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UNIT 1 ENVIRONMENTAL PHILOSOPHY 1

Issue 1. Should the Precautionary Principle Become Part of National and International Law? 2

YES: Agne Sirinskiene, from “The Status of Precautionary Principle: Moving Towards a Rule of Customary Law,” *Jurisprudence* (October 2009) 6

NO: Ken Cussen, from “Handle with Care: Assessing the Risks of the Precautionary Principle,” *Australasian Journal of Environmental Management* (June 2009) 14

Agne Sirinskiene argues that the evidence from treaties, legislation, and court cases clearly indicates that the precautionary principle is becoming or has already become a rule of customary national and international law, and international applications of the principle are developing rapidly. Ken Cussen argues that the precautionary principle is so vague, ill-defined, and value-ridden that it is either vacuous or dangerous. Its underlying assumptions must be clarified before it can be used to guide public policy.

Issue 2. Is Sustainable Development Compatible with Human Welfare? 21

YES: Richard Heinberg, from *The End of Growth: Adapting to Our New Economic Reality* (New Society Publishers, 2011) 25

NO: Ronald Bailey, from “Wilting Greens,” *Reason* (December 2002) 36

Richard Heinberg argues that the era of economic growth as we have known it is over. A major cause of the world’s recent (and continuing) economic crisis is depletion of resources such as oil and environmental degradation. We must learn to live sustainably, in “a healthy equilibrium economy.” Ronald Bailey argues that sustainable development results in economic stagnation and threatens both the environment and the world’s poor.

Issue 3. Do Ecosystem Services Have Economic Value? 40

YES: Rebecca L. Goldman, from “Ecosystem Services: How People Benefit from Nature,” *Environment* (September/October 2010) 44

NO: Marino Gatto and Giulio A. De Leo, from “Pricing Biodiversity and Ecosystem Services: The Never-Ending Story,” *Bioscience* (April 2000) 54

Rebecca L. Goldman argues that ecosystem services are crucial to human well-being, both now and for the sustainable future. They are also affected by human behavior, at both the individual and the national levels. Assessing their economic value is difficult but essential to public decision making. Professors of applied ecology Marino Gatto and Giulio A. De Leo contend that the pricing approach to valuing nature’s services is misleading because it falsely implies that only economic values matter.

UNIT 2 PRINCIPLES VERSUS POLITICS 65

Issue 4. Should North America’s Landscape Be Restored to Its Prehuman State? 66

YES: C. Josh Donlan, from “Restoring America’s Big, Wild Animals,” *Scientific American* (June 2007) 70

NO: Dustin R. Rubenstein, Daniel I. Rubenstein, Paul W. Sherman, and Thomas A. Gavin, from “Pleistocene Park: Does Re-Wilding North America Represent Sound Conservation for the 21st Century?” *Biological Conservation* (vol. 132, 2006) 76

C. Josh Donlan proposes that because the arrival of humans in the Americas some 13,000 years ago led to the extinction of numerous large animals (including camels, lions, and mammoths) with major effects on local ecosystems, restoring these animals (or their near-relatives from elsewhere in the world) holds the potential to restore health to these ecosystems. There would also be economic and cultural benefits. Dustin R. Rubenstein, Daniel I. Rubenstein, Paul W. Sherman, and Thomas A. Gavin argue that bringing African and Asian megafauna to North America is unlikely to restore prehuman ecosystem function and may threaten present species and ecosystems. It would be better to focus resources on restoring species where they were only recently extinguished.

Issue 5. Should the Military Be Exempt from Environmental Regulations? 85

YES: Benedict S. Cohen, from “Impact of Military Training on the Environment,” Testimony before the Senate Committee on Environment and Public Works (April 2, 2003) 89

NO: Jamie Clark, from “Impact of Military Training on the Environment,” Testimony before the Senate Committee on Environment and Public Works (April 2, 2003) 100

Benedict S. Cohen argues that environmental regulations interfere with military training and other “readiness” activities, and that although the U.S. Department of Defense will continue “to provide exemplary stewardship of the lands and natural resources in our trust,” those regulations must be revised to permit the military to do its job without interference. Jamie Clark argues that reducing the Department of Defense’s environmental obligations is dangerous because both people and wildlife would be threatened with serious, irreversible, and unnecessary harm.

Issue 6. Will Restricting Carbon Emissions Damage the Economy? 110

YES: **Paul Cicio**, from “Competitiveness and Climate Policy: Avoiding Leakage of Jobs and Emissions,” testimony before the House Committee on Energy and Commerce, Subcommittee on Energy and Environment (March 18, 2009) 114

NO: **Aaron Ezroj**, from “How Cap and Trade Will Fuel the Global Economy,” *Environmental Law Reporter* (July 2010) 121

Paul Cicio argues that lacking global agreements, capping greenhouse gas emissions of the industrial sector will make domestic production less competitive in the global market, drive investment and jobs offshore, increase exports, and damage the economy. The real greenhouse gas problem lies with other sectors of the economy, and that is where attention should be focused. Aaron Ezroj argues that although restricting emissions (as in a cap-and-trade program) may increase costs for some businesses, it will create many business opportunities in the financial sector, low-carbon technologies, carbon capture-and-storage projects, advanced-technology vehicles, and legal and nonlegal consulting. The overall effect will be to fuel the global economy.

UNIT 3 ENERGY ISSUES 133**Issue 7. Is Global Warming a Catastrophe That Warrants Immediate Action? 134**

YES: **Global Humanitarian Forum**, from *Climate Change—The Anatomy of a Silent Crisis* (May 2009) 138

NO: **Bjørn Lomborg**, from “Let’s Keep Our Cool About Global Warming,” *Skeptical Inquirer* (March/April 2008) 142

The Global Humanitarian Forum argues that global warming due to human activities, chiefly the emission of greenhouse gases such as carbon dioxide, is now beyond doubt. Impacts on the world’s poorest people are already severe and will become much worse. Immediate action is essential to tackle climate change, increase funding for adaptation to its effects, and end the suffering it causes. Bjørn Lomborg argues that although global warming has genuine impacts on people, the benefits of continuing to use fossil fuels are so much greater than the costs that the best approach to a solution is not to demand draconian cuts in carbon emissions but to invest globally in research and development of non-carbon-emitting energy technologies and thereby “recapture the vision of delivering both a low-carbon and a high-income world.”

Issue 8. Should We Drill for Offshore Oil? 148

YES: **Stephen L. Baird**, from “Offshore Oil Drilling: Buying Energy Independence or Buying Time?” *The Technology Teacher* (November 2008) 152

NO: **Mary Annette Rose**, from “The Environmental Impacts of Offshore Oil Drilling,” *The Technology Teacher* (February 2009) 158

Stephen L. Baird argues that the demand for oil will continue even as we develop alternative energy sources. Drilling for offshore oil will not give the United States energy independence, but the nation cannot afford to ignore

energy sources essential to maintaining its economy and standard of living. Mary Annette Rose argues that the environmental impacts of exploiting offshore oil—including toxic pollution, ocean acidification, and global warming—are so complex and far-reaching that any decision to expand U.S. oil drilling must be based on more than public opinion driven by consumer demands for cheap energy, economic trade imbalances, and politics.

Issue 9. Is Shale Gas the Solution to Our Energy Woes? 165

YES: **Diane Katz**, from “Shale Gas: A Reliable and Affordable Alternative to Costly ‘Green’ Schemes,” *Fraser Forum* (July/August 2010) 168

NO: **Deborah Weisberg**, from “Fracking Our Rivers,” *Fly Fisherman* (April/May 2010) 172

Diane Katz argues that new technology has made it possible to release vast amounts of natural gas from shale far underground. As a result, we should stop spending massive sums of public money to develop renewable energy sources. The “knowledge and wisdom of private investors” are more likely to solve energy problems than government policymakers. Deborah Weisberg argues that the huge amounts of water and chemicals involved in “fracking”—hydraulic fracturing of shale beds to release natural gas—pose tremendous risks to both ground and surface water, and hence to public health. There is a need for stronger regulation of the industry.

Issue 10. Is Renewable Energy Really Green? 179

YES: **Andrea Larson**, from “Growing U.S. Trade in Green Technology,” testimony before the U.S. House Committee on Energy and Commerce, Subcommittee on Commerce, Trade and Consumer Protection (October 7, 2009) 183

NO: **Senator Lamar Alexander (R-TN)**, from “The Perils of ‘Energy Sprawl,’” *Resources for the Future* (October 5, 2009) 191

Andrea Larson argues that “green” technologies include, among other things, renewable energy technologies and these technologies are essential to future U.S. domestic economic growth and to international competitiveness. Senator Lamar Alexander (R-TN) argues that the land use requirements of solar and wind power threaten the environment. We must therefore be very careful in how we implement these “green” energy technologies. He also believes the best way to address climate change (by cutting carbon emissions) is with nuclear power.

Issue 11. Are Biofuels a Reasonable Substitute for Fossil Fuels? 200

YES: **Keith Kline, Virginia H. Dale, Russell Lee, and Paul Leiby**, from “In Defense of Biofuels, Done Right,” *Issues in Science and Technology* (Spring 2009) 204

NO: **David Pimentel, Alison Marklein, Megan A. Toth, Marissa N. Karpoff, Gillian S. Paul, Robert McCormack, Joanna Kyriazis, and Tim Krueger**, from “Food Versus Biofuels: Environmental and Economic Costs,” *Human Ecology* (February 2009) 212

Keith Kline, Virginia H. Dale, Russell Lee, and Paul Leiby argue that the impact of biofuel production on food prices is much less than alarmists claim. If biofuel development focused on converting biowastes and fast-growing trees and grasses into fuels, the overall impact would be even

better, with a host of benefits in reduced fossil fuel use and greenhouse gas emissions, increased employment, enhanced wildlife habitat, improved soil and water quality, and more stable land use. David Pimentel, Alison Marklein, Megan A. Toth, Marissa N. Karpoff, Gillian S. Paul, Robert McCormack, Joanna Kyriazis, and Tim Krueger argue that it is not possible to replace more than a small fraction of fossil fuels with biofuels. Furthermore, producing biofuels consumes more energy (as fossil fuels) than it makes available, and because biofuels compete with food production for land, water, fertilizer, and other resources, they necessarily drive up the price of food, which disproportionately harms the world's poor. It might also damage the environment in numerous ways.

Issue 12. Is It Time to Revive Nuclear Power? 222

YES: Allison MacFarlane, from "Nuclear Power: A Panacea for Future Energy Needs?" *Environment* (March/April 2010) 226

NO: Kristin Shrader-Frechette, from "Five Myths About Nuclear Energy," *America* (June 23–30, 2008) 233

Allison MacFarlane argues that although nuclear power poses serious problems to be overcome, it "offers a potential avenue to significantly mitigate carbon dioxide emissions while still providing baseload power required in today's world." However, it will take many years to build the necessary number of new nuclear power plants. Professor Kristin Shrader-Frechette argues that nuclear power is one of the most impractical and risky of energy sources. Renewable energy sources such as wind and solar are a sounder choice.

UNIT 4 FOOD AND POPULATION 241

Issue 13. Do We Have a Population Problem? 242

YES: David Attenborough, from "This Heaving Planet," *New Statesman* (April 25, 2011) 246

NO: Tom Bethell, from "Population, Economy, and God," *The American Spectator* (May 2009) 252

Sir David Attenborough argues that the environmental problems faced by the world are exacerbated by human numbers. Without population reduction, the problems will become ever more difficult—and ultimately impossible—to solve. Tom Bethell argues that population alarmists project their fears onto popular concerns, currently the environment, and every time their scare-mongering turns out to be based on faulty premises. Blaming environmental problems will be no different. Societies are sustained not by population control but by belief in God.

Issue 14. Does Commercial Fishing Have a Future? 257

YES: Carl Safina, from "A Future for U.S. Fisheries," *Issues in Science and Technology* (Summer 2009) 261

NO: Food and Agriculture Organization of the United Nations, from "World Review of Fisheries and Aquaculture," *The State of World Fisheries and Aquaculture, 2010*, (FAO, 2010) 267

Carl Safina argues that despite an abundance of bad news about the state of the oceans and commercial fisheries, there are some signs that conservation and even restoration of fish stocks to a sustainable state are possible. The Food and Agriculture Organization of the United Nations argues that the proportion of marine fish stocks that are overexploited has

increased tremendously since the 1970s. Despite some progress, there remains “cause for concern.” The continuing need for fish as food means there will be continued growth in aquaculture.

Issue 15. Can Organic Farming Feed the World? 274

YES: Ed Hamer and Mark Anslow, from “10 Reasons Why Organic Can Feed the World,” *Ecologist* (March 2008) 278

NO: D. J. Connor, from “Organic Agriculture Cannot Feed the World,” *Field Crops Research* (March 2008) 286

Ed Hamer and Mark Anslow argue that organic agriculture can feed the world if people are willing to eat less meat. It would also use less energy and water, emit fewer greenhouse gases, provide better nutrition, protect ecosystems, and increase employment. D. J. Connor argues that a major report claiming that organic methods could produce enough food to sustain a global human population even larger than that of today has serious faults. At best organic methods could support a population less than half as large as today’s (over 7 billion).

UNIT 5 TOXIC CHEMICALS 293

Issue 16. Should Society Impose a Moratorium on the Use and Release of “Synthetic Biology” Organisms? 294

YES: Jim Thomas, Eric Hoffman, and Jaydee Hanson, from “Offering Testimony from Civil Society on the Environmental and Societal Implications of Synthetic Biology” (May 27, 2010) 298

NO: Gregory E. Kaebnick, from “Testimony to the U.S. House of Representatives Committee on Energy and Commerce Hearing on Developments in Synthetic Genomics and Implications for Health and Energy” (May 27, 2010) 302

Jim Thomas, Eric Hoffman, and Jaydee Hanson, representing the Civil Society on the Environmental and Societal Implications of Synthetic Biology, argue that the risks posed by synthetic biology to human health, the environment, and natural ecosystems are so great that Congress should declare an immediate moratorium on releases to the environment and commercial uses of synthetic organisms and require comprehensive environmental and social impact reviews of all federally funded synthetic biology research. Gregory E. Kaebnick of the Hastings Center argues that although synthetic biology is surrounded by genuine ethical and moral concerns—including risks to health and environment—which warrant discussion, the potential benefits are too great to call for a general moratorium.

Issue 17. Do Environmental Hormone Mimics Pose a Potentially Serious Health Threat? 309

YES: Michele L. Trankina, from “The Hazards of Environmental Estrogens,” *The World & I* (October 2001) 313

NO: Michael Gough, from “Endocrine Disrupters, Politics, Pesticides, the Cost of Food and Health,” *Daily Commentary* (December 15, 1997) 319

Professor of biological sciences Michele L. Trankina argues that a great many synthetic chemicals behave like estrogen, alter the reproductive

functioning of wildlife, and may have serious health effects—including cancer—on humans. Michael Gough, a biologist and expert on risk assessment and environmental policy, argues that only “junk science” supports the hazards of environmental estrogens.

Issue 18. Should the Superfund Tax Be Reinstated? 327

YES: **Stephen Lester and Anne Rabe**, from *Superfund: In the Eye of the Storm* (Center for Health, Environment & Justice, June 2010) (included in testimony by Lois Gibb before Senate Committee on Environment & Public Works, Subcommittee on Superfund, Toxics and Environmental Health, hearing on “Oversight of the Environmental Protection Agency’s Superfund Program,” June 22, 2010) 331

NO: **J. Winston Porter**, from Testimony before the Senate Committee on Environment & Public Works, Subcommittee on Superfund, Toxics and Environmental Health, Hearing on “Oversight of the Environmental Protection Agency’s Superfund Program,” June 22, 2010 336

Stephen Lester and Anne Rabe argue that because toxic waste cleanup is complicated by extreme weather events, corporations dodge their cleanup and payment obligations, and the taxpayer is left with the bill, Congress must reinstate the “polluter pays” fees. J. Winston Porter argues that Superfund cleanup efforts can be made much more efficient and that “polluter pays” taxes are unfair. The primary funder of cleanup work should be the people responsible for the problems. Taxpayers should foot the bill as a matter of last resort.

Issue 19. Should the United States Reprocess Spent Nuclear Fuel? 343

YES: **Kate J. Dennis, Jason Rugolo, Lee T. Murray, and Justin Parrella**, from “The Case for Reprocessing,” *Bulletin of the Atomic Scientists* (November/December 2009) 347

NO: **David M. Romps, Christopher D. Holmes, Kurt Z. House, Benjamin G. Lee, and Mark T. Winkler**, from “The Case Against Nuclear Reprocessing,” *Bulletin of the Atomic Scientists* (November/December 2009) 352

Kate J. Dennis, Jason Rugolo, Lee T. Murray, and Justin Parrella argue that nuclear fuel reprocessing extracts more energy from nuclear fuel and reduces the amount of nuclear waste to be disposed of. “If the United States truly wants to proceed with nuclear energy as a viable, low-carbon emitting source of energy, it should pursue reprocessing in combination with the development of fast reactors. Once such a decision is made, the debate should turn to how best to develop cheaper and safer reprocessing options, rather than denying its general benefit.” David M. Romps, Christopher D. Holmes, Kurt Z. House, Benjamin G. Lee, and Mark T. Winkler argue that reprocessing is both dangerous and unnecessary. “It is in the best interests of the United States—from the perspective of waste management, national security, economics, and environmental protection—to maintain its de facto moratorium on reprocessing and encourage other countries to follow suit.”