

CHAPTER TWO

Responding to Global Environmental Change

Multiple Choice Questions

1. The collective average global footprint per person is _____.
 - a) 7.25 hectares
 - b) 1.8 hectares
 - c) 9.5 hectares
 - d) 2.8 hectares
2. On a global scale, only _____ are available for each person.
 - a) 4.3 hectares
 - b) 2 hectares
 - c) 0.8 hectares
 - d) 1.7 hectares
3. As the human population increases, the number of hectares available per person by 2030 will be _____.
 - a) 2.4 hectares
 - b) 0.5 hectares
 - c) 0.9 hectares
 - d) 5 hectares
4. The amount of biologically productive area available to meet humanity's need is called its _____.
 - a) biocapacity
 - b) capacity
 - c) biofuel
 - d) biocapability
5. _____ are the demands that humans place on nature in terms of supplying materials and disposing of wastes.
 - a) Planet indexes
 - b) Ecological footprints
 - c) Biocapacities
 - d) Crude growth rates
6. DPSIR stands for _____.
 - a) Drivers-Pressures-Stability-Impact-Response
 - b) Development-Pressures-State-Impact-Response
 - c) Drivers-Pressures-State-Impact-Response
 - d) Drivers-Pressures-State-Impact-Reaction
7. World Wildlife Fund's Living Planet Index shows a 35 per cent overall reduction in

- _____ since 1970.
- a) the number of birds
 - b) biodiversity
 - c) Earth's ecological health
 - d) the number of reptiles
8. Environmental indicators are used to _____.
- a) support policy development
 - b) identify key environmental pressures
 - c) raise public awareness
 - d) All of the above
9. Researchers suggest that the main reason why overall human welfare is improving on a global scale and yet ecosystems continue to be degraded is that _____.
- a) due to a time lag, the worst is yet to come regarding the full impacts of global degradation
 - b) human welfare is mainly tied to food production
 - c) humans are worse off than we believe
 - d) humans have averted the worst consequences of environmental degradation through technology
10. It is NOT true that in meeting the Millennium Development Goals, _____.
- a) open defecation was eliminated since the majority of the global population gained access to improved sanitation facilities
 - b) over three million deaths from malaria were averted due to health interventions
 - c) extreme poverty was reduced by half
 - d) over two billion people have improved access to a drinking water source
11. Which of the following is NOT a reason are we seemingly less concerned about the ozone layer today?
- a) The Montreal Protocol set targets to phase out ozone-depleting substances
 - b) The ozone layer has recovered
 - c) The ozone layer has started to recover
 - d) Corporations have successfully lobbied that it is not important
12. The 2017 review of CEPA made all the following recommendations EXCEPT: _____.
- a) recognize the right of every person in Canada to a healthy environment
 - b) the introduction of national drinking water and air quality standards
 - c) examination of the cumulative impact of noxious substances
 - d) acknowledgement of rights of the environment
13. The Human Development Index differs from the gross national product (GNP) as a measure of well-being because it also measures _____.
- a) living standards
 - b) longevity
 - c) education

- d) All of the above
14. In order for some semblance of sustainability and equity to emerge, wealthier nations will have to reduce consumption by _____ per cent.
- a) 40
 - b) 20
 - c) 90
 - d) 70
15. The Happy Planet Index focuses on _____.
- a) ecosystem health relative to ecological impacts
 - b) GDP relative to ecological impacts
 - c) human well-being relative to happiness
 - d) human well-being relative to ecological impacts
16. _____ ranks highest on the Happy Planet Index.
- a) Sweden
 - b) Canada
 - c) Costa Rica
 - d) Zimbabwe
17. _____ is a cornerstone of the Heiltsuk people's diet, cultural practice, and livelihoods.
- a) Salmon
 - b) Oolichan
 - c) Herring
 - d) Abalone
18. Canada ranks _____ on the Happy Planet Index.
- a) 112th
 - b) 64th
 - c) 5th
 - d) 19th
19. Canada's ecological capacity is one of the world's largest, at _____ per capita.
- a) 2.92
 - b) 14.24
 - c) 16.25
 - d) 10.14
20. Canada's lack of performance in most areas of environmental management has largely been overlooked by most Canadians because _____.
- a) we are isolated from global environmental pressures
 - b) we do not rise to meet environmental challenges
 - c) the media rarely cover environmental issues
 - d) Canadians do not receive sufficient environmental education

21. Canada has consistently failed to fulfill _____.
a) national environmental commitments
b) international environmental commitments
c) its own environmental policies and legislation
d) All of the above
22. In terms of marine conservation, it is likely that the world will establish less than _____ of the planet as marine protected areas (mpas) under the Convention on Biological Diversity by 2020.
a) three quarters
b) less than five percent
c) 100 per cent
d) less than one-quarter
23. Canada has supported _____.
a) a US proposal to ban trade in polar bears under CITES
b) declaring bluefin tuna endangered under CITES
c) a global moratorium on bottom trawling promoted by George W. Bush
d) None of the above
24. Canada has been given _____ at multiple international environment talks.
a) the award for Commitment to Marine Resources
b) the UNEP Climate Change Innovator award
c) the Lifetime Unachievement Fossil award
d) the International Environment Leader Award
25. Canada is a federated state, which means _____.
a) its power and authority is held mostly by the federal government
b) its power and authority is shared between federal and provincial governments
c) its power and authority is dictated by municipalities
d) its power and authority is mostly held by the provinces and municipalities
26. Ecological footprints measure _____.
a) the impact of species on their environments
b) the demands that humans place on nature
c) the services environments provide for their species
d) None of the above
27. Humanity's footprint increased by _____ per cent between 1961 and 2014.
a) 200
b) 27
c) 190
d) 43
28. Since _____ the ecological footprint has exceeded the Earth's biocapacity.
a) 1990

- b) 1970
 - c) 2000
 - d) 1955
29. Composite indices include _____.
- a) the ecological footprint
 - b) the Human Development Index
 - c) the Canadian Index of WellBeing
 - d) All of the above
30. _____ has initiated a carbon tax to discourage fossil fuel dependence and encourage behaviours that reduce global warming.
- a) British Columbia
 - b) Yukon
 - c) Alberta
 - d) Nova Scotia
31. _____ is planning a major tidal energy project to reduce fossil fuel dependence.
- a) British Columbia
 - b) Yukon
 - c) Alberta
 - d) Nova Scotia
32. In terms of environmental issues, when governments or companies “control the message” rather than addressing the problem, this is called _____.
- a) quality control
 - b) greenwashing
 - c) public relations
 - d) whitewashing
33. The “War in the Woods” was _____.
- a) two decades of protests over old-growth logging in BC
 - b) in large part responsible for the protection of the Clayoquot Sound UNESCO Biosphere Region
 - c) saw one protest in which over 800 people were arrested
 - d) All of the above
34. The real world includes not just the economic realities of today’s society, but also _____.
- a) the air we breathe
 - b) the organisms that keep life-support systems going
 - c) the water we drink
 - d) All of the above
35. The increasing gap in understanding of the real, natural world on the part of the younger generation has been termed _____.
- a) knowledge deficit disorder

- b) attention deficit disorder
 - c) economic deficit disorder
 - d) nature deficit disorder
36. The most effective protection of old-growth forests in BC happened through _____.
- a) 30 years of protests of old-growth logging
 - b) sourcing and eating only wild salmon
 - c) consumer boycotting of Home Depot
 - d) petitioning the government to stop old-growth logging
37. The Happy Planet Index _____.
- a) has a focus on achieving sustainability
 - b) assumes that people want to live long and fulfilling lives
 - c) scores for life satisfaction, life expectancy and inequality measures
 - d) All of the above
38. The assessment of MDG targets suggests that _____.
- a) we are improving the environment but not the lot of humanity
 - b) we are improving the lot of humanity but not the environment
 - c) we are not meeting most goals
 - d) we are reaching all goals set
39. McDonald's has addressed its environmental impacts through all of the above EXCEPT: _____.
- a) building restaurants with concrete blocks made from recycled photographic film
 - b) upholding a policy not to buy beef of cattle raised on land converted from rain forests
 - c) getting rid of all single-use packaging
 - d) buying at least \$100 million worth of recycled products
40. The term "light living" means _____.
- a) living in an enlightened state of being
 - b) being more active and eating out less
 - c) treading lightly to minimize our ecological footprints
 - d) None of the above
41. Long-life light bulbs last up to _____ years longer than traditional incandescent bulbs.
- a) 5
 - b) 10
 - c) 20
 - d) 30
42. It takes _____ litres of water to produce 1 litre of gasoline.
- a) 7
 - b) 18
 - c) 20
 - d) 25

43. To have a “green” Christmas, you could _____.
a) give items that display the EcoLogo of three doves
b) give second-hand items
c) increase “green” education by giving an environmental book or magazine
d) All of the above
44. The 100-mile diet refers to _____.
a) walking 100 miles
b) walking and biking to reduce environmental impacts
c) buying and eating food produced within a 100-mile radius of your home
d) running 100 miles per month to lose weight
45. It takes _____ energy to make new paper from old paper than to start fresh from a new tree.
a) 30 to 55 per cent less
b) approximately the same amount of
c) a negligibly smaller amount of
d) significantly more
46. Recycling one aluminum can saves enough energy to run a TV for _____.
a) ten minutes
b) one month
c) two days
d) three hours
47. The Law of Everybody suggests that _____.
a) when many individuals act for the environment, the resulting change is cumulative
b) everyone should work together
c) individuals don’t make a difference
d) Both *a* and *b*
48. _____ was subject to a large-scale wood products boycott that resulted in its committing to selling only certified wood products.
a) Home Hardware
b) Home Depot
c) Walmart
d) Costco
49. The Law of Everybody suggests _____.
a) buying few things
b) driving 10 per cent less per year
c) showering with a friend
d) All of the above
50. Identifying the inputs, outputs, and potential environmental impacts of a product or service

throughout its lifetime is referred to as _____.

- a) life-cycle assessment (LCA)
- b) green seal
- c) product assessment (PA)
- d) product sustainability index (PSI)

True or False Questions

1. Canada has impressive legislation, policies, strategies, and action plans regarding the environment, and it provides excellent resources to ensure that their goals are all fully met.
2. Many current trends of increasing environmental degradation are fuelled by consumption of material goods.
3. We are currently in the space of “accumulated ecological debt,” and the full repercussions of that debt have yet to be realized.
4. Extreme poverty was reduced by half as part of the Millennium Development Goals.
5. The Sustainable Development Goals build upon the Millennium Development Goals and have a broader environmental scope.
6. The Convention on Biological Diversity required signatory nations to establish networks of marine protected areas covering 10 per cent of the oceans by 2012, and this goal was achieved in 2011.
7. The Happy Planet Index assesses human well-being as “happy life years.”
8. Canada ranked tenth on the Happy Planet Index.
9. Most Canadians have a very good sense of the scope of many environmental challenges.
10. McDonald’s is extremely environmentally irresponsible.
11. Evaluations of the carbon tax in BC indicate that the tax is effective and that no noticeable loss of quality of life has occurred.
12. Canada is an environmental leader, not a laggard.
13. Many university-level science programs focus on scientific rigour, but also provide students with a comprehensive understanding of and passion for their environment.
14. North Americans frequently shop to indulge frivolous whims.
15. Transportation is responsible for a quarter of all energy used in Canada.

16. It takes less energy to make new paper from old paper than it does to make new paper from a tree.
17. The Law of Everybody states that individual actions make a significant difference.
18. Sometimes people do not take action related to the environment because they are tired of hearing the message.
19. Many corporations do much better than we do personally, or than our governments do, in systematically addressing their environmental impacts.
20. McDonald's has a strict policy to not buy the beef of cattle raised on land converted from rain forests.

Short Answer Questions

1. What can you do on campus to become involved in environmental initiatives?
2. What positive developments have been made towards the Millennium Development Goals?
3. How can you create positive environmental change on your campus?
4. What are the four Rs? Briefly describe what each one means.
5. What can you do to minimize your transportation impact?
6. List six ways in which consumers can reduce their consumption.
7. What is extended producer responsibility? Provide an example.
8. What is a Life-Cycle Assessment (LCA)? Give an example of a company that provides LCAs.
9. How is McDonald's contributing to positive environmental change?
10. What are people doing to combat nature deficit disorder?

Answer Key

Multiple Choice Questions

1. **d** (Ecological Footprint)
2. **d** (Ecological Footprint)
3. **c** (Ecological Footprint)
4. **a** (Ecological Footprint)
5. **b** (Ecological Footprint)
6. **c** (DPSIR)
7. **c** (Indicators)
8. **d** (Indicators)
9. **a** (Sustainable Development Goals)
10. **a** (Sustainable Development Goals)
11. **c** (Introduction)
12. **d** (National Perspectives)
13. **d** (Indicators)
14. **c** (Personal Perspectives)
15. **d** (Indicators)
16. **c** (Indicators)
17. **c** (Responding to Environmental Challenges in Canada)
18. **b** (Indicators)
19. **b** (Indicators)
20. **b** (Environmental Impacts of Politics)
21. **d** (Environmental Impacts of Politics)
22. **b** (Ramsar Convention on Wetlands)
23. **d** (International Environmental Agreements)
24. **c** (Environmental Impacts of Politics)
25. **b** (Jurisdictional Arrangements in Canada)
26. **b** (Indicators)
27. **c** (Indicators)
28. **b** (Indicators)
29. **d** (Indicators)
30. **a** (Environmental Impacts of Politics)
31. **d** (Environmental Impacts of Politics)
32. **b** (Environmental Impacts of Politics)
33. **d** (Protest)
34. **d** (Educational Perspectives)
35. **d** (On Education)
36. **c** (Influence)
37. **d** (Indicators)
38. **b** (Sustainable Development Goals)
39. **c** (Corporate Contributions)
40. **c** (Light Living)
41. **b** (Light Living)
42. **b** (Light Living)
43. **d** (Light Living)
44. **c** (Reduce)
45. **a** (Recycle)
46. **d** (Recycle)
47. **d** (The Law of Everybody)
48. **b** (Influence)
49. **d** (The Law of Everybody)
50. **a** (Corporate Contributions)

True or False Questions

1. **F** (Environmental Impacts of Politics)
2. **T** (Sustainable Development Goals)
3. **T** (Indicators)
4. **T** (Sustainable Development Goals)
5. **T** (Sustainable Development Goals)
6. **F** (OILPOL to MARPOL)
7. **T** (Indicators)
8. **F** (Summary)
9. **F** (National Perspectives)
10. **F** (Corporate Contributions)
11. **T** (Environmental Impacts of Politics)
12. **F** (National Perspectives)
13. **F** (Educational Perspectives)
14. **T** (Light Living)
15. **T** (Reduce)
16. **T** (Recycle)
17. **F** (The Law of Everybody)
18. **T** (Why Not?)
19. **T** (Corporate Contributions)
20. **T** (Corporate Contributions)

Short Answer Questions

1. Students at various institutions in Canada have started a community garden or rain garden, greened a campus building roof, and assessed sites for native plants.
(Perspectives on the Environment: Campus Opportunities)
2. Some of the positive developments include the following:
 - Extreme poverty was reduced by half. In 1990, almost half of the population in developing regions lived on less than \$1.25 a day. This rate dropped to 22 per cent by 2010, reducing the number of people living in extreme poverty by 700 million.
 - The fight against malaria and tuberculosis has shown results. Between 2000 and 2012, an estimated 3.3 million deaths from malaria were averted due to substantial expansion of malaria interventions. About 90 per cent of those averted deaths—3 million—were children under the age of five living in sub-Saharan Africa. The intensive efforts to fight tuberculosis have saved an estimated 22 million lives worldwide since 1995. If the trends continue, the world will reach the MDG targets on malaria and tuberculosis.
 - Access to an improved drinking-water source became a reality for 2.3 billion people. The target of halving the proportion of people without access to an improved drinking water source was achieved in 2010. In 2012, 89 per cent of the world's population had access to an improved source, up from 76 per cent in 1990.
 - Disparities in primary school enrolment between boys and girls are being eliminated in all developing regions. Substantial gains have been made toward reaching gender parity in school enrolment at all levels of education in all developing regions. By 2012, all developing regions had achieved, or were close to achieving, gender parity in primary education.
 - Political participation by women continues to increase. In January 2014, 46 countries had more than 30 per cent female members of Parliament in at least one chamber.
 - Development assistance rebounded, the trading system stayed favourable for developing countries, and their debt burden remained low. (Sustainable Development Goals)
3. You can create positive change by addressing any number of questions, such as these:
 - Are there sufficient courses on the environment?
 - Do these courses cover a wide spectrum from the technical to the philosophical, and more important, are students encouraged or even required to select from courses all along this spectrum?

You should also remember that campuses are large consumers and processors of matter and energy.

 - How efficient are they?
 - Has anyone undertaken an environmental audit of your campus?
 - How are wastes disposed of?
 - How much recycling occurs?
 - Are chemicals used for landscaping?
 - Does the faculty pension fund invest in businesses with unsound environmental practices?

You can investigate many questions through course work, in environmental clubs, or as an individual. (Educational Perspectives)
4. The four Rs are refuse, reduce, reuse, and recycle. Refuse means to resist buying anything that you don't really need (e.g., avoid purchasing unnecessary luxury items). Reduce means

to decrease your overall consumption of necessary items (e.g., reducing the temperature on your thermostat). Reuse means to shop carefully and purchase things that can be reused (e.g., high quality clothes that last), and continue to use them, or donate or sell them so someone else can reuse them. Recycle means to return and recycle any materials that you can, for example, newspapers, mixed papers, glass, aluminium, batteries, plastics, tires, and oil. (Light Living)

5. Whenever feasible, walk or ride a bicycle. If you have to use motorized transport, use public transport such as buses and trains. If you have a car, get a small economical one with a standard transmission, use it sparingly, and try to carpool. (Reduce)
6. Consumers can adopt more sustainable consumption habits by doing any of the following:
 - eating less meat, more locally produced foods, and more fruits and vegetables and drinking less bottled water;
 - improving the energy efficiency of their homes by sealing drafts, upgrading windows, and installing more efficient water heaters and other appliances;
 - keeping air heating at lower and cooling at higher settings;
 - using only cold water to wash laundry and minimizing water use overall;
 - driving alone less often (e.g., carpooling);
 - driving less overall;
 - driving smaller and/or more fuel-efficient vehicles;
 - having fewer vehicles for their household;
 - walking or riding a bicycle when distance allows;
 - maximizing the lifespan of household items and minimizing disposal;
 - avoiding environmentally harmful products and packaging and seeking out environment-friendly alternatives;
 - recycling whenever possible;
 - using reusable shopping bags rather than accepting new disposable ones;
 - having fewer televisions sets and personal computers in their household. (Reduce)
7. Extended producer responsibility laws require manufacturers and importers to accept responsibility for their products at the end of their useful lifespan. These laws provide an incentive for companies to design their products so that they can be recycled or reused and to eliminate toxic materials, since they would have to dispose of them. Ultimately, products should be designed to be either biodegradable or disassembled into their components for reuse in the future. Canada has no such laws, but some companies have taken the initiative, such as McDonald's with its Earth Effort program. (Corporate Perspectives)
8. LCAs identify inputs, outputs, and potential environmental impacts of a product or service throughout its lifetime, an idea that is now gaining support from both governments and industry. Volvo, for example, provides LCAs for the various components involved in manufacturing their vehicles. (Corporate Perspectives)
9. McDonald's Scale for Good program promotes sustainability throughout their operations. Every year, McDonald's is committed to buying at least \$100 million worth of recycled products for building, operating, and equipping its facilities. Carry-out bags are made from recycled corrugated boxes and newsprint; take-out drink trays are made from recycled newspapers. New restaurants have been constructed with concrete blocks made from recycled photographic film and roofs made from computer casings. McDonald's has also reduced the amount of waste produced; for example, sandwich packaging has been reduced by more than 90 per cent by switching from foam packaging to

paper wraps. It also uses compostable food packaging made from reclaimed potato starch and other materials. McDonald's also has a strict policy against buying the beef of cattle raised on land converted from rain forests. In addition, it has programs to reduce energy consumption and to take part in local initiatives ranging from tree planting to local litter drives. For its efforts, McDonald's in the US has won White House awards and the National Recycling Coalition's Award for Outstanding Corporate Leadership. (Corporate Perspectives)

10. Movements across North America are providing opportunities and facilities to encourage outdoor re-engagement by younger people. For example, the Child and Nature Alliance of Canada was established to help foster meaningful connections with nature for children and youth. Professional development opportunities are provided for educators, particularly through the Forest School Canada (FSC) program, training them on best practices for incorporating nature-based play and learning into educational programs and curriculum. Parks Canada has also invested in initiatives to educate and connect Canadians with nature. (On Education)