



CHAPTER TWO

Responding to Global Environmental Change

Lecture Outline

Introduction

Global Perspectives

- International environmental agreements
- Sustainable Development Goals

National Perspectives

- Jurisdictional arrangements in Canada
- Responses to environmental issues in Canada are increasingly politicized

Corporate Perspectives

- The private sector plays an important role in addressing environmental problems

Educational Perspectives

- Youth today are less connected to nature
- Programs have been created to re-engage youth with the outdoors

Personal Perspectives

- Pick up that degree
- Light living
 - Refuse

- Reduce
- Reuse
- Recycle
- The Law of Everybody

Measuring Progress

- Indicators are used to inform policy-making regarding environmental problems
- Monitoring Canada's progress towards the UN's Sustainable Development Goals

Implications

- Human activity has affected all aspects of the planet
- Not all doom and gloom
- Individual action is critical

Key Terms

100-mile diet A term introduced in 2005 for buying and eating food grown, manufactured, or produced entirely within a 100-mile radius of one's residence. (Reduce)

biocapacity The amount of biologically productive area—cropland, pasture, forest, and fisheries—available to meet humanity's needs. (Indicators)

consumerism The wasteful consumption of resources to satisfy wants rather than needs. (Light Living)

corporate social responsibility Efforts made by corporations to include social, ethical, and environmental concerns in business practices. Environmental initiatives include reducing, reusing, and recycling, specifying environment-friendly production practices for suppliers, and providing funds to environmental groups. (Corporate Social Responsibility)

eco-labelling Products being identified as ecologically friendly due to adherence to specified environmental standards and practices. (Corporate Perspectives)

ecological footprint The land area a community needs to provide its consumptive requirements for food, water, and other products and to dispose of the wastes from this consumption. (Indicators)

extended producer responsibility The concept underlying laws or regulations that require manufacturers and importers to accept responsibility for their products at the end of their useful lifespan. They provide an incentive for companies to design their products so that they can be recycled or reused and to eliminate toxic materials, since the company would have to dispose of them. (Corporate Perspectives)

greenwashing Making deceptive or manipulative claims about the environmental benefits of a product, service, or company, to make it appear environmentally friendly. (Corporate Perspectives)

Happy Planet Index (HPI) An index that attempts to provide a perspective on human well-being and environmental impact and to focus on achieving sustainability. Each country's HPI value is a function of its average subjective life satisfaction, life expectancy at birth, and ecological footprint per capita—it approximates multiplying life satisfaction and life expectancy and dividing that by the ecological footprint. (Indicators)

indicators A specific facet of a particular system, such as the population of a key species within an ecosystem, that tells us something about the current state of the system but does not help us understand why the system is in that state. (Indicators)

law of everybody The understanding that if everyone did many small things of a conserving and environmentally aware nature, major environmental problems, threats, and dangers would be ameliorated or alleviated. (Law of Everybody)

light living Treading as lightly as possible, to minimize our ecological footprints, often characterized by the four R's: refuse, reduce, reuse, and recycle. (Light Living)

Living Planet Index (LPI) An index that quantifies the overall state of planetary ecosystems. (Indicators)

Montreal Protocol Signed in 1987 by 32 nations, an agreement that established a schedule for reducing use of chlorofluorocarbons and halons to reduce the rate of depletion of the ozone layer. (Introduction)

nature deficit disorder The increasing gap in understanding of the “real world” on the part of the younger generation. Instead of playing outdoors in fields, woods, streams, lakes, or the ocean, an increasing proportion of the children of today are glued to their computer or TV screens. They seldom visit the outside world, especially areas dominated by nature, rather than human activities. (Educational Perspectives)

ozone An atmospheric gas that when present in the stratosphere helps to protect the Earth from ultraviolet rays. However, when present near the Earth's surface, it is a primary component of urban smog and has detrimental effects on both vegetation and human respiratory systems. (Introduction)

ozone layer A thin layer of ozone molecules in the stratosphere that absorbs ultraviolet light and converts it into infrared radiation, effectively screening out 99 per cent of the ultraviolet light. (Introduction)

subsidiarity A policy and management approach stipulating that decisions should be taken at the level closest to where consequences are most noticeable or have the most direct impact. (Jurisdictional Arrangements in Canada)

Sustainable Development Goals (SDGs) Globally accepted goals for achieving sustainability and well-being, agreed to by member states of the **UN** as part of the 2030 Agenda for Sustainable Development. (Sustainable Development Goals)

Classroom Discussion Ideas

- We all purchase goods and services from a variety of commercial sources. Do you know about your favourite company's environmental and/or social policies and procedures? Do these factors influence your decision-making? Why or why not?
- What are the Millennium Development Goals? How do these goals support or undermine environmental sustainability?
- Be honest... Do you drive more often than you need to? Do you use more water than necessary? Do you eat foods that come from other countries when you could eat foods grown locally? Why or why not? What would be needed to help you to reduce your ecological footprint? How might these approaches be used in today's society to reduce our overall environmental impact?
- People's "well-being" is not positively correlated with energy consumption. If this is the case, then why do Canadians use so much energy? People's happiness is not correlated with wealth. Why are we so obsessed with money and material possessions? What are the things that seem to produce real happiness and mental health in people?
- Famed anthropologist Margaret Mead once said "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has." Do you think this is true? Why or why not? Can you think of examples of this from your own community?
- What is the law of everybody? What do you do in your own life that contributes to this law?
- How can you make your Christmas and other holidays more "green"?
- How can we improve Canada's Happy Planet Index rating?
- Discuss the concepts of extended producer responsibility and life cycle assessment. How can you incorporate these ideas into your daily life? How can you encourage producers to engage in these processes?

Classroom Activities

- **Environmental Issues in the Media**

Objective: To encourage students to become aware of the current environmental issues facing their city, region, and country

Materials Needed: Access to a local or national newspaper (online or printed), pen or pencil, and paper

Description of Activity: In chapters 8–13, 15 of the textbook, the authors describe and discuss a number of specific environmental challenges. For one week, students should each review their favourite source of online or printed news (e.g., *CBC News*, *Globe and Mail*, *National Post*) and clip out the articles that fall into each category of environmental issues. The topics to consider, as organized in the textbook, are climate change, oceans and fisheries, forests, agriculture, water, minerals and energy, and endangered species and protected areas. After one week, students should bring these articles to class and be prepared to discuss the topics in small groups.

Follow-up Questions:

- Where did the media focus their attention that week?
- How many articles fell into each category?
- What topics received the most and the least media attention? Why do you think that is?
- Were the topics presented fairly and in an unbiased way?
- How does the media's bias influence your knowledge of a topic?
- How does the media concept of “balanced news” represent the scientific realities of issues?
- Is the media your main source of information on environmental issues? How about for the general public?

- **Keep a Journal of Your Contributions to the Law of Everybody**

Objective: To help students realize their role in protecting and harming the environment through their everyday activities and to prompt students to further reduce their ecological footprints

Materials Needed: Pen or pencil, and paper

Description of Activity: Every day, students should record every one of their actions that contributes to the law of everybody. For example, they could record their food choices (e.g., not eating meat every day, buying organic foods), their conscious use of water (e.g., taking a short shower or bath, not running the tap while brushing their teeth), their choice to compost and recycle rather than throw everything into the trash, and any other activities they can think of. After a week, students could come back together into small groups to discuss their list of activities, providing each student with more ideas of how they might reduce their own ecological impact. These activities could then be collated electronically and circulated to the entire class.

Follow-up Questions:

- Do you think that you're “doing something,” as it relates to the law of everybody?
- What else could you do that would be an easy lifestyle change?
- What would be needed to help you make this change?
- How might you help your family and friends “do something”?

- **Write a Letter to Your Minister**

Objective: To motivate students to make their voices heard on environmental issues that are of interest to them, while improving their understanding of provincial and national politics

Materials Needed: Access to the Internet and/or library, pen or pencil, paper, and an envelope with the correct postage (if students wish to mail their letters)

Description of Activity: In this activity, students should pick an environmental issue that they are passionate about, for instance, the protection of endangered species or the importance of improving sewage treatment in their municipality. Now students should prepare a letter that provides positive and/or negative feedback to the MP or MLA in their area, depending on what level of government is responsible for managing the issue. Students should research the topic thoroughly, so that they can provide helpful suggestions for reducing or alleviating the problem. Now students can send their letters to ensure that their voices are heard.

Follow-up Questions:

- Have you ever written a letter to your MLA or MP before? Why or why not?
- Are you knowledgeable about politics? What would be needed to make you more knowledgeable about and involved in the political process?
- What impact do you think letters to political representatives has?
- What other mechanisms might be more effective?
- What groups are actively engaged in sharing their point of view with MLAs and MPs?

- **Action on Campus or in Your Community**

Objective: To encourage students to take action on environmental issues locally, while improving their understanding of how effective such action is, and how to build programs that could become a normal part of campus/community behaviours

Materials Needed: Access to the Internet, pen or pencil, paper, and willingness to investigate issues

Description of Activity: In this activity, students should identify environmental issues affecting their campus or community and identify gaps in action that could be filled by student participation. Students should prepare an outline of services and programs that are successful, and those that are still needed or need improvement. This could be anything from improving recycling to outreach education. Students should research the topic thoroughly so that they can provide helpful suggestions and develop appropriate action plans. Campus or community leaders should be consulted to make them aware of plans, solicit advice, and ensure that activities are conducted with the appropriate approvals and are not in violation of any laws or rules.

Follow-up Questions:

- What were the strengths and weaknesses of your campus/communities environmental sustainability initiatives?
- Were officials/leaders open to your class undertaking action, or did you encounter resistance? If yes, why?
- What steps can you take to ensure the long-term sustainability of your action plan beyond your own class?

Resources

Books, Reports and Articles

- Andrade, J., and J. Puppim de Oliveira. 2015. "The role of the private sector in global climate and energy governance." *Journal of Business Ethics* 130, 2: 375–387.
- Aslanbay, Y., and K. Varnali. 2014. "A future of happiness: can markets be co-evolved?" *Society* 51, 6: 665–669.
- Barber, J. 2003. *Production, Consumption and the World Summit for Sustainable Development*. Rockville, MD: Integrative Strategies Forum.
- Brown, K. 2014. "Global environmental change I: A social turn for resilience?" *Progress in Human Geography* 38, 1: 101–117.
- Cross, G. 2002. *An All-Consuming Century: Why Commercialism Won in Modern America*. New York: Columbia University Press.
- Ellard, P., and K. Swieter. 2015. "Preparing and adapting our campuses for the effects of climate change." *Planning for Higher Education* 44, 1: 27–41.
- Foer, J.S. 2019. *We Are the Weather: Saving the Planet Begins at Breakfast*. New York: Farrar, Straus and Giroux.
- French, H. 2004. "Linking globalization, consumption and governance." In Worldwatch Institute, *State of the World 2004*. New York: W.W. Norton, 144–61.
- Freeman, A., and D. Freeman. 2018. *A Year in the Wilderness: Bearing Witness in the Boundary Waters*. Minneapolis: Milkweed Editions.
- Hulme, M. 2009. *Why We Disagree about Climate Change: Understanding Controversy, Inaction and Opportunity*. Cambridge: Cambridge University Press.
- Jorgenson, A.K., et al. 2019. "Social science perspectives on drivers of and responses to global climate change." *WTREs Climate Change* 10, 1: e554.
- Louv, R. 2008. *Last Child in the Woods: Saving our Children from Nature-deficit Disorder*. Chapel Hill: Algonquin Books.
- Mann, C.C. 2018. *The Wizard and the Prophet: Two Remarkable Scientists and their Dueling Visions to Shape Tomorrow's Worlds*. New York: Alfred A. Knopf.
- McKibben, B. 2006. *The End of Nature*. New York: Random House.

Stevenson, R. et al. 2016. “Environmental and sustainability education research, past present and future: three perspectives from late, mid and early career researchers.” *Australian Journal of Environmental Education* 32, 1: 1–10.

Siegle, L. 2018. *Turning the Tide on Plastic: How Humanity (and You) Can Make our Globe Clean Again*. London: Trapeze.

Tallamy, D.W. 2020. *Nature’s Best Hope: A New Approach to Conservation That Starts in Your Yard*. Timber Press.

United Nations. 2003. *Plan of Implementation of the World Summit on Sustainable Development*. New York: UN.

———. 2007. *The Millennium Development Goals Report 2007*. New York: UN.

Websites

- Auditor General of Canada, Commissioner of the Environment and Sustainable Development, Reports on the Environment and Sustainable Development
www.oag-bvg.gc.ca
- BC Sustainable Energy Association
www.bcsea.org
- Better Environmentally Sound Transportation
<http://best.bc.ca/>
- Canada-United States Collaboration for Great Lakes Water Quality, Selection of indicators for Great Lakes
<https://binational.net>
- Center for a New American Dream
www.newdream.org
- City Green
www.citygreen.ca
- Climate Counts
www.ClimateCounts.org
- David Suzuki Foundation
www.davidsuzuki.org/what-you-can-do
- Environment and Climate Change Canada
<https://www.canada.ca/en/environment-climate-change.html>

- Fair Trade Canada
www.fairtrade.ca
- Fraser Basin Council, Fraser River Basin Indicators
www.fraserbasin.bc.ca/resources_indicators.html
- Free Rice
<http://freerice.com/>
- Global Footprint Network
www.footprintnetwork.org
- Government of Canada, Canadian Environmental Sustainability Indicators
<https://www.canada.ca/en/environment-climate-change/services/environmental-indicators.html>
- Happy Planet Index
www.happyplanetindex.org
- International Institute for Sustainable Development (IISD)
<http://www.iisd.org>
- Kesho Trust
www.naturechildreunion.ca
- Marine Stewardship Council
www.msc.org
- Natural Resources Canada, Office of Energy Efficiency
<https://www.nrcan.gc.ca/energy-efficiency/10832>
- NatureServe Canada
<https://www.natureserve.org/natureserve-network/canada>
- Nature Watch
<https://www.naturewatch.ca>
- Ontario Nature
www.ontarionature.org
- Pembina Institute, Genuine Progress Indicator Summary
www.pembina.org/pub/66
- Sustainable Communities Online, Community-based indicators
www.sustainable.org

- Sustainable Society Index
<http://www.ssfindex.com>
- United Nations Environment Programme
www.unep.org
- United Nations Development Programme
www.undp.org
- United Nations Millennium Goals
<http://www.un.org/millenniumgoals/>
- World Happiness Report
www.worldhappiness.report
- UN Sustainable Development Goals
<http://www.un.org/sustainabledevelopment/summit/>

Films and Podcasts

- *A Fierce Green Fire: The Battle for a Living Planet* (2012)
- *A Plastic Ocean* (2016)
<https://plasticoceans.org/about-a-plastic-ocean/>
- *Elemental* (2012)
<http://www.elementalthefilm.com>
- *Life Off Grid* (2016)
<http://lifeoffgrid.ca>
- *Plastic China* (2017)
<https://www.cnex.tw/plasticchina>
- *Riverblue* (2017)
<http://riverbluethemovie.eco>
- *The 11th Hour* (2007)
- *The Clean Bin Project* (2010)
<http://www.cleanbinmovie.com/the-film/>
- *The Cross of the Moment* (2015)
<http://www.crossofthemoment.com>

- The Story of Stuff (movies, podcasts)
www.storyofstuff.org
- *The True Cost* (2015)
<https://truecostmovie.com>
- *This Changes Everything* (2019)
<https://thischangeseverything.org/the-documentary/>
- *Tomorrow* (2015)

Student Tutorial

- **Ecological Footprint and Carrying Capacity**

Description

Carrying capacity (Chapter 1's Implications) receives pressure from a range of complex human and ecological factors; however, over-consumption (Nine Planets? and Box 1.2) and pollution are the most obvious factors in a world that is still undergoing rapid development and population growth (Figure 1.9). One way to measure the pressures of consumption on the carrying capacity of ecosystems is by using such performance measurement tools as an "ecological footprint" (Chapter 2's Measuring Progress>Indicators) calculators (e.g., www.footprintcalculator.org) and development indices (Box 2.10). Despite the many tools available to learn about and connect your consumption patterns to negative social and environmental impacts at the local and global levels, very little effort goes into developing personal management objectives and goals to reduce ecological footprints and begin to live within the shifting values that you hold. Ongoing personal evaluation and growth is important, particularly as we learn more about the environment and become more aware of the need to protect ecosystems.

Directive

Your task is to first develop a personal vision statement (Personal Perspectives) for how you would like to be living your life in 10 years. This vision statement should balance your personal income and lifestyle goals with your level of commitment to protecting ecosystem services and living within healthy ecological systems at the local and global levels. If you struggle with this being too broad of a vision, use your personal consumption and pollution characteristics to focus your vision/goals on working towards a better balance between consumption and your perceived impact on local or global carrying capacity.

After you have a vision, provide a rationale for your vision and determine five goals that you would like to experience as a result of this 10-year life vision or journey. For each goal, provide three objectives that will help you to achieve each goal and articulate how a specific objective can lead to achieving your corresponding goal. Finally, list a number of performance measures that you could monitor over time to help you understand if you are moving towards achieving a particular objective. These performance measures can be both qualitative and quantitative in na-

ture, but should provide a consistent trend or indication of whether you are meeting specific objectives or not. Evaluating your objectives will then allow you to see which goals you are working towards and which ones require adjustment (See Chapter 7's Adaptive Management). Once you have completed your vision statement, goals, objectives and performance indicators, draft a 3-5 page document that illustrates your 10-year personal strategic plan to balance your ecological footprint within your personal environmental values and ethic. Indicate how this plan reflects a more sustainable development path and how it will result in a more resilient lifestyle (Chapter 2's Personal Perspectives).

Sample Solutions

Students can provide any vision or goals they feel meet their personal values and concepts of 'balance' between development and ecosystems health, as long as the rationale explains the linkages. The main focus is really how students practice strategic planning and adaptive management as principles for determining goals/objectives/performance measures, and to inform their knowledge of success in moving towards their vision. Using a strategic planning document from universities or community groups will help students to see how the strategic planning process can work for developing a vision, and they can personalize that process within the measurement indicators they deem relevant or important in their lives. A range of ecological footprint calculators can be used to create a baseline of their consumption patterns and performance measures can be in the form of utility bills, net waste weight, financial spending and use of spare time and resources.