

reliance on ineffective protective remedies, and flight from cities].

16. In your opinion, is government too much involved in attempting to control the hazards in your life? Prepare an essay of appropriate depth that presents the details of your opinion. *[GUIDE: Opinion questions are by definition always correct, since the answers are personal expressions based on opinion, not necessarily based on factual information presented in a classroom setting. This question delves into a student's political foundation and provides an opportunity for students to reflect on their personal political philosophy while exposed to a book that describes environmental health policymaking by government entities].*
17. For the purposes of this book, this chapter presented five essentials for human survival. Do you consider this list complete as they pertain to your life? What other items might you have added to the list of five? Be specific and give details. *[GUIDE: Postulated in this chapter were the following human survival needs: healthful air, potable water, secure food, sanitary disposal of human wastes, and a sustainable environment. Students may or may not accept this list as being complete. Some students might suggest additional essential needed for their personal survival. Some proposed suggestions included: vaccinations against disease, available educational resources, access to affordable transportation, stable housing, freedom from violent social behaviors, and satisfactory work opportunities. Whether such suggestions are in fact matters of survival can be a point of class discussion].*
18. In your opinion, what one change in environmental conditions has contributed the most to the well-being of humankind? Be specific and provide an analysis that supports your choice. *[GUIDE: Opinion questions are by definition always correct, since the answers are personal expressions based on opinion, not necessarily based on factual information presented in a classroom setting. This is a thought question that hopefully will motivate students to reflect on the content of Chapter 1 and yield some thoughtful responses. Some potential responses could be: formation of communities into cities for benefit of shared social responsibilities and protection; transition from hunter-gather societies into agrarian societies thereby providing more healthful food supplies; establishment of sanitary sewer systems that lessen human contact with fecal-contaminated water supplies; discovery of vaccinations as a means for disease prevention].*
19. Project yourself 20 years hence. What environmental hazards will be the most threatening to human health? Be specific and provide an analysis that supports your choice. *[GUIDE: This is also a thought question and should be considered as an opinion response, since some of a student's response might rest on material in subsequent chapters of this book. Some possible responses could be: continued human population growth, effects of climate change, diminished food supplies, novel viral and parasitic diseases, and lack of global water security].*
20. Congratulations! You have completed your review of this chapter. Discuss in an essay of appropriate depth the most important information that you learned and why. *[GUIDE: The primary purpose of this chapter is to introduce students to the fundamentals of policymaking. A thoughtful study essay will encapsulate the key basics of policymaking].*

2. Steps in Environmental Health Policymaking

1. Using the PACM model shown in Figure 2.2, discuss how an environmental activist group or an individual would organize a campaign in your county to recycle household trash. Be specific. *[GUIDE: This question leads students through an application of the PACM model. Some students have found the model to be empowering, that is, they realize how they as individuals can make a difference in helping set environmental policy. For the recycling example given, P (pressure) could be brought by organizing local environmental organizations (e.g., Sierra Club), neighborhood groups, and college students into a kind of coalition, which would outreach to elected officials (e.g., county commissioners) to commence a dialog on the importance and worth of a recycling policy and program. For the next element in PACM, A (action) could consist of a county ordinance on recycling or perhaps a voluntary program of recycling that is approved by the county's officials. For C (change), students could mention the specifics of some change in the county's recycling program, e.g., the appearance and use of recycling containers. The element of M (monitoring) could consist of some kind of surveillance system undertaken by the county and/or the groups that brought pressure to bear on the county. Such ideas might include a survey of persons who actively recycle household trash and industries and businesses that recycle. Estimates of the benefits to the community could be derived through some kind of cost analysis].*
2. Using the strategy of critical thinking, discussed in Chapter 1, apply it to a discussion of free trade policies as to

the benefits and adverse effects on environmental health. *[GUIDE: Few students will have a good grasp of free trade policies. Some have heard of the North American Free Trade Agreement, but some kind of homework will be required of most students, who have Internet and library resources to bring to bear on learning about free trade policies. Critical thinking will reveal both positive and negative dimensions of free trade policies as concerns environmental health. Positive issues could include: a) some new jobs are created in developing countries, thereby enriching their national economies and individuals' personal wealth, which in turn can be used to improve education systems and personal health care, b) trade agreements can be used to promote environmental protection and public health, c) free trade lessens the possibilities of conflict between nations, which could lead to armed conflict. Negative aspects could include: a) loss of jobs to countries that have a lower economic scale, reducing the quality of life for those who have lost jobs, b) lack of mechanisms to enforce environmental protections, c) transportation of hazardous goods and jobs to countries which lack the resources or resolve to deal with them].*

3. Discuss how the Precautionary Principle comports with the public health strategy of disease and disability prevention. Be specific. *[GUIDE: Students readily understand the thrust and importance of the Precautionary Principle, given most students' positive perception of public health's purpose and practice. Some students select the asbestos example discussed in the chapter and elaborate on how the Precautionary Principle could have prevented the epidemic of asbestos-related disease. Other students cite the problem of lead additives in gasoline and the resultant increase in children's blood lead levels as an example of where the precautionary Principle could have prevented what became an international environmental health hazard].*
4. Assume that federal, state, and local governments have no statutes or ordinances in place to control environmental noise sources. Further, assume that you are the leader of a grassroots environmental group. Choose any four of the seven elements in Figure 2.1 and discuss them in terms of advocating for a community ordinance that your group proposes for noise control. *[GUIDE: The seven elements are: public's concerns, experts' input, vested interest groups, domestic economic policies, free trade policies, news media, and form of governance. Most students will have little to no knowledge of these elements and will have to rely on the text in Chapter 2, supplemented with information found on the Internet and elsewhere. As examples of these elements in the context of noise control, students might consider the following. Public's concerns - the student's environmental group could survey public opinion in high noise areas such as high density vehicle traffic routes and use the survey data to help organize community support in the high noise areas. Experts' input - The environmental group could outreach to university/college scientists who are knowledgeable of the harmful health effects of noise and hearing loss. Vested interest groups - Groups concerned about quality of life, public health, environmental quality could be approached for purpose of getting them to join in the campaign to lower community noise levels. Domestic economic policies - could try to assess the economic impacts of high noise levels, using data sources from the World Health Organization and others. Free trade policies - this is hard to relate to community noise problems. News media - The environmental group should be able to readily capture the attention of electronic and print media. Indeed, this kind of attention should be a central part of the environmental group's planning. Form of governance - the issue is how county government is structured will respond to the proposal of regulated noise levels].*
5. Discuss how you as an individual can promote the ideals of sustainable development. Include in your discussion those personal behaviors that would contribute to global sustainable development. *[GUIDE: This question is intended to reinforce the importance of sustainable development and to make the concept personal, not just something those governments and big organizations pursue (or don't pursue). Some ideas expressed by students have included: water conservation, careful consumption of consumer goods, recycling, less reliance on carbon-based sources of energy, personal advocacy of sustainable development through discussions with classmates, family, and environmental organizations].*
6. Describe how you can use Market Power to achieve environmental protection goals. How would your actions contribute to public health? *[GUIDE: This question reminds students that they can influence desirable environmental goals through their own personal lifestyle choices. Market power by individuals and groups, including business groups, can make an important impact on consumer choices, which in turn can lead to products that are environmentally benign or friendly. Such examples could include products that are made of natural ingredients that in turn have no impact on wastes. Other examples could include products with*

packaging that does not complicate or burden the waste stream and products that are easily recyclable].

7. What are the differences between ethics and morals? Develop your own list of personal ecoethics, using Table 2.6 as a guide. *[GUIDE: As described in the text, ethics refers to the systematic framework of thought and analysis that deals with questions of right and wrong and the nature of the good and proper life. Morals refers to that natural working-out of a personally affirmed ethical or value system. Both ethics and morals pertain to the questions of right and wrong, good and evil, values and principles. However, morals are specific to an individual's choices, whereas ethics relate to a larger framework of social thought. Using Table 2.6, students can build upon the illustrative actions shown there. The instructor should encourage students to forego the specific illustrations in the table and substitute their own examples. For example, some students have mentioned using their own shopping bags when grocery shopping in order to forego plastic and paper grocery bags. Other students have cited the use of sunlight as a supplement (i.e., raised window blinds) to indoor heating during periods of cold weather, obviously within constraints of indoor temperature, home insulation, and such].*
8. Using elimination of tobacco smoking in public places as environmental policy, discuss how primary, secondary, and tertiary prevention programs could be used in support of the policy. *[GUIDE: This purpose of this question is to have students become familiar with these three modes of prevention. Elimination or reduction of conditions that cause adverse health effects in humans is called primary prevention. Secondary prevention refers to the use of education, protective equipment, relocation away from a hazard, or other means to avoid contact with a hazard. Tertiary prevention relates to health care and consists of the measures available to reduce impairments and disabilities, minimize suffering caused by existing departures from good health. For this question, primary prevention of smoking the no smoking policy itself, i.e., banning smoking in public places. Secondary prevention could be public service announcements on media sources that warn of the health hazards of smoking. Tertiary prevention could be medical care provided to smokers who persist in smoking].*
9. Contact your local health department via the Internet. Describe their environmental health programs and how they affect you. Be specific. *[GUIDE: This question will give the student some experience in communicating with a local health department. (The instructor may choose to have students make a coordinated approach to the local health department, rather than making individual contacts.) Most departments have some kind of environmental health resources; some have a branch, unit, or designated person to handle problems with environmental hazards. Typical interests could include: restaurant inspection, water quality assessment, emergency response to environmental hazards, swimming pool inspections, bioterrorism preparation, rabies control, vector-borne diseases (e.g., West Nile infection), and special services].*
10. Select a "green" product or service that you use and describe how its use benefits you personally and your community in general. *[GUIDE: Students have most often mentioned their use of soaps, detergents, and dry cleaning services that are marketed as green products. Some students mention that the use of green products provides a feeling of accomplishment and satisfaction in terms of environmental protection and perhaps sustainable development. They most often cite their belief that green products produce lower amounts of hazardous substances and waste. This benefits the community because exposure to hazardous substances is to be avoided and lesser waste comports with avoiding the problems that come with waste management].*
11. By using Internet resources, review the current mission and role of the U.S. Surgeon General. What in your opinion are the two most significant responsibilities of the Surgeon General? In your opinion, should the Surgeon General have additional responsibilities for protecting the U.S. public's health? If so, name two additional responsibilities. If not, why not? *[GUIDE]: In May 2017 material on the website for the Office of Surgeon General stated, "As the Nation's Doctor, the Surgeon General provides Americans with the best scientific information available on how to improve their health and reduce the risk of illness and injury. The Surgeon General oversees the U.S. Public Health Service Commissioned Corps (USPHS), an elite group of more than 6,700 uniformed officer public health professionals working throughout the federal government whose mission is to protect, promote, and advance the health of our nation." Whether the Surgeon General should have additional responsibilities is a matter for a student's opinion, but given the course of history, additional responsibilities are unlikely].*
12. Peer review of technical literature was defined in this chapter. Should government regulatory programs rely only on peer-reviewed science to develop regulations? What about peer-reviewed science that was not published in science journals open to the public? Give examples. *[GUIDE]: The importance of this question goes to*

students' understanding of peer review, which was defined as "Evaluation of the accuracy or validity of technical data, observations, and interpretation by qualified experts in an organized group process." Instructors should explain the challenges in developing government regulations and observe that use by regulatory agencies of non-peer reviewed science has often resulted in complaints from special interest groups, alleging "junk science" and similar accusations].

13. Some alternatives to the command and control method of enforcement of government regulations were described in this chapter. Select the one alternative that you deem most effective for local policymaking purposes. Justify your selection. *[GUIDE]: Litigation, market power, performance incentives, precautionary approach, public education, sustainable development, and voluntary action by industry were listed as possible alternatives to command and control. Which of these alternatives that might be most effective for local policymaking purposes would likely depend on the policy issue at hand. For example, a student might choose public education as an alternate to enforced pesticide spraying for mosquito control].*
14. Under provisions of the federal Clean Air Act, EPA has authority to regulate outdoor ambient air levels of ozone. Describe the "regulated community" impacted by EPA's ozone regulation. *[GUIDE]: The gist of this question goes to the need for students to understand the definition and breadth of a "regulated community," i.e., the social entities that EPA can legally require to follow a specific regulation. For this question, the regulated community could include city and state governments, regional air sheds, fuel producers, vehicle manufacturers, and operators of transportation systems].*
15. What role should social media play in shaping local environmental health policymaking? Provide an example of a desirable local environmental policy for which you and others might attempt to influence via social media. *[GUIDE]: Social media has evolved into a power medium for communication with multitudes of people, easily and sometimes effectively. No better example of the power of social media in shaping policy development exists than the Arab Spring, which began in 2011 across several Arab countries. Social media was used to rally students and others to protest government structures in Libya, Syria, and other countries. An example of a desired local policy could be the use of social media by students of a municipal university who are concerned about inadequate control of area vehicle traffic. Social media could be used to organize protests, communicate with university officials, and assail local government agencies].*
16. Of the influences on policymaking illustrated in Figure 2.1, select the one you consider the most important and in an essay of appropriate depth provide justification for your selection. *[GUIDE: Seven factors are suggested in Figure 2.1 as having influence on environmental health policymaking. Most often students selected Public's Concerns and Experts' Input as their choices as having the greatest impact on policymaking, with News Media sometimes mentioned, too. Seldom were economic factors chosen by students]. A class discussion of whether New Media would or should include Social Media as a component would be interesting].*
17. The precautionary principle was described in this chapter. In your opinion, should this principle be adopted by federal regulatory agencies? If so, why? If not, why? Present your argument in an essay of appropriate depth. *[GUIDE: The precautionary principle was defined as, "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." Over the years of asking this question of students of public health, they generally favored adoption of the precautionary principle by federal regulatory agencies. As students of public health, they supported disease prevention interventions that were timelier than actions predicated by development and promulgation of regulations. Instructors should be prepared to inform students why the precautionary principle has generally been ignored as policy by regulatory agencies].*
18. In your opinion, should all U.S. trade agreements with other countries require conditions of sustainable development? In an essay of appropriate depth, present the basis for your recommendation for or against such language in trade agreements. *[GUIDE: This question and the one that follows are intended to focus students on the specifics of sustainable development and the challenges in adopting it as environmental health policymaking. Additionally, this question requires delving into how trade policies are adopted. From Chapter 2, "Sustainable development is development which meets the needs of the present without compromising the ability of future generations to meet their own needs." Adoption of sustainable development as a component of trade agreements would likely be resisted by parties to the agreement, since sustainability might be viewed as a restraint in trading, since parties would have to more carefully manage trade in natural resources, resource conservation, and policies for sustainable production of goods and services].*

19. In your opinion, should public health departments promote sustainable development policies? If so, why? If not, why? Be specific and provide support for your opinion. *[GUIDE: Most students express support for sustainable development policies, but without a firm understanding of how the policies would be implemented by health departments. Some ideas might include public health departments' participating in zoning decisions, since development of property can affect a community's well-being; advocating community actions in recycling of natural resources and materials, and community education about sustainability practices].*
20. Well done! You have completed your review of this chapter. Discuss in an essay of appropriate depth the most important information you learned. Be sure to describe why the information is important to you. *[GUIDE: The primary purpose of this chapter is to introduce students to key steps in policymaking. A thoughtful study essay will encapsulate the key basics of the steps needed in policymaking].*

3. U.S. Federal Government's Environmental Health Structure

1. Assume that the traditional public health approach toward preventing disease and disability is through science (i.e., problem identification), consensus-formation (i.e., problem resolution), and services (to affected organizations and at-risk populations). Using this paradigm, discuss the current roles of any two agencies of the Department of Health and Human Services in preventing adverse health effects of environmental hazards. *[GUIDE: Students have most often selected CDC and NIH in response to this question, citing CDC's problem identification via disease/disability surveillance, consensus-formation via advisory committees and dialogue with state health departments, and services to state and local health departments via educational materials, grants, and data sharing. NIH's programs of biomedical research go to problem identification, consensus-formation via advisory groups and science conferences, and services via grants to universities].*
2. Discuss the roles of public health agencies at the federal, state, and local levels. Is any more important than the other? Would you recommend any changes in how the delegation of roles of these three levels of public health? Provide details of your recommended changes, if any are recommended. If no changes are suggested, detail why you are satisfied with the current three-levels of public health practice. *[GUIDE: The text has stressed the importance of this three-party arrangement in public health programs and actions. Shared responsibility is vital for successful public health practice. However, some students who are supportive of state-based government responsibilities have expressed favor of more state health responsibility and lesser federal involvement].*
3. Given the discussion about the historical role of the U.S. Surgeon General, discuss whether or not the Surgeon General's former primacy in public health leadership, including environmental hazards, should be restored. *[GUIDE: This question calls for speculation on the part of students. The key concept is whether sociopolitical conditions have changed much from the late 1960s, when the PHS began losing its primacy in environmental public health. First, the PHS has lost much of its former authorities and resources, making its resumption of primacy a difficult proposition for legislators who would have to commit to authorizing and appropriating the new resources. Second, it is doubtful that environmental organizations would support a change from EPA, a known entity, to the PHS, an entity found lacking in effectiveness in controlling environmental hazards in the past].*
4. Referring to Figure 3.2, describe how common law impacts environmental policies that affect you personally. *[GUIDE: Common law was devised in 11th and 12th century England as a means of compensating persons for wrongful acts perpetrated against them. "Common" referred to the uniform conditions of law that were in force across the breadth of England. Common law was applicable to conditions of theft, violence, property dispute, and social relationships. Common law dealt with the basic issues of right and wrong. For modern day environmental policies, students could argue that it is a common wrong to be exposed to poisonous food, impure water, and fouled air. Other common wrongs might include false statements made in regard to hazardous conditions or products, failure to compensate for injuries caused by imposed hazardous materials, and criminal behavior in policymaking].*
5. Assume that reports have arrived at CDC and FDA of persons in the southeastern U.S. who have died from an unknown cause, accompanied by requests from several state health departments for federal investigation of possible food poisonings. Further assume that CDC epidemiologists and FDA microbiologists have identified salmonella contamination of undercooked chicken as the cause of food illnesses, with a common factor of only one source of poultry supply. Given these circumstances, what federal departments are likely to take action?