

5. ENVIRONMENTAL HEALTH

Goal

Health for all through a healthy environment.

Terminology

Biomarker: A measure in humans that indicates exposure to a toxic substance or physical agent.

Brownfields: 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 (biomarker) 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, children, or the entire population.

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

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 environment is a major contributor to increased morbidity and

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

Infectious agents continue to taint food and water. Animals continue to carry diseases to human populations. Outbreaks of once-common intestinal diseases, although less frequent, still occur. These outbreaks serve as a warning that environmental health programs developed in the first half of the 20th century must be maintained and improved. Public health program managers will be challenged to retain this basic capacity in the next century, even as they face additional responsibilities for dealing with other potential hazards, many of them chemical. Maintaining activities to prevent efforts of well-known and familiar hazards must be pursued carefully in tandem with work to conduct research and monitor developments related to newer, often poorly characterized or understood hazards. (USDHHS, 1998)

Progress Toward Year 2000 Objectives

11A1. To reduce, divert, or recapture 25 percent of the solid waste currently going into Kentucky landfills.

According to the Environmental Quality Commission, 28 percent of Kentucky's solid waste stream was recycled in 1997 compared to 17 percent in 1990. (Kentucky's Environment, 1999) In 1998, 4,039,690 tons of waste went into Kentucky's landfills, already surpassing the previous estimate of 3.67 million tons by 2000. However, the 1998 total did represent a decrease from the 1997 figure of 4,272,670 tons. Of Kentucky counties, 98 have universal collection, 22 have mandatory collection, and 109 of 120 counties have door-to-door collection as the primary system. (Division of Waste Management, 1999) The Kentucky Recycling and Marketing Assistance Program promotes the development of an effective recycling infrastructure in Kentucky. This program provides technical assistance to existing collection and processing systems, encourages development of new collection and processing systems and promotes the development of markets for collected materials. (Division of Waste Management website)

- 11A2. To document the extent of malfunctioning septic systems in Kentucky and the verifiable consequences of such malfunctions, preparatory to formulating an appropriate state response.

There is still no quantification of the extent of malfunctioning septic systems in Kentucky. However, a state response was formulated. Senate Bill 18, which was passed during the 1998 regular session of the General Assembly, prevents the installation of new straight pipes by requiring that septic system approval proceeds the connection of houses to electricity. (Kentucky Legislative Website)

- 11A3. To increase to 50 percent the number of privately installed sewage/wastewater treatment plants operated under regional management arrangements by a private company, municipality or public cooperation formed for the purpose.

According to information received in 1999 from the Division of Water, 10 percent of the plants in the state are currently operated by a regional sewer agency. The Division of Epidemiology and Health Planning will continue to work with the Division of Water to address this objective.

- 11A4. To increase to 33,000 screenings of 29,700 children, ages six months through five years, for detection of blood lead exceeding safe exposure standards.

In FY 1995, 40,967 children in 120 health departments were screened for lead poisoning. This surpassed the year 2000 objective of 33,000 screenings of 29,700 children. However, the number of children tested declined from 44,695 in FY 1997 to only 27,160 in FY 1999. Further research into the reasons for this decline is needed. (Johnson, 1999)

- 11A5. To increase to 100 percent the amount of medical waste that is properly managed and disposed of in accordance with Kentucky Revised Statutes Chapter 224.

This objective has not been addressed other than to provide published reference materials to interested parties.

- 11A6. To repeal the Farmstead Exemption regarding water and waste water on private farmsteads of 10 acres or more.

The 1992 General Assembly passed legislation to eliminate the Farmstead Exemption. (Department for Public Health, 1996)

- 11A7. To quadruple the number of private water supplies tested and evaluated annually in Kentucky.

The Division for Laboratory Services reported in 1999 that 4,071 private water samples were tested during FY 1998-99. The 1990 baseline data reported that 5,450 samples were analyzed. KDHP is working with the Water Resources

Development Commission to develop a strategy to increase the number of private water supplies tested.

- 11A8. To ensure that 100 percent of sludge pumped from septic tanks is properly hauled and disposed of in a sanitary manner that protects the public health.

The Department for Public Health is working with the state Division of Waste Management and the State Police Environmental Crimes Unit to locate and prosecute illegal dumpers. A program has been implemented and regulations adopted consistent with Federal 503 Regulations on sewage disposal/treatment. The database in current use is being expanded toward the goals.

- 11A9. To reduce the annual incidence of illness caused by human exposure to infectious diseases transmitted from domestic and wild animals.

According to the Division of Epidemiology and Health Planning, one case of human rabies was reported in 1996. This represented the first case of human rabies in Kentucky since 1979. From the period of 1996 to 1997, the Division reported two cases of brucellosis, nine cases of ehrlichiosis, seventy three cases of lyme disease, forty cases of Rocky Mountain spotted fever, and one case of tularemia. No cases of anthrax, leptospirosis, plague, psittacosis, Q fever, or trichinosis were reported. These diseases must continue to be monitored in order to establish the incidence of illness caused by human exposure to infectious diseases transmitted from domestic and wild animals.

- 11A10. To reduce the public health risk from rodents, insects and other known disease-transmitting vectors.

Through the department's local health department agents all complaints of rodent and insect infestation are investigated. Orders to abate are issued pursuant to KRS 211.210 and 212.212 when infestations are confirmed.

- 11A11. To reduce adverse health effects resulting from indoor air pollution and use of potentially harmful household products.

Informational materials on indoor air quality and hazardous materials are sent upon request by the Environmental Management Branch, Product Safety Program.

2010 Objectives

- 5.1. (Developmental) Ensure that there are no outbreaks of waterborne disease arising from water intended for drinking.**

Potential Data Source: *Epidemiologic Notes and Reports*, Div. of Epidemiology and Health Planning.

Implementation Strategy:

- The local health department environmentalists will investigate all suspected outbreaks of such illness.
- The division epidemiologist will conduct any epidemiological studies of a suspected outbreak.

5.2. (Developmental) Reduce the potential human exposure to toxic chemicals by reducing fish contaminant levels.

Potential Data Source: Division of Public Health Protection and Safety, Food Safety and Cosmetics Branch.

Approximately 20 fish samples are taken annually from waterways that are subject to fish consumption advisories. These advisories are different based on the specific contaminant(s) found. They may be targeted to the most susceptible populations, such as children or women of childbearing age. The group involved in issuing the advisories intends to increase the number of samples collected over the next few years.

Implementation Strategy:

- Increase the number of and improve the quality of fish samples for detection of toxic chemicals.
- Support decreased use of toxic substances that have the potential for contaminating surface and ground water and fish.

5.3 (Developmental) Reduce the number of beach closings and water recreational use restrictions due to harmful bacteria.

Potential Data Source: Division of Public Health Protection and Safety, Environmental Management Branch; Kentucky Department of Parks

Implementation Strategy:

- To help protect Kentucky's waterways, the Best Management Practices set forth by the Agriculture Water Quality Authority will be implemented.
- The Straight Pipe law and the Personal Responsibility in a Desirable Environmental (PRIDE) project will also improve the condition of our state beaches.
- The Division will encourage the development of a revolving loan program for new septic systems.

5.4. (Developmental) Support and track compliance with the “Best Management Practices” as set forth by the Agriculture Water Quality Authority.

Baseline: According to the Agriculture Water Quality Authority, approximately 5,500 plans are on file. There are 160,000 tobacco bases, 89,000 farmers, and 200,000 private woodland owners in the state.

Potential Data Source: Department for Natural Resources, Division of Conservation.

According to the Agriculture Water Quality Authority, every farmer must have a Best Management Plan that includes the handling of animal wastes. The Division of Conservation tracks the number of plans filed and the number of informational contacts. In 1998, 1325 Kentucky farms were certified, while 4,162 farms were certified in 1999. The Division of Public Health Protection and Safety will continue to track this objective.

According to the *1998 Kentucky Report to Congress on Water Quality*, none of the Ohio River banks bordering the state of Kentucky could fully support recreational and fishing uses. Of Kentucky’s other rivers and streams, 61 percent could fully support recreational and fishing uses, 21 percent could not support such uses, and 12 percent could partially support uses. The five most common causes of use impairment of rivers and streams were pathogens (31 percent), siltation (21.8 percent), nutrients (11.1 percent), organic enrichment (9.1 percent), and habitat alterations (6.5 percent). The five most common sources of use impairment were agriculture (20.4 percent), resource extraction (19 percent), municipal point sources (16.8 percent), improper waste disposal (including straight pipes; 12.2 percent), and urban runoff (9.4 percent).

Of 121 Kentucky lakes, 88 (72 percent) could fully support fishing and recreational uses, while 27 (23 percent) could partially support such uses and 6 (5 percent) could not support one or more uses. The most common causes of use impairment of lakes were organics (43 percent), nutrients (40 percent), and suspended solids (10 percent). Agricultural runoff and septic systems were among the principal sources of lake use impairment.

Implementation Strategy:

Ensuring the quality of Kentucky’s water is largely dependent on compliance with non-pollution waste management practices. Malfunctioning septic systems and municipal treatment plants, along with mismanagement of agricultural waste, are major factors in water pollution in Kentucky. Government agencies in public health, environmental protection, and agriculture must work together to establish and enforce acceptable water treatment and protection practices. (Kentucky Natural Resources and Environmental Protection Cabinet, 1999)

5.5. Eliminate the risk of lead exposure from improper abatement activities in target housing or child occupied facilities.

Data Source: Environmental Protection Agency (EPA)

One out of every eleven children in the United States has dangerous levels of lead in the blood stream. Lead exposure can harm young children and babies before they are born. People can get lead in their bodies by breathing or swallowing lead dust, or by eating soil or paint chips with lead in them. Many houses, apartments, and child occupied facilities such as day cares, built before 1978 have paint that contains lead (called lead-based paint). Removing lead-based paint improperly can increase the danger of exposure. Certain action or abatement levels for lead sources have been established which relate to potential for exposure, and abatement or interim control of lead hazards.

Under correspondence to the EPA, dated February 28, 1995, the Governor of Kentucky officially designated the Division of Public Health Protection and Safety, Department for Public Health as the agency for responding to childhood lead poisoning and residential lead abatement issues.

Appropriate legislation titled the “Lead-Hazard Act” was adopted in June of 1996. The regulations relating to the law were adopted in October 96 and became effective in January and July of 1997. These related to requirements for certification of persons who perform or offer to perform “lead-hazard” detection or abatement, the accreditation of trainers and training facilities, and standards and procedures.

In August 1998 Kentucky applied to the Environmental Protection Agency (EPA) for self certification under the requirements of 40 CFR 745.327 to become authorized to conduct a state run lead-based paint compliance and enforcement program. This self-certification was reviewed and accepted by EPA.

Implementation Strategy:

- The primary activities related to this objective would be maintaining and improving the infrastructure to administer the environmental lead program, and the establishment, review and improvement of the lead hazard reduction and enforcement program.
- Increase citizen awareness and knowledge of lead risks, poison prevention, risk assessment, inspection, and abatement methods.
- Protect Kentucky’s ecosystem through cooperation with other state and local agencies responsible for lead removal and abatement projects including water towers, bridges, and public buildings to prevent contamination of air, land, and water.
- Continue to review and asses requirements and potential regulatory or policy changes needed, based on new federal rules and technological changes, and if

required establish new action levels for lead hazard sources i.e. paint, lead dust, soil and water.

5.6. (Developmental) Reduce the prevalence of respiratory disease, cardiovascular disease, and cancer resulting from exposure to tobacco smoke.

Potential Data Source: Division of Adult and Child Health, Chronic Disease Branch, Department for Public Health.

Implementation Strategy:

- The objectives of the Tobacco section of this document include the following environmental objectives:
- Increase to 100 percent the proportion of schools with tobacco-free environments that include school facilities, campuses, property, vehicles, and school events.
- Increase to 100 percent the proportion of worksites that prohibit smoking or limit to separately ventilated areas.
- Increase to 50 percent the proportion of food service establishments that prohibit smoking or limit it to separately ventilated areas.
- Increase the proportion of localities that adopt ordinances and/or policies to restrict tobacco use.
- The Division of Public Health Protection and Safety will support and track the environmental tobacco objectives of the Adult Health Promotion Team, Division of Adult and Child Health.

5.7. (Developmental) Reduce deaths and nonfatal poisonings of children from exposures to household chemicals. (Relates to National Objective 5.18)

Potential Data Source: Kentucky Poison Prevention Control Center

According to the Kentucky Regional Poison Control Center, 30,700 poisonings occurred in children in Kentucky in 1998. Of these, 24,000 occurred in children less than 6 years old. The most common substances involved in poisonings were: cleaning products, pain relievers, personal care products (mouthwashes, nail products, deodorants), cough/cold products and antihistamines, and plants and mushrooms. The Poison Control Center distributes 125,000 educational pamphlets and 125,000 phone stickers a year. In addition, the center produces and educational newsletter three to four times each year and distributes 40,000 copies to schools, day care centers, and pediatrician's offices. The center also produces a teacher's guide for educators in kindergarten through third grade.

Implementation Strategy:

The Division of Public Health Protection and Safety will track the distribution of educational material by the Poison Control Center and provide support if necessary.

5.8. (Developmental) Decrease the risk of lung cancer and other respiratory illness due to radon exposure: (Relates to National Objective 5.21)

Potential Data Source: Radon Program.

Implementation Strategy:

- Increase the number of homes in which homeowners/occupants have tested for radon concentrations.
- Provide access to information concerning radon health effects, testing and mitigation procedures to all citizens of Kentucky.
- Get a significant number of schools tested for radon and mitigate those where high radon levels are found.
- Obtain a commitment from the State Board of Education to install radon resistant construction techniques in new school buildings.
- Obtain commitments from a number of Real Estate firms to test for radon early in the selling process.
- Obtain a commitment to (or legislate) the dispensing of radon information as part of the property transfer process.

5.9. (Developmental) Monitor diseases that can be caused by exposure to environmental hazards.

Potential Data Sources:

<u>Disease</u>	<u>Data Source</u>
Lead Poisoning	Adult and Child Health
Asthma	Adult and Child Health
Malignant Melanoma	Kentucky Cancer Registry
Nonmelanoma Skin Cancer	Kentucky Cancer Registry
Birth Defects	Division of Epidemiology
Other	Surveys

Implementation Strategy: The Division epidemiologist will coordinate with the respective agencies in order to establish a comprehensive environmental disease surveillance system.

5.10 (Developmental) Reduce the annual incidence of illness caused by human exposure to infectious diseases transmitted from domestic and wild animals.

Potential Data Source: *Kentucky Epidemiologic Notes and Reports*

Implementation Strategy:

- Review the Kentucky Reportable Disease System for reports of zoonotic illnesses.
- Continue to distribute educational material about rabies.
- Work with the Division of Epidemiology and other agencies to develop educational material about other zoonotic diseases.
- Begin arbovirus surveillance in the Division of Laboratory Services.
- Enforce current regulations regarding animal vaccination, animal bites, and animal quarantine.
- Begin tick identification and surveillance.
- Reemphasize rodent control.
- Promote food hygiene by irradiation of food products.

5.11 (Developmental) To reduce the health effects due to indoor air pollution in public schools.

Baseline 1999: No school personnel trained.

Potential Data Sources: *Survey of School Indoor Air Quality*. Division of Public Health Protection and Safety, Department for Public Health.

Implementation Strategy:

- Assist the Fayette County Health Department in training local environmentalists in the Environmental Protection Agency (EPA) Tools for Schools protocol.
- Obtain funding to train school custodians and managers in the importance of indoor air quality.

5.12 (Developmental) To reduce the number of injuries and deaths to children caused by defective consumer products.

Potential Data Source: Product Safety Program, Division of Public Health Protection and Safety.

Implementation Strategy:

- The division epidemiologist will monitor the number of displays, demonstrations, exhibits, and promotional/educational material distributed by the Product Safety Program.
- The epidemiologist will also review data from the National Center for Injury Prevention and Control and other sources to determine if Kentucky has a

higher rate of children injured by defective consumer products than the rest of the nation.

5.13 (Developmental) To reduce health effects due to air pollution.

Potential Data Sources: Environmental Protection Agency (EPA), Cabinet for Natural Resources and Environmental Protection, Division for Air Quality

Implementation Strategy: Support the efforts of EPA and the Cabinet for Natural Resources and Environmental Protection to reduce the level of ambient air pollutants.

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Contributors

- Department for Health Services:
 - Mark Hooks, Assistant Director, Division for Public Health Protection and Safety, Chapter Coordinator
 - Colleen Kaelin, Epidemiologist, Division for Public Health Protection and Safety, Chapter Coordinator
 - Michael Auslander, DVM, MSPH, Assistant Director, Division of Epidemiology and Health Planning
 - Mike Cavanaugh, Administrator, Product Safety Program, Division for Public Protection and Safety
 - Guy Delius, Program Administrator, Food Safety & Cosmetics Branch, Division for Public Health Protection and Safety
 - Martha Heady, Radon Program, Division for Public Health Protection and Safety
 - Doug Jackson, Radon Program, Division for Public Health Protection and Safety
 - David Nichols, Branch Manager, Environmental Management Branch, Division for Public Health Protection and Safety
 - Todd Warnick, Division of Adult and Child Health, Chronic Disease Branch
 - Terry Wescott, Administrator, Lead Program, Division for Public Health Protection and Safety

- Natural Resources Cabinet. Department for Environmental Protection.
- Division of Waste Management.
- Division of Water.
- Division of Conservation.
- Kentucky Department of Parks
- Kentucky State Police Department. Environmental Crimes Unit.
- Kentucky Poison Control Center.
- The Kentucky Cancer Registry