focus area is devoted to
46 international environmental health issues. Finally, because of the increased susceptibility of children to
47 certain environmental hazards, several objectives focus on children and their special needs.

48

1 The six sections of this focus area will be discussed in the following order:
2

- 3 • Air Quality
 - 4 • Water Quality
 - 5 • Toxics/Waste
 - 6 • Healthy Homes and Healthy Communities
 - 7 • Infrastructure/Surveillance
 - 8 • International Issues
- 9

10 **Progress Toward Year 2000 Objectives**

11

12 Of the 17 environmental health objectives in Healthy People 2000, the target has been met or partially met
13 for 3 (objectives 11.3, 11.4, 11.13), progress has been made toward the target for 10 (objectives 11.5-11.8,
14 11.10-11.12, 11.15-11.17), there has been no change from baseline for 1 (11.9), and we have moved away
15 from the target for 2 (objectives 11.1, 11.2). For objective 11.14, a baseline is not available. The status of
16 each objective in 1997 at the time of the last progress review is presented below.
17

18 **11.1** The rate of asthma hospitalizations was 194 per 100,000 people in 1995, which is higher than the
19 1987 baseline of 188 per 100,000. The year 2000 target is 160. Hospitalizations in 1995 also
20 showed increases over the baselines for two special population groups, African Americans and
21 other nonwhites and children aged 14 and younger. Asthma accounts for 1 percent of all
22 hospitalization costs in the United States, amounting to \$56 billion annually. It has a
23 disproportionate impact on people in the inner city, especially children.
24

25 **11.2** In 1991-92, the prevalence of serious mental retardation (IQ<50) among school-aged children was
26 4 per 1,000, an increase over the 1985-87 baseline of 3.1. The year 2000 target is 2 per 1,000.
27

28 **11.3** The number of reported outbreaks of waterborne disease from infectious agents and chemical
29 poisoning declined from the 1988 baseline of 16 to 11 in 1994, thus meeting the year 2000 target.
30 For people served by community water systems, there were five reported outbreaks in 1994 (1988
31 baseline = 4). The target is 2.
32

33 **11.4** The prevalence of blood lead levels exceeding 15 µg/dL among children aged 6 months through 5
34 years declined from the 1984 baseline of 3 million to 274,000 in 1992-94; this surpasses the year
35 2000 target of 300,000. The reduction of blood lead levels in children has been one of the most
36 significant achievements in environmental health in recent years. A unified approach among all
37 levels of government and the private sector contributed greatly to this major public health success.
38

39 **11.5** In 1995, 67.1 percent of the population lived in counties that had not exceeded Environmental
40 Protection Agency (EPA) air quality standards for the six criteria pollutants (ozone, carbon
41 monoxide, nitrogen dioxide, sulfur dioxide, particulates, and lead) in the previous 12 months. The
42 year 2000 target is 85 percent.
43

44 **11.6** In 1994, an estimated 11 percent of the Nation's homes had been tested for radon concentrations.
45 The year 2000 target is 40 percent. An estimated 8.8 percent of homes with smokers and former
46 smokers and 13.1 percent of homes with children were tested. The target is 50 percent for each of
47 these special population groups. According to the National Cancer Institute, up to one-tenth of
48 U.S. lung cancer deaths may be caused by radon in homes.
49

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- 1 **11.7** In 1994, 0.17 billion pounds of toxic agents on the Department of Health and Human Services
2 (DHHS) list of carcinogens were released from industrial facilities. This is higher than the year
3 2000 target (0.12 billion pounds), which calls for a 65 percent reduction from the 1988 baseline of
4 0.35 billion pounds, but progress toward the target continues to be made. Some 1.02 billion
5 pounds of substances on the Agency for Toxic Substances and Disease Registry (ATSDR) list of
6 the 275 most toxic chemicals were released in 1994. This reduction of more than 50 percent from
7 the 1988 baseline of 2.15 billion pounds surpasses the target of 1.08 billion pounds.
8
- 9 **11.8** To reduce human exposure to solid waste contamination, a year 2000 target of 4.3 pounds was set
10 for the average number of pounds of municipal solid waste produced per person per day (3.2
11 pounds after recycling or composting). In 1995, the average was 4.4 pounds before and 3.4
12 pounds after recycling.
13
- 14 **11.9** In 1995, 73 percent of community water systems met safe drinking water standards established by
15 EPA, the same proportion as in 1988. The year 2000 target is 85 percent. The proportion has
16 remained relatively constant over the years largely because EPA has continued to issue additional
17 Maximum Contaminant Level standards.
18
- 19 **11.10** In 1994, there were increases over 1992 baselines in the proportions of surface waters supporting
20 beneficial uses (i.e., fishing and recreation) in all categories except for estuaries supporting
21 consumable fish, for which there was a 2 percent decline.
22
- 23 **11.11** Nine percent of people with houses built before 1950 reported in 1993 that the house paint had
24 been analyzed for lead content, an increase from the 1991 baseline of less than 5 percent. The year
25 2000 target is 50 percent.
26
- 27 **11.12** In 1993, there were three States in which at least 75 percent of local jurisdictions had adopted
28 construction standards and techniques that minimize elevated indoor radon levels. The 1989
29 baseline was 1 State and the year 2000 target is 35 States.
30
- 31 **11.13** Federal regulations were promulgated in 1996 that required disclosure of lead-based paint in all
32 pre-1978 housing during sales or leasing. This achieves the year 2000 target. The number of
33 States requiring that prospective buyers be informed of radon concentrations in buildings offered
34 for sale increased from 1 State in 1989 to 25 States in 1995. The target is 30.
35
- 36 **11.14** Ninety percent (n = 253) of the ATSDR cease/reduce exposure recommendations were followed
37 among the 1,232 hazardous waste sites on the National Priorities List in 1995. The year 2000
38 target is 100 percent.
39
- 40 **11.15** Forty-six percent of the population was served by curbside recycling projects in 1995, an increase
41 from 26 percent in 1991. The year 2000 target is 50 percent.
42
- 43 **11.16** In 1996, Federal funds for childhood lead poisoning surveillance were used in 27 States. Systems
44 to track additional sentinel environmental diseases defined by this objective are in varying stages
45 of development.
- 46 **11.17** The proportion of children aged 6 and younger who are regularly exposed to tobacco smoke at
47 home declined from 39 percent in 1986 to 27 percent in 1994. The year 2000 target is 20 percent.
48

1 **Draft 2010 Objectives**

2
3 *Air Quality Objectives*

- 4
5 **1. The air will be safer to breathe for 100 percent of the people living in areas that exceed all**
6 **National Ambient Air Quality Standards (NAAQS).** (1996 Baseline: 46.6 million people were
7 living in areas with air quality that exceed the standard for at least one NAAQS pollutant.)
8

Harmful Air Pollutants

- 9
10 a) Ozone
11 b) Carbon monoxide
12 c) Nitrogen dioxide
13 d) Sulfur dioxide
14 e) Particulate matter 10
15 f) Particulate matter 2.5
16 g) Lead
17 h) Totals (for any of the above pollutants)

18 **Note:** All areas (100 percent) are required by law to come into attainment no later than 2012 for all
19 the air pollutant criteria except particulate matter 2.5, which will come into attainment by 2017.

20 **Target Setting Method:** Expert guidance from Environmental Health work groups.

21 **Data Source:** EPA, Office of Air Quality.

22 EPA's air quality monitoring and NAAQS data collection have historically taken place in large urban
23 centers, and other appropriate areas generally considered to have the Nation's poorest air quality.⁵

- 24 **2. Improve the Nation's health and air quality by reducing emissions.**

25 **2a. Increase to 10.8 percent the percentage of trips made by bicycling.** (1995 Baseline: 0.9
26 percent)

27 **2b. Increase to 10.8 the percentage of trips made by walking.** (1995 Baseline: 5.4 percent)

28 **2c. Increase to 3.6 percent the percentage of trips made by transit.** (1995 Baseline: 1.8 percent)

29 **2d. Increase by 150 percent the number of Americans who telecommute.** (2000 Baseline:
30 Federal Highway Administration data will be available through 2010)

31 **Target Setting Method:** Expert guidance from Environmental Health work groups.

32 **Data Sources:** Bicycle Federation of America, Federal Highway Administration, and National
33 Personal Transportation Survey (NPTS) conducted every 5 years, U.S. Census.

34 The term "transit" represents what used to be called "mass transit." The 1990 NPTS included the
35 following modes in its transit count: bus, subway or elevated rail, commuter rail, streetcar or trolley. The
36 1995 NPTS characterizes a "trip" as travel to a destination (e.g., worksite). Travel to work, for instance,
37 that includes two stops along the way (trip chains) would constitute three "trips."
38

1 A shift in short trips from motor vehicles to bike, walk, and transit could have a significant impact on air
2 quality by reducing total motor vehicle trips. There are three major air quality payoffs associated with
3 transportation:

- 4
- 5 • A mode shift from motor vehicles and a reduction in motor vehicle trips and miles.
- 6
- 7 • An increase in fuel efficiency.
- 8
- 9 • A shift to cleaner fuels.
- 10

11 It will take some significant rethinking, reeducation, and redesign to realize these goals. Where
12 communities take such action, much more is likely possible. The United States is a large country and only
13 a portion of its population will take a serious approach to mode shift in the next 15 years. As a national
14 measure, the 100 percent increase is reasonable.

15

16 **3. Reduce adverse health effects impacts by an increase in U.S. motor fuel consumption of cleaner**
17 **alternative fuels to 30 percent.** (Baseline: 2.7 percent of current U.S. motor fuel consumption is of
18 cleaner alternative fuels, 1997)

19

20 **Note:** Reformulated gasoline and natural gas are considered clean fuels. However, most fuels with no
21 fossil fuel components are considered cleaner.

22

23 **Target Setting Method:** Expert guidance from Environmental Health work groups.

24

25 **Data Sources:** Clean Cities program (Department of Energy); Energy Policy Act of 1992.

26

27 The working definition of “clean” energy is energy that provides a positive movement toward the goals of
28 the current Clean Air Act and Clean Cities/Clean Corridors and as a result of its usage emits significantly
29 lower amounts of greenhouse gases into the atmosphere and fewer pollutants into the air we breathe than
30 petroleum or coal-based fuels that have not been reformulated (according to EPA reformulation standards).

31

32 After all, it’s not just the lungs and lower respiratory tract, but also the eyes, the ears, the nose, and
33 the skin that are exposed to environmental pollution. It’s not just the lung that serves as a gateway
34 for hazardous pollutants, but it’s also the gastrointestinal tract...Lead may be inhaled through the
35 lung, but it has its effect on bone, blood, and the central nervous system. Carbon monoxide, too,
36 gains access to the body by the lung, but has its greatest effect on the cardiovascular system.

37

38 —Alfred Munzer, M.D., former president of the American Lung Association

39

40 Air pollution continues to be a widespread public health and environmental problem in the United States.
41 Air pollution can cause premature death, cancer, long-term damage to respiratory and reproductive
42 systems, and difficulty with breathing. According to EPA, air pollution also reduces visibility, damages
43 crops and buildings, and is deposited on the soil and in water bodies where it affects the chemistry of the
44 water and affects resident life forms. In 1996, millions of tons of toxic air pollutants were released into the
45 air. Approximately 126 million people live in areas designated as nonattainment for one or more of the six
46 commonly found pollutants for which EPA has established health-based standards. The problem of air
47 pollution is national—even international—in scope. The majority of the population lives in expanding
48 urban areas, where air pollution crosses local and State lines and, in some cases, even crosses our borders
49 with Canada and Mexico.⁶

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1 The data from EPA include the total population served by all community water supplies. HHS figures
2 consider only those persons served by community water supplies that both monitor and report. The HHS
3 percentages have reduced the population to only those that have demonstrated compliance by both
4 monitoring and reporting results to the EPA data collection system.

5
6 EPA's drinking water validation study (report number 51005516 dated 9/15/95) showed a 12 percent rate
7 for utilities reporting erroneous data. Thus, the annual compliance rate could be significantly lower than
8 that calculated by either HHS or EPA methods.

9
10 Compliance with the Safe Drinking Water Act (SDWA) includes monitoring and reporting as well as
11 providing water that meets the Maximum Contaminant Level (MCL) and Treatment Technique (TT)
12 established by EPA. See objective 30 for definition of community water systems.

13
14 **6. (Developmental) Reduce potential risks to human health from surface water, as measured by**
15 **an increase in the proportion of assessed rivers, lakes, and estuaries that support beneficial uses,**
16 **such as consumable fishing and recreational activities.**

17
18 **6a. Support safe fish and shellfish harvest.**

19 **6b. Safe for recreation.**

20
21 **Potential Data Source:** Clean Water Act Reports, EPA.

22
23 **7. (Developmental) Reduce by __ percent the number of beach closings and water recreational use**
24 **restrictions due to harmful bacteria.**

25
26 **7a. Beach closings.**

27 **7b. Water recreational use restrictions.**

28
29 **Potential Data Source:** Clean Water Act Reports, EPA.

30
31 **8. (Developmental) Reduce the threat to human health and the environment by controlling**
32 **discharge from intense livestock production operations.**

33
34 **Note:** Intense livestock production includes raising in a limited space large numbers of cattle (dairy
35 and beef), swine, or birds (chickens, turkeys) for food or food products.

36
37 **Target Setting Method:** Expert guidance from Environmental Health work groups.

38
39 **Potential Data Source:** Clean Water Act Reports, EPA.

40
41 **9. (Developmental) Reduce by __ percent potential human exposure to toxic chemicals by**
42 **reducing the number of watersheds with contaminant problems.**

43
44 **Note:** There are over 2,000 Hydrologic Unit Code 8-digit USGS watersheds in the United
45 States.

46
47 **Potential Data Sources:** National Water Quality Monitoring Program; contaminant data in
48 fish, sediment, and water, fish health, or biomarker metrics (U.S. Geologic Survey,
49 Water Resources Division); State fish contamination survey data sets; States and Regional
50 Agency assessment data.

1
2 This objective can be accomplished by providing uniform fish consumption advisories and sampling, by
3 reducing exceedances of toxicological thresholds for fish or wildlife health, or identifying putative causes
4 of human epidemiological or ecotoxicological or other research-based evidence of adverse exposure
5 outcomes.
6

7 The most effective way to reduce potential human exposure is when there are complementary natural
8 resource objectives. For instance, big fish eat little fish and various wildlife eat most fish. Deepwater lake
9 trout may be an exception but carp are not. Carp are one of the worst for lipophilic compounds. Carp are
10 also plentiful in urbanized watersheds where habitat quality has deteriorated. Many inner-city fisheries are
11 bottom (benthic) herbivores, carnivores, and omnivores that people fish and eat regularly. Wildlife and
12 fish contaminant exposures from sediments, forage, and runoff, effluent pipes, and atmospheric deposition
13 are a full-time occupation for these “miner’s canaries.”
14

15 Protection of ecosystem health and establishment of health threshold levels for fish and wildlife and the
16 percentage of waters attaining these and human thresholds (based on risk-based models) should be the
17 ultimate goal.
18

19 **10. (Developmental) Reduce by __ percent the potential human exposure to toxic chemicals by**
20 **reducing fish contaminant levels.**

21
22 **Potential Data Sources:** Biomonitoring of Environmental Status and Trends; collection of
23 mercury and other contaminant data in whole fish in Mississippi River, Rio Grande River, and
24 Columbia River basins, U.S. Geological Survey and U.S. Fish and Wildlife Service.
25

26 Toxic chemicals such as mercury, PCBs, chlordane, and DDT have entered the environment through
27 various human activities. Chemicals such as these can accumulate, increasing in concentration within
28 species higher in the food chain. This process of bioaccumulation can result in potentially harmful
29 exposures for those who consume these animals, particularly people whose main source of protein is fish.
30

31 In the future, knowledge of environmental processes, ecosystems, and human health will be improved
32 through better data collection, modeling, risk assessment, and understanding of wildlife and human
33 epidemiology. A system to compile raw data from consumption advisories (States), Federal data collection
34 (including USGS NAWQA program), and regulatory compliance data could provide improved data
35 collection.
36

37 Linking this to how basin loadings and processes affect creature exposure would give insight into the
38 mechanisms that alter ecosystems. These ecosystem changes may suggest potentially diminished human
39 health caused by consumption of highly contaminated species from these habitats.
40

41 Water, along with food and oxygen, is one of three fundamental requirements for life. Drinking water free
42 from disease-causing agents is the ultimate goal of all water supply systems. Various Federal, State, and
43 local agencies have responsibility for oversight of the quality of water intended for drinking. This
44 objective focuses on diseases attributed to water intended for drinking. It keeps before the health agencies
45 in the country the need to protect all supplies of water intended for drinking from contamination to protect
46 the public from waterborne diseases. Between 1920 and 1980 there were 1,405 waterborne outbreaks,
47 affecting approximately 386,144 people.¹⁰ Between 1989 and 1994 there were 30 outbreaks, affecting
48 approximately 427,468 people.¹¹⁻¹³ The preponderance of people affected during the latter period

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1 occurred during a single outbreak in 1993. During this outbreak, officials estimated that more than
2 403,000 people experienced disease.

3
4 Chemical poisoning outbreaks in particular have grown in number, increasing from only 1 reported from
5 1920 to 1940, 4 reported between 1941 and 1960, and 9 between 1961 and 1970 to 55 between 1971 and
6 1988. Between 1988 and 1994 reported outbreaks declined to 16. In contrast, typhoid fever dominated
7 waterborne outbreaks in the two-decade period from 1920 to 1940 (372 of 530 outbreaks) but accounted
8 for no outbreaks from 1988 to 1994. Protozoan infections (amebiasis) accounted for 4 outbreaks from
9 1920 to 1940 and increased to 105 outbreaks (103 giardiasis and 2 cryptosporidiosis) from 1971 to 1988.
10 From 1989 to 1994 giardiasis outbreaks decreased to 16 while cryptosporidiosis outbreaks increased to 8.

11
12 Most people in the United States obtain their drinking water from public water supply systems. EPA has
13 established regulations intended to ensure that community water systems supply safe drinking water to
14 their customers. Compliance with the established regulations is one measure of the public's receipt of a
15 safe water supply, free from disease-causing agents. Drinking water is supplied to more than 240 million
16 Americans (more than 90 percent of the population) by 55,633 community water systems and to
17 nonresidential locations such as campgrounds, schools, and factories by an additional 117,639 systems for
18 a total of 173,272 (1995 data).¹⁴ The remainder of the population is served by small water supply systems
19 serving 14 or fewer residences and 24 or fewer individuals or by private wells, surface water, cisterns, and
20 springs.

21
22 EPA, by the authority of the Safe Drinking Water Act, has established standards for 81 contaminants,
23 including specific treatment requirements for systems that use surface water and for communities where
24 lead in drinking water is a problem. These standards either define the maximum level at which a
25 contaminant is allowed in water delivered to the tap or specify certain types of treatment (e.g., filtration or
26 corrosion control) for contaminants that are difficult to measure. Small systems (serving 25 to 3,300
27 people) account for more than 85 percent of the community water systems in the United States but serve
28 less than 10 percent of the population. These systems account for 82 percent of the violations of the
29 SDWA regulations. EPA was requested to develop new standards for priority contaminants by the SDWA
30 amendments of 1996. Community water systems, especially small systems, often lack funds necessary to
31 finance proper operation and maintenance or improved water treatment. Many systems lack access to
32 capital and face consumer resistance to rate increases to finance system improvements.

33
34 EPA's *National Water Quality Inventory 1994 Report to Congress* showed that about 40 percent of the
35 Nation's surface waters (streams, lakes, and estuaries) are too polluted for fishing, swimming, or other uses
36 designated for them by the States and tribes. Water quality in the lakes, streams, and estuaries of the
37 United States affects both the recreational and food production use of these waters. States and tribes have
38 water quality management programs that address recreational use and fish and shellfish harvesting for the
39 waters of the United States. They establish water quality objectives for these waters and monitor progress
40 toward these goals. Human, industrial, and agricultural wastes can degrade the ability of the water
41 resource to provide conditions conducive to growth and harvesting of fish and shellfish for human
42 consumption. Likewise, discharge of inadequately treated or inappropriate quantities of these wastes can
43 degrade the quality of the receiving water body, preventing its use as a recreational water resource.
44 Healthy People 2010 supports restoring and maintaining the chemical, physical, and biological integrity of
45 the Nation's waters and providing water quality that supports recreational use and the protection and
46 propagation of fish and shellfish.

47
48 Recreation is a significant factor in the quality of life. Discharge of excessive human and animal waste can
49 have direct results on recreational beaches in the United States. Beach contamination limits the possibility
50 for recreation and poses an opportunity for the spread of waterborne disease. From 1989 through 1994,

1 States reported to CDC a yearly average of 6.3 waterborne disease outbreaks caused by contact and
2 unintentional ingestion of recreational water. The extent of underrecognition and underreporting of
3 outbreaks associated with recreational exposures is unknown. The outbreak reports to CDC provide
4 evidence of disease associated with recreational use of water. EPA plans to develop a national basis to
5 monitor efforts to improve recreational water quality. While no monitoring system will be complete
6 enough to monitor small streams, private lakes, and ponds, this program will provide a method to evaluate
7 progress toward improving water quality on the swimming beaches of the United States.
8

9 During the summer of 1997 development of blooms of a dinoflagellate, *Pfiesteria piscicida*, was
10 implicated as the likely cause of fish kills in estuaries and coastal areas of several States in the
11 Southeastern United States. A contributing factor to the development of bloom conditions of this organism
12 is excessive nutrient enrichment of the water. A significant source of nutrient enrichment of surface waters
13 comes from agricultural runoff. During the past 30 years, this country has invested hundreds of billions of
14 dollars to properly treat human and industrial wastes. Agricultural wastes have received much less
15 investment. The development of intensive animal feeding operations during this time has compounded the
16 discharge of poorly treated and untreated animal wastes into the streams, lakes, and estuaries of the United
17 States. These improperly or inadequately treated wastes present an increasing health threat in the waters of
18 the United States for either recreational use or for the production of fish and shellfish safe for human
19 consumption and are implicated as an important source of nutrients associated with the *Pfiesteria* blooms.
20

21 *Toxics/Waste Objectives*

22 **11. Reduce the prevalence of blood lead levels exceeding 10 µg/dL to 0 in children aged 1-5.**

23 (Baseline: data gathered through the National Health and Nutritional Examination Survey, 1988-91,
24 allow us to estimate that 1.7 million children aged 1 to 5 have blood lead levels of 10 µg/dL or greater)
25

26 **Target Setting Method:** Expert guidance from Environmental Health work groups.
27

28 **Data Source:** National Health and Nutrition Examination Survey (NHANES), CDC.
29

30
31 According to the *Morbidity and Mortality Weekly Report* for February 21, 1997 (*MMWR*, 46(7):141-146,
32 1997), blood lead levels (BLLs) among children aged 1 to 5 were more likely to be elevated among those
33 who were poor, non-Hispanic African American, living in large metropolitan areas, or living in older
34 housing. CDC's NHANES III, Phase 2, surveys conducted during October 1991-September 1994 indicate
35 that BLLs in the U.S. population aged ≥1 year continued to decrease and that BLLs *among children aged*
36 *1 to 5 were more likely to be elevated among those who were poor, non-Hispanic African American, living*
37 *in large metropolitan areas, or living in older housing.* For children aged 1 to 5, the prevalence of BLLs
38 ≥10 µg/dL was higher among those who were non-Hispanic African American, or Mexican American,
39 from lower-income families, living in metropolitan areas with a population ≥1 million, or living in older
40 housing.
41

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1 The following demonstrates the percentage of children aged 1 to 5 with BLLs \geq 10 μ g/dL.
2

Select Populations	Year Housing Built		
	Before 1946	During 1946-73	After 1973
African-American	21.9%	13.7%	3.4%
American Indian/Alaska Native	Not available	Not available	Not available
Asian/Pacific Islander	Not available	Not available	Not available
Hispanic	Not available	Not available	Not available
Mexican American	13.0%	2.3%	1.6%
White	5.6%	1.4%	1.5%
Income			
Low	16.4%	7.3%	4.3%
Middle	4.1%	2.0%	0.4%
High	0.9%	2.7%	0
Urban Status			
Population \geq 1 million	11.5%	5.8%	0.8%
Population \leq 1 million	5.8%	3.1%	2.5%

3
4 **Note:** Residential paint containing up to 50 percent lead was in widespread use through the 1940s;
5 lead usage in residential paint declined thereafter and was banned in 1978. Age of housing was
6 unknown by the household respondent for 11.7 percent of children aged 1 to 5; approximately 5.6
7 percent of children had BLLs \geq 10 μ g/dL.
8

9 Although significant progress has been made in reducing blood lead levels (BLLs) in the Nation's
10 children, lead poisoning remains a major preventable environmental health problem for young people in
11 the United States. According to recent data, about 1 million U.S. children younger than 6 years have BLLs
12 of at least 10 μ g/dL, a level high enough to adversely affect their intelligence, behavior, and development.
13 Minority and poor children are disproportionately affected.
14

15 Lead can produce adverse effects on virtually every system in the body; it can cause high blood pressure
16 and damage the kidneys, the nervous system, and the reproductive system. It is especially harmful to the
17 developing brains of fetuses and young children. Blood lead levels as low as 10 μ g/dL are associated with
18 harmful effects on children's learning and behavior.
19

20 Elevated BLLs in children are a major preventable health problem that affects children's mental and
21 physical health. The higher a child's BLL and the longer a high level persists, the greater the chance that
22 the child will be affected. Elevated BLLs can result in learning disabilities, behavioral problems, and
23 mental retardation; and at extremely high levels (70 μ g/dL or higher), seizures, coma, and even death.
24

25 Screening children for lead poisoning will remain an essential activity until we have achieved the goal of
26 primary prevention (eliminating hazards so that children are no longer exposed to lead and thus poisoned).
27 Achieving this goal will continue to require the partnership of Federal and local governments and
28 elements of the private sector involved in health, housing, and environmental protection.
29

30 **12. (Developmental) Eliminate the risks to human health and the environment at __ percent of the**
31 **sites identified on the following lists: 1,200 NPL Sites; 2,475 RCRA facilities; 370,000 Leaking**
32 **Underground Storage Facilities; and 1,500 Brownfields properties.**
33

34 **Potential Data Source:** EPA (various programs/reports).
35

1 NPL Sites are National Priorities List Sites that are initially discovered by local and State agencies,
2 businesses, EPA, the Coast Guard, and the public. If the risk to human health is significant enough for a
3 site, based on the number and toxicity of substances discovered at the site and its ability to affect
4 surrounding populations, then the site is placed on the NPL. The NPL is a published list of the most
5 hazardous waste sites in the country that are eligible for extensive, long-term cleanup under the Superfund
6 program. RCRA facilities are operations authorized and regulated by the Resource Conservation and
7 Recovery Act. RCRA was enacted by Congress in 1976 to address the issue of how to safely manage and
8 dispose of the huge volumes of municipal and industrial waste generated nationwide. With several
9 amendments, the Act and its subsequent regulations govern the management of nonhazardous (solid)
10 waste, hazardous waste, and underground storage tanks (USTs). Specifically, the RCRA program regulates
11 solid waste recycling and disposal; Federal procurement of products containing recycled materials; waste
12 minimization; hazardous waste generators and transporters; hazardous waste treatment, storage, and
13 disposal facilities (TSDFs); and Leaking Underground Storage Facilities. The Leaking Underground
14 Storage Tanks Program attempts to identify and eliminate the threat to human health posed by groundwater
15 or soil contamination from petroleum released from these tanks. The term “brownfields” denotes
16 abandoned, idle, or underused industrial or commercial sites where expansion or redevelopment is
17 complicated by real or potential environmental contamination perceived by the community.
18

19 **13. Reduce to 4 percent (a 50 percent reduction by current data) the number of fatal and nonfatal**
20 **acute pesticide poisonings in the United States.** (Baseline: nine fatalities in 1995; number of
21 nonfatal poisonings to be determined)
22

23 **13a. Reduce to 4 percent (a 50 percent reduction by current data) the number of deaths caused**
24 **by pesticide poisoning.**

25 **13b. (Developmental) Reduce by 50 percent the number of hospitalizations caused by pesticide**
26 **poisoning.**
27

28 **Target Setting Method:** Expert guidance from Environmental Health work groups.
29

30 **Potential Data Source:** Fatal poisonings: NCHS compressed mortality data (ICD-9, E863); nonfatal
31 poisonings: to be determined.
32

33 **14. (Developmental) Reduce by 25 percent (from 1992 levels) environmentally related health effects**
34 **in the quantity of toxic pollutants released, disposed of, treated, or combusted for energy**
35 **recovery.**
36

37 **Potential Data Source:** EPA Toxic Release Inventory (TRI).
38

39 **15. (Former 11.8) Reduce environmentally related respiratory and other health effects by reducing**
40 **the generation of municipal solid waste to the 1990 level of 4.3 pounds per person per day, with**
41 **the amount of waste combusted or landfilled maintained at 2.8 pounds per person per day.**
42 (Baseline: 4.4 pounds per person per day and 2.8 pounds per person per day, 1995)
43

44 **Target Setting Method:** Expert guidance from Environmental Health work groups.
45

46 **Data Source:** EPA Characterization of Municipal Solid Waste.
47

48 Critical information on the levels of exposure to hazardous substances and health effects associated with
49 hazardous substances in our environment is often lacking. As a result, efficient health outcome measures
50 often are not available to demonstrate progress toward the elimination of hazards in the environment. Most

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1 of the progress tracked in the area of toxic substances and waste, whether hazardous, industrial, or
2 municipal, centers around the presence of these elements in our environment. Much public health strategy
3 in the toxics/waste area therefore is designed to track success toward the elimination or minimization of
4 these factors.

5
6 EPA's TRI, authorized under the Emergency Planning and Community Right-To-Know Act (EPCRA) of
7 1986, is a system that will be used again in Healthy People 2010 to demonstrate progress toward
8 elimination of environmental hazards to public health. In 1984 a deadly cloud of methyl isocyanate killed
9 thousands of people in Bhopal, India. Shortly thereafter there was a serious chemical release at a sister
10 plant in West Virginia. These incidents underscored demands by industrial workers and communities in
11 several States and nations for information on hazardous materials. Public interest and environmental
12 organizations around the country accelerated demands for information on toxic chemicals being released
13 "beyond the fence line" (outside the facility). Against this background, EPCRA was enacted.

14
15 One of the aspects of EPCRA is the mandate that the TRI be made public. TRI provides citizens with
16 accurate information about potentially hazardous chemicals and their use so that communities have more
17 power to hold companies accountable and make informed decisions about how toxic chemicals are to be
18 managed. It specifically requires manufacturers to report releases of more than 600 designated chemicals
19 that threaten health and the environment. The reports are submitted to EPA and State governments. EPA
20 compiles the data in an online, publicly accessible, national computerized TRI. Facilities are required to
21 report on releases of toxic chemicals into the air, water, and land. In addition, they need to report on
22 offsite transfers—a transfer of wastes for treatment or disposal at a separate facility. Each year, over
23 80,000 reports—representing billions of pounds of chemical releases—are submitted through this system
24 by more than 20,000 manufacturing facilities and 200 Federal facilities.

25
26 The TRI database includes information on what chemicals were released into the local environment during
27 the preceding year; how much of each chemical went into the air, water, and land; how much of the
28 chemicals were transported away from the reporting facility for disposal, treatment, recycling, or energy
29 recovery; how chemical wastes were treated at the reporting facility; the efficiency of waste treatment; and
30 pollution prevention and chemical recycling activities.

31
32 TRI is a public "report card" for the industrial community, creating a powerful motivation for waste
33 reduction. This annual accounting of the Nation's management of industrial toxic chemical wastes is a
34 valuable source of information for concerned individuals and communities. Citizens and public health
35 officials are able to use the TRI to evaluate local facilities through comparisons, determine how toxic
36 chemicals are used, and, with other information, evaluate potential health risks for their community and for
37 industrial releases for the Nation as a whole.

38
39 Retained with the same targets from Healthy People 2000, the municipal solid waste objective similarly
40 tracks environmental measures as an influence on the public health of the population. As regulation and
41 management of waste systems have improved over the late 20th century, threats such as toxic substances,
42 infectious agents, and related animal vectors have been less hazardous to United States populations
43 residing near facilities authorized to accept and contain the Nation's waste. But a larger and more growing
44 problem is emerging, the overall threat that the sheer volume of the United States waste stream holds for
45 future public health and well-being. Public managers are presented with a new set of problems, some of
46 which may have a direct health impact, presented by the volume of the waste stream. Waste sites can lead
47 to fires and explosions and may still contaminate air, soil, and water. Although significant strides have
48 taken place in the minimization and recycling of waste in the 1990s overall, waste production continues to
49 rise per capita. Therefore, it is imperative that we monitor and reduce the amount of waste produced to

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1 reduce the amount of toxics released back into the environment and to more efficiently utilize the Nation's
2 and world's resources in terms of energy consumption and biological degradation.

3
4 Evidence, though incomplete, continues to be gathered documenting the threat that contaminated sites hold
5 for the public's health. Toxic and hazardous substances, including radioactive wastes, deposited on land
6 often are carried far from their sources by air, groundwater, and surface water runoff into streams, lakes,
7 and rivers where they can accumulate in the sediments beneath the waters in an increased hazardous
8 concentration. Ultimate decisions about the cleanup and management of these kinds of sites must be made
9 with public health concerns in mind. Effective public health interventions at these sites are simply
10 providing accurate and timely information concerning the threats and perceived threats posed by the sites.
11 The role of public health officials in these decisions must be the major focus of the management of these
12 sites. As improved industrial and waste management practices are implemented, the public health and
13 environmental threat that these abandoned or underused areas pose can be more thoroughly remediated.

14
15 The development and widespread use of pesticides in the American landscape are increasing both in the
16 agricultural and home setting. As a result, these often very toxic substances pose a potential threat to those
17 using them, especially if they are handled, mixed, or applied inappropriately or excessively. Furthermore,
18 children are at increased risk from pesticide poisoning because of their smaller host systems and because
19 pesticides may be stored improperly or applied to surfaces readily accessible by children. Although
20 relatively few deaths are being reported from pesticides, a large number of acute poisonings are reported.
21 With the chemical and technological advances anticipated in the manufacture of these substances, it is
22 important to develop and maintain surveillance for adverse health effects associated with their use in order
23 to maintain appropriate and effective poisoning prevention programs.

1 **Healthy Homes and Healthy Communities Objectives**

2
3 **16. Reduce the prevalence of respiratory disease, cardiovascular disease, and cancer resulting from**
4 **exposure to tobacco smoke.**

5
6 **16a. Reduce to no more than 15 percent the proportion of children aged 6 and younger who are**
7 **regularly exposed to tobacco smoke at home.** (Baseline: 27 percent exposed in 1994)

8
9 **16b. Reduce by 40 percent unintentional tobacco smoke exposure represented by blood cotinine**
10 **in the following age groups of nonsmokers:**

11

Select Age Groups	Baseline	2010 Target
Children aged 6-11	0.26 mg/dL	0.156 mg/dL
Youths aged 12-19	0.27 mg/dL	0.162 mg/dL
People aged 20-29	0.28 mg/dL	0.168 mg/dL
People aged 30-39	0.19 mg/dL	0.114 mg/dL
People aged 40-49	0.19 mg/dL	0.114 mg/dL
People aged 50-59	0.21 mg/dL	0.126 mg/dL
People aged 60-69	0.15 mg/dL	0.09 mg/dL
People aged 70+	0.12 mg/dL	0.072 mg/dL

12
13 **16c. Reduce levels by 40 percent intentional tobacco smoke exposure represented by blood**
14 **cotinine in the following age groups of smokers:**

15

Select Age Groups	Baseline	2010 Target
Children aged 6-11	22.49 mg/dL	13.494 mg/dL
Youths aged 12-19	105.20 mg/dL	63.12 mg/dL
People aged 20-29	166.72 mg/dL	100.032 mg/dL
People aged 30-39	192.75 mg/dL	115.65 mg/dL
People aged 40-49	199.53 mg/dL	119.718 mg/dL
People aged 50-59	217.77 mg/dL	130.662 mg/dL
People aged 60-69	195.43 mg/dL	117.258 mg/dL
People aged 70+	153.82 mg/dL	92.292 mg/dL

16
17 **Target Setting Method:** Expert guidance from Environmental Health work groups.

18
19 **Data Sources:** National Health Interview Survey (NHIS) and National Health and Nutrition
20 Examination Survey (NHANES), CDC, NCHS.

21
22 **17. (Former 11.11) Increase to 50 percent the number of homes built before 1950 in which testing**
23 **for lead-based paint has been performed as a means to reducing childhood lead poisoning.**
24 (Baseline: 9 percent of homes tested in 1993)

25
26 **Target Setting Method:** Expert guidance from Environmental Health work groups.

27
28 **Data Source:** National Health Interview Survey (NHIS), CDC, NCHS.
29

1 **18. Reduce deaths and nonfatal poisonings of children from exposures to household hazardous**
2 **chemicals by:**

3
4 **18a. Reduce by 25 percent the annual number of poisoning exposures of children under 6 from**
5 **household hazardous chemicals.** (Baseline: total 1,070,497 poisonings in 1995)
6

Household Hazardous Chemicals	Baseline	2010 Target
Cosmetics/personal care products	127,419	94,064
Cleaning substances	116,073	87,055
Analgesics	81,843	61,382
Plants	74,829	56,122
Cough and cold preparations	70,862	53,147
Topical preparations	3,875	2,906
Antimicrobials	39,718	29,789
Vitamins	36,553	27,414
Gastrointestinal preparations	34,992	26,244
Total poisoning exposures of children under 6 years	1,070,497	802,873

7
8 **18b. Reduce by 25 percent the rate of death from unintentional poisonings for children under 5**
9 **years of age from hazardous household chemicals.** (Baseline: 68 per 100,000 in 1995)

10 **Target Setting Method:** Expert guidance from Environmental Health work groups.

11
12
13 **Data Sources:** American Association of Poison Control Centers, Toxic Exposure Surveillance
14 System, and National Vital Statistics System (NVSS), CDC, NCHS.
15

16 **19. Reduce the household levels of lead dust and allergens.**

17
18 **19a. (Developmental) Reduce household levels of lead dust by __ percent to reduce lead**
19 **poisonings.**

20
21 **19b. (Developmental) Reduce household levels of lead allergens by __ percent to reduce the**
22 **prevalence of respiratory disease.**

23
24 **Potential Data Source:** Lead and Allergen Survey, NIH.
25

26 **20. Reduce deaths and nonfatal poisonings from carbon monoxide.**

27
28 **20a. Decrease by 15 percent the number of nonfatal cases of carbon monoxide poisoning in the**
29 **United States.** (Baseline: Estimated 5,000 nonfatal cases of carbon monoxide poisoning in 1994)
30

31 **20b. Decreased by 25 percent the number of deaths due to unintentional carbon monoxide**
32 **poisonings in the United States.** (Baseline: 223 deaths in 1994)
33

34 **Target Setting Method:** Expert guidance from Environmental Health work groups.
35

36 **Data Source:** National Vital Statistics System (NVSS), CDC, NCHS.
37

1 **21. (Former 11.6) Increase to at least 40 percent the proportion of homes in which**
2 **homeowners/occupants have tested for radon concentrations and that have been found to pose**
3 **minimal risk or have been modified to reduce risk to health, as a means to reduce the incidence**
4 **of lung cancer.** (Baseline: 11 percent in 1994)
5

6 **Target Setting Method:** Expert guidance from Environmental Health work groups.
7

8 **Data Source:** National Health Interview Survey (NHIS), CDC, NCHS.
9

10 The public's health depends on the interaction of many factors, particularly in the area of environmental
11 health. Therefore, to provide a safe and healthy environment within our communities in this country, the
12 interaction of all these factors in all the different places we spend our time must be taken into account.
13 This is particularly true of our homes, where people spend more time than any other single environment.
14 Over 50 million housing units meet the HUD definition of inadequate housing. Environmental health
15 hazards that can be present to some degree in all housing include indoor air pollution, inadequate heating
16 and sanitation, structural problems, electrical and fire hazards, and deteriorating lead-based paint and
17 lead-contaminated dust.
18

19 In the area of air quality, many factors in our homes and communities affect our individual health. An
20 estimated 50,000 to 120,000 premature deaths are associated with exposure to air pollutants. These
21 pollutants can include environmental tobacco smoke, allergens, lead dust, carbon monoxide, and radon.
22 Exposures to these pollutants cause such illnesses as asthma and lung cancer. Asthma is one of the
23 nation's most common and costly diseases, affecting 14 to 15 million Americans, including almost 5
24 million children. Asthma is the most prevalent chronic disease among children, and children under 15
25 years account for 10 percent of the deaths and 38 percent of the illnesses. In 1990, costs related to asthma
26 were estimated to total \$6.2 billion; the projected cost of asthma in this country for the year 2000 is
27 expected to double to \$14.5 billion. Included as part of the monetary value, many people with asthma
28 experience more than 100 million days of restricted activity.¹⁵ Additional information can be found in the
29 focus area on lungs.
30

31 Lung cancer also is an illness whose causes include many significant environmental components.
32 Environmental tobacco smoke, particularly secondhand smoke, affects the probability that an individual
33 exposed will develop lung cancer. Those most affected by secondhand smoke are children. Because their
34 bodies are still developing, exposure to the poisons in secondhand smoke puts children in danger of severe
35 respiratory diseases and can hinder the growth of their lungs. In addition to environmental tobacco smoke,
36 environmental causes of lung cancer include exposure to asbestos and radon. Prolonged exposure to high
37 levels of radon can cause lung cancer. This exposure is estimated to contribute to many thousands of
38 deaths each year. The Surgeon General has warned that radon is the second leading cause of lung cancer
39 in the United States today. Only smoking causes more lung cancer deaths. Most important, if a person
40 smokes and his or her home has high radon or asbestos levels, that person's risk of lung cancer is
41 especially high.¹⁶
42

43 Finally, available data show that an average of over 200 people die and almost 5,000 are injured each year
44 from unintentional carbon monoxide poisoning-related incidents, excluding incidents involving auto
45 exhaust and fires, at a residential societal cost of over \$1 billion annually.¹⁷
46

47 Air quality is not the only issue that can affect whether homes and communities are environmentally safe.
48 Other factors such as lead paint on walls, household hazardous substances such as cleaning products in the
49 cupboards, and pesticides in storerooms can affect our health and safety. Some populations of children are
50 still heavily exposed to lead, while the risks to others have been somewhat lessened. A recent national

1 estimate conducted by the Centers for Disease Control and Prevention (CDC) showed that 21.9 percent of
2 African American children living in housing built before 1950 had elevated blood lead levels.¹⁸
3 Additionally, in 1995 poison control centers managed over 1 million potentially poisonous exposures
4 among children under 6 years of age in the United States, accounting for 53 percent of all human
5 poisoning exposures reported by the Toxic Exposure Surveillance System (TESS). The child's home was
6 the site of the exposure in 94 percent of cases reported to the poison control center.¹⁹

7
8 **Infrastructure/Surveillance Objectives**
9

10 **22. Reduce exposure to pesticides that inhibit cholinesterase as evidenced by a reduction of their**
11 **mean concentration in urine of the following:**
12

Pesticide	Baseline*	2010 Target
Carbaryl	36.0 µg/dL	25.2 µg/dL
Carbofuran	Not detected	Not detected
Methyl parathion and parathion	38.0 µg/dL	26.6 µg/dL
Chlorpyrifos	8.3 µg/dL	5.8 µg/dL
Propoxur	1.6 µg/dL	1.1 µg/dL

13
14 *95 percent population percentile
15

16 Metabolites of pesticides (see table below for list of pesticides and their metabolites) are measured
17 in urine samples from persons aged 6 and older. Concentrations of pesticide metabolites in urine
18 are creatinine-corrected and expressed in µg/g creatinine.
19

Pesticide	Metabolite
Carbaryl	1-naphthol
Carbofuran	Carbofuran phenol
Methyl parathion and parathion	Paranitrophenol
Chlorpyrifos	3,5,6-trichloro-2-pyridinol
Propoxur	Isopropoxyphenol

20
21 **Target Setting Method:** Expert guidance from Environmental Health work groups.
22

23 **Data Sources:** National Health and Nutrition Examination Surveys (NHANES) III and IV, CDC,
24 NCHS.
25

26 **23. (Developmental) Reduce exposure to persistent chemicals as evidenced by a __ percent**
27 **reduction of the mean concentration in serum of 38 polychlorinated bipenyls, 13 persistent**
28 **pesticides, and 24 dibenzodioxins and dibenzofurans.**
29

30 **Data Source:** National Health and Nutrition Examination Survey (NHANES), CDC, NCHS.
31

32 Baseline measurements to be performed in the next year on blood samples collected in NHANES III from
33 persons aged 3 and older.
34

1 **24. (Developmental) Monitor the exposure of the U.S. population to selected chemicals:**
2

3 **24a. Pesticides (24D, chlorpyrifos, o-phenylphenol, methyl parathion, permethrins, diazinon,**
4 **propoxur, carbaryl).**
5

6 **24b. Heavy metals (lead, mercury).**
7

8 **24c. Organochlorine compounds.**
9

10 **Potential Data Source:** National Health and Nutrition Examination Survey (NHANES), CDC,
11 NCHS.
12

13 **25. (Developmental) Develop methods to monitor exposure to other environmental chemical**
14 **hazards:**
15

16 **25a. Volatile organic compounds.**
17

18 **25b. Polycyclic aromatic hydrocarbons.**
19

20 **26. (Developmental) Review and improve existing environmental and environmental health**
21 **information systems. Increase public awareness of these systems and ensure that they are useful**
22 **to both scientific and lay audiences.**
23

24 **Potential Data Source:** Determine the number of times that five representative information systems
25 (e.g., Toxline, IRIS, RTECS, HazDat, AIRS) are accessed annually via the Internet.
26

27 Usefulness of data may be improved by linking existing data, when possible, and geocoding data for easier
28 use with geographic information systems.
29

1 **27. Increase the number of States and territories that monitor diseases that can be caused by**
 2 **exposure to environmental hazards.**
 3

Disease	1997	2010 Target
Lead poisoning	51	51
Pesticide poisoning	20	25
Mercury poisoning	14	15
Arsenic poisoning	10	10
Cadmium poisoning	10	10
Methemoglobinemia	9	10
Acute chemical poisoning*	8	15
Carbon monoxide poisoning	7	50
Asthma	6	50
Hyperthermia	4	10
Hypothermia	4	10
Malignant melanoma	—	50
Nonmelanoma skin cancer	—	50
Birth defects	—	30

4
 5 *Acute chemical poisoning refers to unintentional poisonings caused by nonmedicinal chemicals not
 6 specified elsewhere in the table.
 7

8 **Target Setting Method:** Expert guidance from Environmental Health work groups.
 9

10 **Data Sources:** Periodic surveys by the Public Health Foundation and the Council of State and
 11 Territorial Epidemiologists.
 12

13 To prevent health problems caused by environmental hazards requires adequate public health infrastructure
 14 to investigate and respond to diseases and injuries potentially caused by environmental hazards; monitoring
 15 of the population and its environment to detect hazards, exposure of the public and individuals to hazards,
 16 and diseases potentially caused by these hazards; monitoring of the population and its environment to
 17 assess the effectiveness of prevention programs; education of the general public and special populations on
 18 the relationship between health and the environment; laws, regulations, and practices that protect the
 19 public and the environment from hazardous agents; public access to understandable and useful information
 20 on hazards and their sources, distribution, and health effects; adequate and appropriate coordination of the
 21 efforts of all government agencies and nongovernmental groups responsible for environmental health; and
 22 adequate resources to accomplish these tasks.
 23

24 ***International Objectives***
 25

26 **28. Decrease by 20 percent the global burden of disease due to poor water quality, sanitation, and**
 27 **personal and domestic hygiene.** (Baseline: 2,668.2 deaths worldwide attributable to poor water
 28 supply, sanitation, and personal and domestic hygiene in 1990)
 29

30 **Target Setting Method:** 20 percent improvement.
 31

32 **Data Source:** WHO Global Burden of Disease.
 33

1 **29. Reduce infectious and parasitic diseases caused by poor water quality by providing overall**
2 **environmental services such as sewer service, wastewater treatment service, and potable**
3 **drinking water to an additional 10 percent of the total population in the U.S.-Mexico border**
4 **region, as measured by the following representative populations:**
5

6 Figures are cited from the U.S.-Mexico Border XXI Program, United States-Mexico Border
7 Environmental Indicators, 1997 draft, pp. 29-30.
8

Representation Populations in Mexico	1997
Wastewater Sewer Service Provided	
Mexicali	80%
Nogales, Son.	81%
Cd. Acuna	39%
Piedras Negras	80%
Matamoros	47%
Reynosa	57%
Wastewater Receiving Treatment	
Mexicali	72%
Nogales, Son.	100%
Cd. Acuna	0%
Piedras Negras	0%
Matamoros	0%
Reynosa	100%
Drinking Water Disinfected Prior to Delivery	
Mexicali	100%
Nogales, Son.	100%
Cd. Acuna	100%
Piedras Negras	100%
Matamoros	100%
Reynosa	100%

9
10 **Note:** In the United States for all intents and purposes there is 100 percent coverage in the major
11 cities. However, the data do not exist for the smaller border towns. The data for Mexico are from the
12 selected major cities; much like the United States, the data for the smaller border towns are not known
13 at this time.
14

15 **Target Setting Method:** Expert guidance from Environmental Health work groups.
16

17 **Data Sources:** U.S. EPA, Mexico's Comisión Nacional de Agua, State/local health departments,
18 American Water Works Association, Rural Water Association, U.S.-Mexican Border Health
19 Association.
20

21 **30. Provide technical assistance and consultation including evidence-based policy guidance to at**
22 **least 10 countries to strengthen their capacity to reduce environmental lead exposure.** (Baseline:
23 four countries currently receive technical assistance and consultation [China, Russia, Egypt, and
24 Mexico])
25

26 **Target Setting Method:** Expert guidance from Environmental Health work groups.
27

28 **Data Source:** WHO.

1
2 **31. (Developmental) Reduce deaths and nonfatal poisonings from pesticides by providing a**
3 **tracking mechanism for the export of pesticides not registered or restricted for use in the United**
4 **States, and implement mandatory electronic filing of Shipper Export Declarations relating to**
5 **pesticide shipments through the Automated Export System of the U.S. Customs Service.**
6 **Provide access to this information to all relevant government agencies, in particular the U.S.**
7 **EPA, and to nongovernmental organizations, researchers, and members of the public.**

8
9 **Potential Data Source:** Shipper's Export Declarations maintained by the U.S. Customs Service.
10 These Declarations are automated through the Automated Export System.

11
12 **32. (Developmental) Reduce the occurrence of diseases and harmful environmental exposures to**
13 **U.S. travelers overseas, through more active provision of information related to health for**
14 **international travel.**

15
16 **Potential Data Sources:** State and local health departments, international travel clinics, CDC.

17
18 **33. (Developmental) Determine the total pesticide exposure and number of people affected, with**
19 **particular attention to the U.S.-Mexico border region.**

20
21 **Note:** The U.S.-Mexico border is the region 62 miles or 100 kilometers on either side of the
22 geographical border.

23
24 **Potential Data Source:** Environmental Health Workgroup of Border XXI.

25
26 **34. (Developmental) Increase participation in negotiations and ratify an agreement that establishes**
27 **uniform international guidelines governing environmental quality standards to reduce the**
28 **effects of environmental problems, with a focus on safe manufacture, use, and trade of**
29 **hazardous chemicals, as well as procedures for adequate labeling, safety training, distribution of**
30 **protective equipment, and dissemination of information on less hazardous materials.**

31
32 **Potential Data Sources:** Health in the Americas, Pan American Health Organization; Department of
33 State "Environmental HUBS Program" and Regional Bureaus.

34
35 The world is becoming a smaller place through increased international travel and improvements in
36 telecommunications and computer technology. The term "global community" has real significance, as the
37 forces that draw us together are distinctively greater than those that pull us apart. For instance, as we
38 realize that the air we breathe, the water we drink, and the soil that we cultivate are dynamic elements that
39 traverse the globe, our actions, especially regarding our environment, correspondingly influence events
40 across the globe. Undoubtedly, the environment affects our health and sometimes as we work to modify it
41 to suit our needs, we may inadvertently create a worse condition for others in different areas of the world.
42 The United States has a responsibility to help remedy international suffering, not only because this should
43 be a shared goal for humanity but also because a healthy global population has positive social and
44 economic benefits throughout the world.²⁰

45
46 International environmental health objectives are important to the Healthy People endeavor because these
47 objectives incorporate a broad scope that will become more important as the world progressively seems to
48 become a smaller place. Healthy People objectives that are international in scope will help other countries
49 in the areas of public health, environmental health, improved morbidity and mortality, and better quality of
50 life. Increased longevity without quality of life is an empty prize, i.e., health expectancy is more important

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1 than life expectancy.²¹ Consequently, the ultimate goal should be to address environmental health
2 concerns that will result in improved public health ventures or reductions of associated disease rates or
3 both.

4
5 Public perception of the links between human activity and environmental degradation are changing.
6 Nevertheless, unless public awareness increases substantially in support of far-reaching change, we may
7 not be able to reverse the trends that are undermining our public health efforts.²²

8
9 Improving access to clean water and sanitation has been cited as “the single most effective means of
10 alleviating human distress.”²³ Improvements in water supply and sanitation may increase the average life
11 expectancy in developing countries by 15 years.²⁴ Furthermore, poor sanitation ranks as one of the highest
12 contributing factors to the global burden of disease and injury.²⁵ Diarrhoeal diseases, which kill nearly 3
13 million people a year in developing countries, typically result from poor sanitation practices and
14 substandard drinking water. These diseases are mostly preventable with interventions such as improved
15 environmental services.

16
17 The U.S.-Mexico border area, for instance, illustrates how human activity can cause environmental
18 degradation, which may affect generations to come. Over the last 30 years, this border region has
19 experienced a dramatic surge in population and industrialization. Unfortunately, this growth has exceeded
20 the existing infrastructure capabilities of the region, leading to inadequate sewage treatment and solid
21 waste infrastructure, improper handling and storage of pesticides and other hazardous materials,
22 insufficient drinking water supplies, and dramatic effects on habitats and the biodiversity they support.

23
24 Water pollution is one of the principal environmental and public health problems facing the U.S./Mexico
25 border area. Deficiencies in the treatment of wastewater, the disposal of untreated effluent, and inadequate
26 operation and maintenance of treatment plants result in health risks. Additionally, the lack of adequate
27 distribution systems for drinking water increases potential risk for gastrointestinal infections. Objectives in
28 this area will help to ensure a commitment to sustainable development along the border by seeking a
29 balance among social and economic factors and the protection of the environment in border communities
30 and natural areas.

31
32 In 1996, the United States exported over \$2.5 billion worth of pesticides.²⁶ Exported pesticides that are
33 not registered or restricted for use in the United States usually are not restricted in developing countries
34 and, evidently, are used by these countries. Consequently, these harmful chemicals may imperil the health
35 of these populations. Adverse effects on wildlife and livestock have been documented. This means that
36 human populations, which eat these animals, also ingest these hazardous chemicals. Some detrimental
37 effects of pesticides include altered immune function, mutagenic and teratogenic responses, an array of
38 neurologic effects, and embryo toxicity and reproductive failure.²⁷ It is not unlikely that these hazardous
39 substances may contribute to worldwide morbidity and mortality.

40
41 Not only are foreign populations at risk but the United States population also is at risk from imported foods
42 and other resources that are contaminated with these unregistered and restricted pesticides. Sensitive
43 populations such as children and pregnant women may be at increased risk from these environmental
44 exposures. For example, significantly increased risk of acute nonlymphocytic leukemia in children is
45 associated with paternal and maternal pesticide exposure.²⁸ A system that tracks these hazardous
46 chemicals and reports them annually to government agencies, researchers, and the public may help to
47 illustrate diseases associated with these substances and provide an overview of the numbers of restricted
48 pesticides exported by the United States that may eventually return to our country.

49

1 American citizens are traveling overseas more than ever. This trend is likely to continue as technology
2 improves and travel becomes easier. However, there are health risks to traveling overseas, especially in
3 developing countries. Between 15 percent and 50 percent of travelers to developing countries have some
4 type of illness during or after travel, with about 5 percent of these needing medical attention.²⁹ Each
5 traveler should therefore be aware of harmful environmental exposures to reduce the chances of disease
6 occurrence. Travelers should also be aware of methods to help protect themselves from environmental
7 diseases such as gastrointestinal outbreaks from improper sanitation practices, substandard water supply,
8 and inadequate handling of food and the use of appropriate hygienic and health care practices. Travelers
9 also should be advised of the country's general environmental and public health practices to determine the
10 potential scope of acquiring various environmental diseases and to take the requisite intervention practices.

11
12 Rapid industrialization and population growth have created a need for improved environmental
13 information. Many countries may have resources available to protect their populations from adverse health
14 impact but because of inadequate information they are unable to do so. Information on lead abatement
15 technology is one area where the United States can provide assistance to other countries. Consultation on
16 removing lead in gasoline and defining the magnitude of childhood lead poisoning will help to reduce
17 morbidity in countries with lead problems, thus leading to a healthier global community.

18
19 The United States should expand its concern for improved environmental conditions to enhance the health
20 of developing countries and also increase collaboration, coordination, and outreach efforts with the rest of
21 the world to close the gap between existing and attainable health status. If the relationship of poor health
22 and unfavorable environmental conditions is ignored, we face the possibility of disastrous social,
23 economic, and health problems on a global scale. The United States, accordingly, should concern itself
24 with ensuring the best possible development of improved health throughout the world.³⁰

25 26 **Related Objectives From Other Focus Areas**

27 28 **Tobacco Use**

- 29 13 Physician inquiries about secondhand smoke
- 30 14 Tobacco-free schools
- 31 15 Worksite smoking policies
- 32 16 Smoke-free air laws

33 34 **Food Safety**

- 35 1 Foodborne infections
- 36 2 *Salmonella* and *Escherichia coli*
- 37 3 *Listeria monocytogenes* and *Vibrio vulnificus*
- 38 4 Antimicrobial-resistant bacterial pathogens
- 39 7 Food handling in retail establishments
- 40 8 Pesticide residue tolerances
- 41 9 Limits for mycotoxins

42 **Injury/Violence Prevention**

- 43 1 Nonfatal head injuries
- 44 2 Nonfatal spinal cord injuries
- 45 4 Homes with firearms
- 46 8 Deaths from unintentional injuries
- 47 9 Emergency department visits
- 48 10 Nonfatal unintentional injuries
- 49 11 Motor vehicle crashes
- 50 12 Pedestrian deaths

- 1 13 Nonfatal motor vehicle injuries
- 2 20 Residential fire deaths
- 3 21 Smoke alarms
- 4 22 Deaths from falls
- 5 23 Hip fractures
- 6 24 Drowning deaths
- 7 28 Nonfatal poisoning
- 8 29 Deaths from unintentional poisoning
- 9 30 Nonfatal dog bite injuries

10

11 **Occupational Safety and Health**

- 12 1 Deaths from work-related injuries
- 13 2 Work-related injuries
- 14 3 Workplace injury and illness surveillance
- 15 5 Pneumoconiosis deaths
- 16 8 Noise-induced permanent threshold shift
- 17 9 Blood lead levels greater than 25 µg/dL
- 18 10 Blood lead levels greater than 10 µg/dL
- 19 11 Occupational skin diseases/disorders
- 20 12 Latex allergy
- 21 13 Tractor rollover protection systems
- 22 15 Hepatitis B infections

23

24 **Oral Health**

- 25 10 Water fluoridation

26

27 **Access to Quality Health Services**

- 28 A.2. Insurance coverage
- 29 C.1. Access to emergency medical services
- 30 C.3. Toll-free Poison Control Center number

31

32 **Maternal, Infant, and Child Health**

- 33 2 Infant mortality from birth defects
- 34 9 Preconception counseling
- 35 25 Prenatal exposure to teratogenic prescription medications

36

37 **Public Health Infrastructure**

- 38 2 Training in essential public health services
- 39 3 Continuing education and training by public health agencies
- 40 6 Access to public health information and surveillance data
- 41 9 Use of geocoding in health data systems
- 42 10 Performance standards for essential public health services
- 43 12 Access to laboratory services
- 44 13 Access to comprehensive epidemiology services
- 45 14 Model statutes related to essential public health services
- 46 16 Collaboration and cooperation in prevention research efforts

47

48 **Cancer**

- 49 2 Lung cancer deaths
- 50 3 Breast cancer deaths

- 1 8 Sun exposure
- 2 15 Statewide cancer registries

3

4 **Disability and Secondary Conditions**

- 5 7 Print size on medicine, patient instructional materials, and syringe markings
- 6 11 Environmental barriers

7

8 **Immunization and Infectious Diseases**

- 9 3 Hepatitis A
- 10 6 Hepatitis B in adults
- 11 8 Hepatitis C
- 12 11 Tuberculosis
- 13 15 Occupational needle-stick exposures
- 14 19 Lyme disease

15

16 **Respiratory Diseases**

- 17 1 Deaths (asthma)
- 18 2 Hospitalizations (asthma)
- 19 3 Emergency department visits (asthma)
- 20 4 Activity limitations (asthma)
- 21 5 School or work days lost (asthma)
- 22 6 Patient education (asthma)
- 23 7 Continuing medical education (asthma)
- 24 8 Written asthma management plans
- 25 9 Counseling on early signs of worsening asthma
- 26 10 Instruction on peak expiratory flow monitoring (asthma)
- 27 11 Short-acting inhaled beta agonists (asthma)
- 28 12 Long-term management (asthma)
- 29 13 Surveillance system (asthma)
- 30 14 Prevalence: Chronic Obstructive Pulmonary Disease (COPD)
- 31 15 Deaths (COPD)
- 32 16 Culturally competent care (COPD)
- 33 17 Training in early signs of COPD

34

35 **References**

36

- 37 1. World Health Organization (WHO). *Indicators for Policy and Decision Making in Environmental Health*
- 38 (draft). Geneva, Switzerland: WHO, July 1997.
- 39 2. Briggs, E.; Corvalan, C.; Nurminen, M.; eds. *Linkage Methods for Environmental and Health Analysis*.
- 40 (WHO/EHG/95.26). Geneva: United Nations Environment Program, U.S. Environmental Protection Agency
- 41 (EPA), 1996.
- 42 3. Murray, C.J.; Lopez, A.D., eds. *The Global Burden of Disease*. Cambridge: Harvard University Press,
- 43 Cambridge, 1996.
- 44 4. World Health Organization. *WHO Fact Sheet 170: Health & Environment in Sustainable Development*.
- 45 Geneva: WHO, June 1997.
- 46 5. EPA. *National Air Quality and Emissions Trends Report*. Research Triangle Park, NC: EPA. 1995.
- 47 6. EPA. *Strategic Plan*. Location: Washington, DC: EPA, September 1997.
- 48 7. EPA, 1995, op. cit.
- 49 8. U.S. Department of Health and Human Services. *Healthy People 2000: National Health Promotion and*
- 50 *Disease Prevention Objectives*. Washington, DC: Government Printing Office, 1991.

Healthy People 2010 Objectives: Draft for Public Comment

- 1 9. American Lung Association (ALA). *Health Care Costs of Air Pollution, Third Edition*. New York: ALA,
2 1990.
- 3 10. Craun, G.F., ed. *Waterborne Disease Outbreaks in the United States*. Boca Raton, FL: CRC Press, 1986.
- 4 11. Centers for Disease Control and Prevention. Waterborne disease outbreaks, 1989-1990. *MMWR* 40 (SS-3):1-
5 21, 1991.
- 6 12. Centers for Disease Control and Prevention. Waterborne disease outbreaks, 1991-1992. *MMWR* 42 (SS-5):1-
7 22, 1991.
- 8 13. Centers for Disease Control and Prevention. Waterborne disease outbreaks, 1993-1994. *MMWR* 45 (SS-1):1-
9 33, 1991.
- 10 14. EPA. *Public Water System Inventory and Compliance Statistics*. EPA 816-R-97-006. Washington, DC:
11 Office of Water, 1997.
- 12 15. National Center for Environmental Health, Air and Respiratory Health Branch. Personal communication, April
13 1998.
- 14 16. U.S. Department of Health and Human Services. *A Citizen's Guide to Radon*. Washington, DC: Centers for
15 Disease Control and Prevention, U.S. Public Health Service, Environmental Protection Agency, May 1992.
- 16 17. Consumer Product Safety Commission (CPSC) Strategic Plan, 1998.
- 17 18. Centers for Disease Control and Prevention. *Screening Young Children for Lead Poisoning: Guidance for*
18 *State and Local Public Health Officials*. Atlanta, GA: Centers for Disease Control and Prevention, November
19 1997.
- 20 19. National Center for Health Statistics. *Health, United States, 1996-97 and Injury Chartbook*. Hyattsville, MD:
21 National Center for Health Statistics, 1997.
- 22 20. White House. *New Directions in International Health Cooperation*. Washington DC: U.S. Government
23 Printing Office, 1978.
- 24 21. WHO. *The World Health Report 1997: Conquering Suffering. Enriching Humanity*. Geneva: WHO, 1997.
- 25 22. Brown, L.R.; et al. *State of the World, 1988*. Worldwatch Institute, 1988.
- 26 23. World Resources, Institute. *World Resources: A Guide to the Global Environment*. Oxford University Press,
27 1997.
- 28 24. World Bank. *World Development Report 1992: Development and the Environment*. Washington DC: World
29 Bank, 1992. p.99.
- 30 25. Murray and Lopez, op. cit.
- 31 26. SRF International. *Chemical Economics Handbook*. September 1997. Available: DIALOG File 359 [1998,
32 April 10].
- 33 27. Huff, J.E. and Haseman, J.K. *C&EN*, January 7, 1991, p. 33.
- 34 28. Buckeley, J.D.; et al. *Cancer Research* 49:4030, 1989.
- 35 29. Yung, A. *Infections in Returned Travelers*. http://hna.ffh.vic.gov.au/comm_dis/travel/irt/trav1.html.
- 36 30. White House, op. cit.