State of the World 2012

Discussion Guide & Review Questions

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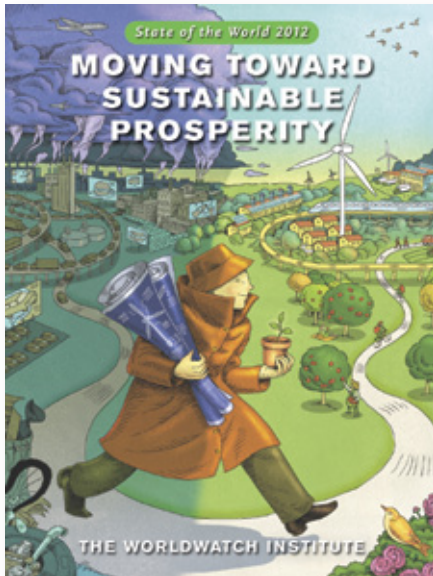
ABOUT THIS GUIDE

This discussion guide was developed as a companion publication to the Worldwatch Institute report *State of the World 2012: Moving Toward Sustainable Prosperity*. It serves as a guide for teachers, reading circles, and other groups eager to debate solutions to our world's most pressing problems.

The Institute's *State of the World* series was launched in 1984 and has been published annually since then. Chapters are written by international experts and present a comprehensive look at current trends in global economics and sustainability. They provide a policy toolbox of clear solutions to some of our most pressing environmental and human challenges, as well as a path for reforming economic institutions to promote both ecological health and prosperity.

The 2012 edition of *State of the World* was focused on providing solutions and insight in advance of the United Nations Conference on Sustainable Development in Rio de Janeiro, Brazil, also known as Rio+20. The book investigates how societies can balance economic and ecological prosperity to help advance the global shift toward true sustainability.

This discussion guide distills the main themes of each of the book's chapters and challenges readers to consider the pressing problems and viable solutions that can be implemented today. It was written by Tucker Hirsch and Antonia Sohns, edited by Lisa Mastny, and designed by Lyle Rosbotham.

For additional resources, please visit the *State of the World 2012* website at http://blogs.worldwatch.org/sustainableprosperity.

CHAPTER 1.

Making the Green Economy Work for Everybody

by Michael Renner

Chapter 1 discusses the importance of a greener economy to a sustainable future. Renner details the state of the global economy, specifically examining the increasing disparity in wealth worldwide and arguing that such inequity prevents the successful adoption and implementation of principles of environmental sustainability.

Calderoliver

The first LEED Platinum mixed-use multi-family building in Southern California

1. Before reading the chapter, consider what it means to create a "green economy."

   After reading the chapter, did you find that the author's description differed from your own? What were the main differences?

2. In June 2012, the United Nations held a conference on sustainable development in Rio de Janeiro, Brazil, that was intended to be a follow-up to the 1992 Rio "Earth Summit." During that historic event, governments adopted the UN Framework Convention on Climate Change and began signing the Convention on Biological Diversity, among other measures.

   Did your country attend the Rio conferences in 1992 or 2012? What impacts did these events and the adopted frameworks have on your country?

3. According to the chapter, sustainability "will require not just official summitry but also imaginative initiatives to 'lead from below'" and form new relationships with governments, media, and corporations.

   How have commitments made at large UN conferences influenced policymakers at the national level?

4. **How have our financial system and the recent global financial crises hindered our ability to pass environmental policies? Is there a conflict between consumerism and sustainable prosperity, or can they be balanced?**

5. Human history is full of examples of populations outstripping their resource base, crashing, and vanishing. But civilizations have never before depleted resources on a planetary scale, meaning that humans are now crossing into uncharted territory.

   Is it possible to effectively change policy on a global scale, or should the emphasis remain local and regional?

6. A key initiative at the 2012 Rio conference was explaining how a green economy works in coordination with a healthy environment and sustainable prosperity.

   Which nations or groups of nations have the hardest time reconciling the concept of green economy with growth? What is their opposition to a green economy?

7. The European Commission estimates that up to 450,000 new jobs in energy auditing, certification, and construction may be created by 2020. Other groups provide even more optimistic projections of up to 3.5 million jobs in these industries.

   What socio-economic groups would benefit from these "green" jobs? How will these jobs benefit sustainable initiatives?

CHAPTER 2.

The Path to Degrowth in Overdeveloped Countries

by Erik Assadourian

Chapter 2 argues that the global economy must be redirected from one characterized by the pursuit of perpetual growth to one focused on sustainable development and the prosperity of all—even if that sometimes means "degrowing" the economy.
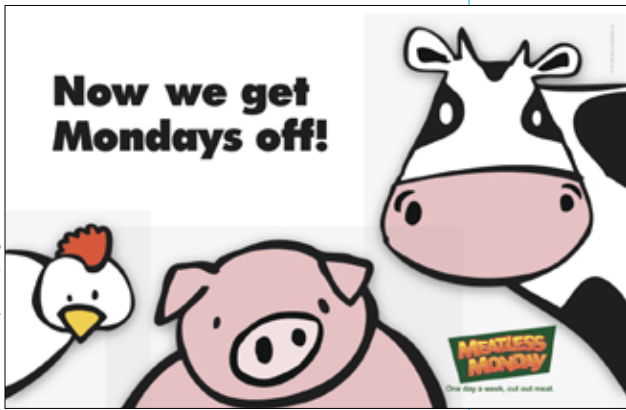
Poster of self-interested creatures encouraging people to go meatless on Mondays

1. Before reading the chapter, **think about what "degrowth" means in the context of the economy and society.** After reading the chapter, **compare your definition of degrowth with the author's definition.**

   What is the difference between degrowth and recession? What steps might leaders take to achieve degrowth? What are some challenges to achieving successful degrowth?

2. Assume that societies and economies began the path of degrowth. **What impacts would be noticeable in the early stages? In later stages?** Think about geographic and political boundaries, socio-economic boundaries, and other regions of the world.

   What impacts would degrowth have nationally and internationally? Where, and on whom, would the impacts be greatest?

3. According to the chapter, campaigns like Meatless Mondays had a temporary but important impact during the two World Wars.

   Search the Internet for public service announcements for other campaigns that strive to improve human health or the environment, but that could also contribute to sustainable prosperity. Could you design your own? (Check out the ideas for a shorter workweek on page 31.)

4. One way to achieve sustainability through degrowth is by recycling more of the goods that we use. But while recycling millions of soda cans may prevent additional mining for metals, imagine the resources that could be saved by simply not consuming those soda cans to begin with.

   What benefits come from *reducing* consumption before *recycling*? How can we shift our solutions toward preventing the problem, rather than responding to it?

5. Assadourian proposes a shorter workweek and increased vacation and parental leave time. Although individuals would earn less money, their quality of life would improve as they gain time to spend with family and friends and pursue hobbies.

   How would you alter your time spent out of the workplace? Which of those changes would contribute to a more environmentally sustainable lifestyle?

6. The chapter suggests many ways to simultaneously bring communities together and promote sustainability.

   What community-oriented sustainability programs exist where you live? Would you like to see more? What kind? Where could the finances originate to start such programs, and how could they be sustained?

7. Assadourian writes, "if a hamster did not stop growing as it reached adulthood, it would be 9 billion tons on its first birthday." In ecology, this phenomenon is known as the environment's *carrying capacity*: a population will use resources and grow in size until it breaches this capacity; it will then decline until there is an abundance of resources again, and so on.

   Do you think this concept applies to humans? Why or why not? Where are we in relation to a carrying capacity?

CHAPTER 3.

Planning for Inclusive and Sustainable Urban Development

by Eric S. Belsky

Chapter 3 discusses the future of sustainable prosperity through the lens of urban development. It examines the trend of city growth globally, the impacts that slums have on cities, the challenges that cities and governments face in incorporating slums into planning, and the barriers that governments must overcome to incorporate slums into cities proper.

Morio

A bus stop shelter under construction in Curitiba, Brazil

1. Belsky begins the chapter by stating that "addressing the environmental impacts of slums is important to achieving the overall goal of sustainable urban development."

   Think about the challenges to sustainable development that exist in "slums." Why would it be important for a city to address environmental issues in these areas?

2. Improving derelict housing would increase the quality of life of slum dwellers, but would be costly.

   How can governments and communities work together to improve neighborhoods in sustainable ways?

3. Urban areas account for half of the world's population but 75 percent of its energy use and carbon emissions. The chapter discusses how slums can degrade the environment while also having positive effects on cities, such as contributing to the urban economy.

   What are some ways that urban living is more environmentally friendly than suburban living? What are some of the less sustainable aspects of urban living?

4. Nearly two-thirds of sub-Saharan Africa's urban population lives in slums, and even in regions with relatively low shares of slum dwelling—such as Latin America—individual countries (such as Haiti) have extreme shares of the urban poor living in slums.

   What institutions should be addressing slums and the living conditions of the urban poor? Are community members responsible, or the regional or municipal government?

5. Difficult living conditions in slums, such as overcrowding and pollution, often result in insufficient access to water and sanitation services, and in increased health risks.

   Are slums a humanitarian issue of national and international concern? Do people living in the slums have a human right to water and sanitation, for example?

6. On page 44, Belsky outlines 10 steps to a "muscular planning system" that involves the cooperation of all stakeholders, including the private sector, the government, and community members.

   What will be the biggest hurdle to implementing such a system? Are all 10 steps feasible and necessary? What other potential barriers to this system are not mentioned?

7. In the latter half of the chapter, Belsky develops his argument of sustainability, outlines barriers to its implementation, and describes methods to overcome these barriers. Yet he does not indicate where initial interest to change the system is born.

   Why would community leaders want to address slums in their city? How do policymakers decide to tackle an issue? What is the role of the slum dwellers themselves?

CHAPTER 4.

Moving Toward Sustainable Transport

by Michael Replogle and Colin Hughes

Chapter 4 examines transportation at a global scale, highlighting the importance of policy reform to address issues of equity, pricing, and sustainability. Replogle and Hughes propose several solutions to address the needs of a growing population in the socio-political context of increased energy insecurity.

Traffic on Chang'an Avenue in Beijing, China

Australian cowboy

1. Before reading the chapter, **envision what a sustainable transportation system would look like in your community or country. How would it be developed, financed, and maintained? Would it vary from rural to urban environments? Would this same infrastructure fit all societies equally?**

   Be sure to consider the socio-economic context and how that may influence transportation's affordability.

2. At the 1992 Rio Earth Summit, 187 governments adopted Agenda 21, an international action plan on sustainable development.

   What does Agenda 21 say specifically about sustainable transportation? On page 54 of *State of the World 2012*, a table details some of the points discussed at the Rio summit. **Has your country enacted any of these principles?**

3. Without policy reform to manage motorized transport, the future of the transport sector looks dire, particularly in developing countries.

   How can citizens encourage policy reform and change behavior to enhance the future of the transport sector?

4. Many of the agreements made at climate summits are voluntary, and they must incorporate monitoring and evaluation frameworks to measure their efficacy. This raises the issue of enforceability.

   How can the international community increase compliance with and enforcement of policies that are developed and agreed upon at global summits?

5. As global demand for transportation and energy increases, many countries are investing in biofuels and other measures to reduce resource use and boost transport efficiency. Meanwhile, people worldwide are buying more cars and driving longer distances than ever.

   Are alternative energy sources, public transit, and high-occupancy travel enough to combat the challenges that come with high levels of commuting and traveling? What are our other options?

6. The chapter notes that motorized transport is used for 60 percent of all trips that are less than 3 kilometers in distance.

   Why might this be? Is it a lack of sidewalks or public transportation infrastructure? What are the reasons that people use motorized transport for short trips in your neighborhood?

7. Although many governments subsidize fossil fuels to keep prices low, this artificial price reduction provides people with incentives to use cars and other unsustainable transportation options. U.S. gas prices often average between $3.00 and $4.00 per gallon, whereas in Western Europe, average gas prices are between 1.45€ and 1.60€ per liter.

   Based on the current exchange rate, what is the price of gas in Western Europe in dollars/gallon? (1 gallon = ~3.8 liters). Why is there such a disparity between the two regions? What are the politics of pricing gasoline?
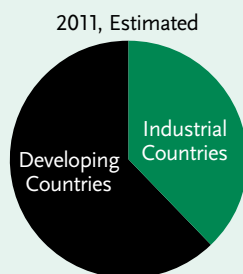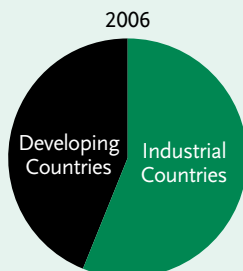
CHAPTER 5.

Information and Communications Technologies Creating Livable, Equitable, Sustainable Cities

by Diana Lind

Chapter 5 examines the challenges that cities face in providing adequate sanitation, transportation, and safety to expanding urban areas worldwide. Lind suggests the increased use of information and communications technologies (ICTs) to ameliorate sanitation and safety concerns. ICTs enhance communication among governments, corporations, and communities, enabling widespread dissemination of information.

Figure 5–2. Internet Users, Industrial and Developing Countries, 2006 and 2011

2006

2011, Estimated

Source: ITU/ICT

1. The term "information and communications technology" (ICT) is relatively new, becoming popular only in the present century.

   Before reading the chapter, **brainstorm what this term means to you. What types of jobs do you consider part of ICT?**

2. After reading the chapter, **compare your initial thoughts regarding ICT with what you learned.**

   What are some of the key things you learned? What problems can ICT help solve? How does ICT impact your daily life?

3. Consider Figure 5-2 on page 67. **What do you learn from the Figure?** While people in developed countries have access to a host of Internet companies, in many developing countries Internet access is available to less than half the population. Imagine that accessibility was not controlled by companies, but was free to the public.

   Would it be financially sustainable? Would unlimited, free access benefit the global community? What drawbacks can you think of, and how would the Internet be regulated?

4. "Smart cities" integrate sustainable transportation into city planning more than other cities. In Chapter 2, author Erik Assadourian describes the importance of degrowth and new ways to measure prosperity. However, Chapter 5 emphasizes the inevitability of growth that will accompany ever-growing populations.

   How can the concepts of degrowth and developing cities reconcile themselves? How can ICT help us develop sustainably?

5. As technology continues to advance, older models become obsolete.

   What do most people do with outdated models, and what alternatives exist?

   While some products are designed for individuals, other technology is developed for city-wide use. Consider alerts from public buses and subways that tell passengers that schedules are running late.

   How are these different scales of technologies connected? How can they be used to improve sustainability?

6. Data is critical to empowering and informing the public and ensuring progress in sustainable development. Therefore, transparency—the right to access and use data—has become a vital part of urban policy. Some argue that data should be sold for profit, or that open-source data may be a security issue.

   In your opinion, should data access be easier through ICT? Who, if anybody, should control it? Who should get access to it?

7. Social media is now organizing the public in innovative ways, providing online forums to discuss development of cities and share information. While some ICT stimulates sharing, it can also decrease human-to-human interaction.

   Can you think of examples where ICT brings communities together to encourage sustainable development?

CHAPTER 6.

Measuring U.S. Sustainable Urban Development

by Eugenie L. Birch and Amy Lynch

Chapter 6 discusses how cities must become sustainable to combat economic instability, rising food prices, and climate change. Urban areas may reduce carbon emissions and increase water efficiency by implementing a unified city planning vision aligned with sustainability indicators and livability principles, and using an indicator database. These tools will enable policymakers to measure the efficacy of sustainable initiatives.

1. Choose a major city in the United States and find its official home page online.

   Are there immediate signs that the city is implementing sustainable policies? What signs do you see of sustainable development on the website? What could the city be doing better to promote sustainability?

2. Consider Box 6-1 on page 80.

   Which of these principles has your selected city implemented? How far has it advanced? Compare your city to the cities selected by others in your discussion group—how does it differ?

3. The chapter notes the importance of having measurable goals and indicators, such as benchmarking, as cities implement sustainable principles.

   Why is this so important? To whom are the cities accountable? What are the enforcement mechanisms to ensure that cities meet their outlined goals?

4. According to the U.S. Census, 79 percent of the population lives in urban areas. Transportation Secretary Ray LaHood describes livability as being able to take your kids to school, go to work, see a doctor, and drop by the grocery or post office, all without having to get into your car.

   How likely is it to achieve this principle? How would policies to encourage "livability" differ between rural and urban areas?

5. **How can Information and Communications Technologies (ICTs) be utilized to measure the success of indicators, and to establish new goals?**

6. The chapter argues that a national standard to show progress on sustainable urban development is missing from the evaluation framework of sustainable development.

   How might a national standard be developed? Why is it difficult to develop and implement a national standard that addresses all cities within the United States?

Box 6–1. Partnership for Sustainable Communities Livability Principles

Provide more transportation choices. Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.

Promote equitable, affordable housing. Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.

Enhance economic competitiveness. Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers, as well as expanded business access to markets.

Support existing communities. Target federal funding toward existing communities—through strategies like transit-oriented, mixed-use development and land recycling—to increase community revitalization and the efficiency of public works investments and to safeguard rural landscapes.

Coordinate and leverage federal policies and investment. Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy.

Value communities and neighborhoods. Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban.

CHAPTER 7.

Reinventing the Corporation

by Allen L. White and Monica Baraldi

Chapter 7 examines the relationship between corporations and society, and the role that corporations have in achieving sustainable development. The chapter considers the history of corporations and the global impact of transnational corporations (TNCs) today. The authors conclude that TNCs will be vital actors in the success of sustainable development and in addressing issues of wealth disparity and societal inclusion.

Jim Bahn

Container ship being loaded in Oakland, California

1. Before reading the chapter, **consider which stakeholders possess the vision, leadership, and capacity to galvanize a movement toward a more just and sustainable world.**

   After reading the chapter, **consider this question again—did your response change?**

2. After World War II, wealth began to accrue rapidly in the hands of private investors.

   What allowed commerce to shift from small-scale sales among villages and local cities to global trade? Could this transition have been avoided, and would that be desirable? How has global trade affected the development of nations?

3. The development of global trade resulted in the emergence of industry-based corporations and in a shift of power from inherited wealth to wealth acquired through entrepreneurship.

   How can the concept of being "self-made" lead to unsustainable growth? Is entrepreneurship at odds with sustainable development?

4. Many TNCs engage in Corporate Social Responsibility (CSR), which aims to instill new norms as corporations invest in nonprofit ventures or sustainable initiatives. Search the Internet for an example of CSR.

   While these efforts can be good for the environment, and are often supported by government tax breaks, **should TNCs be required to have additional environmental and societal commitments outside of their mission statements?**

5. In many social movements (e.g., women's suffrage, environmental, anti-apartheid), governments end up playing an important role in codifying emerging norms that originate outside of government itself. Consider how movements gather momentum.

   Does policy require a crisis in order to be enacted? Did most past or ongoing movements originate as a result of catalytic events that opened a policy window?

6. The chapter notes that corporations are not allowed to pursue profit for shareholders by undermining the legitimate interests of other stakeholders.

   What is the difference between a shareholder and a stakeholder? Can a shareholder also be a stakeholder? In most modern-day companies, who has more power in operations of a company?

7. Consider Corporation 20/20's six principles, as outlined in the chapter.

   Will they have a lasting impact on the way companies do business? Which will be the mostly likely and/or easiest of the principles for companies to incorporate? Which will be the most difficult?

8. In the United States, there are large differences in opinion about whether the federal or state governments have the right to pass laws that dictate how a company should operate.

   Can the government tell a company that it must protect the public interest or that it cannot damage the environment or human health? If so, who defines the public interest, how damages are quantified, and/or what the negative impacts are?

A New Global Architecture for Sustainability Governance

by Maria Ivanova

Chapter 8 argues that the United Nations Environment Programme (UNEP) must be improved in order to enhance environmental policy and sustainable development. Ivanova describes two options of reform being discussed: augmenting UNEP's position as a subsidiary body of the UN General Assembly, and transforming UNEP into a distinct UN agency.
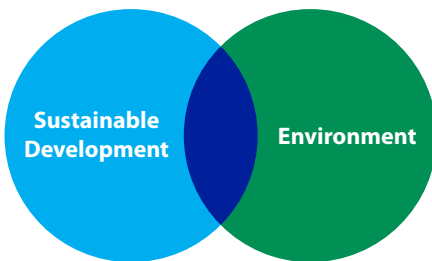
1. Before reading the chapter, picture a Venn diagram with two overlapping circles: Sustainable Development, and Environment.

   How are these two themes related? How are they different? Where would you place an issue like "endangered species"? (If under "Environment," consider how species are losing habitat to expanding human populations—should governments strictly regulate land development to balance ecological needs?) **After reading the chapter, see if you want to add any issues to the themes. Are there any issues that fall clearly into only one category?**

2. The United Nations has organized several major environmental meetings, such as the 1972 Stockholm Conference, the 1992 Rio Earth Summit, and the 2002 World Summit on Sustainable Development in Johannesburg. These events provide a strong impetus for countries to prepare for climate change and encourage innovative, institutional reform. To become more familiar with the UN, learn more about who the members of the UN are:

   Which nations are allowed to participate? Is there a difference between participating and membership? How is the UN organized? What responsibilities does it have? What authority does it have?

3. Forty years after UNEP was created, governments are deliberating ways to enhance the organization's efficacy in the environmental community. Some officials argue that UNEP should be transformed into a UN specialized agency; others say it should be retained as a subsidiary body of the UN General Assembly, as its finances are improved, universal membership is introduced, and an Executive Board is created.

   Which approach do you think would best bolster UNEP's influence in environmental policy?

4. In 2010, UNEP was funded primarily by voluntary contributions, as were the UN Development Programme, the World Food Programme, UNICEF, and the UN Refugee Agency. Yet the latter four agencies raised far more money than the UNEP.

   Why might these programs be more successful than UNEP in raising voluntary funds? Consider Figure 8-1 on page 113—**is there a fundamental difference between these programs and UNEP? Do the issues they address have more media traction than environmental issues?**

5. Since its creation, UNEP has had limited success in organizing government action on environmental issues or enhancing sustainable development.

   Would the creation of a High Commissioner's authority sufficiently change UNEP's structure to make it more effective? Are there other reforms you think would be more successful?

6. Boxes 8-3 and 8-4 (pages 115 and 117) summarize the author's main suggestions for strengthening UNEP.

   Do you think these modifications would be sufficient to ensure UNEP a leadership position in the environmental community?

CHAPTER 9.

Nine Population Strategies to Stop Short of 9 Billion

by Robert Engelman

Chapter 9 argues that addressing population growth should be a top priority in our global effort to ensure sustainability. Specifically, the author encourages the empowerment of women through education, human rights, and policies that reflect the true cost of having children.

1. Ending population growth would accelerate population aging, which could challenge societies economically as fewer young people work and contribute to retirement funds while the healthcare costs of the older, non-working generation grow.
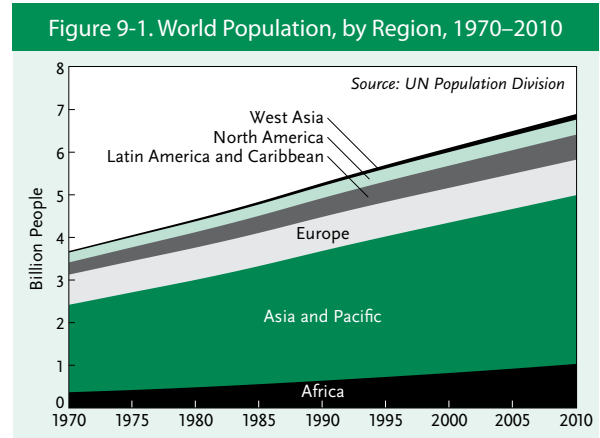
   What other challenges would a slower-growing population create?

2. The chapter notes that "with each year of completed secondary schooling, women's average fertility rates around the world are 0.3–0.5 children lower than those of women without that amount of schooling."

   Why do you think there is a negative correlation between years of education and average fertility rates? What other sustainable benefits might come from educating women in particular?

3. Sexual education is different from country to country.

   Which people or organizations in a society should be responsible for sexual education?

Figure 9-1. World Population, by Region, 1970–2010

Source: UN Population Division

West Asia
North America
Latin America and Caribbean
Europe
Asia and Pacific
Africa

Billion People

1970 1975 1980 1985 1990 1995 2000 2005 2010

CHAPTER 10.

From Light Green to Sustainable Buildings

by Kaarin Taipale

Chapter 10 discusses the importance of green building to sustainable development. It concludes that policies must incorporate all aspects of the building process, performance, infrastructure, and resource use to ensure that a building is truly sustainable.

1. The chapter notes that, "For the long term, zero is a good number: net zero energy, zero carbon, zero waste—and zero tolerance of corruption."

   On a building-by-building basis, which of these would be hardest to achieve? Which would be hardest for a government to manage? What obstacles exist to achieving "zero" in each of these categories?

2. **Renovate, build, or rebuild—which would be more sustainable, and why? Who decides what the policy for sustainable building and renovating will be? What factors should be considered?**

3. Corruption can interfere with construction and in ensuring that buildings are constructed in an environmentally sound way.

   How could transparency be increased within the construction sector? What impact does corruption have on sustainability?

4. In most countries, there are many diverse rubrics and rating systems that communities or companies can choose from when designing a sustainable building.

   Do you think this flexible system works well, or should a rigid, singular building standard exist? What are the drawbacks to both approaches?

5. Many of the chapters suggest that getting to the point of living sustainably on a national or international level is a process or an evolution of society.

   How far along do you think we are, from a local perspective and a global perspective? How long will it take before we "reach zero" and live sustainably?

CHAPTER 11.

Public Policies on More-Sustainable Consumption

by Helio Mattar

Chapter 11 discusses the importance of social participation in policymaking and in ensuring a sustainable future. In particular, Mattar highlights the Internet as a new tool to increase inclusivity.

Dolphin with plastic bag, Fernando de Noronha islands, Brazil

1. Sustainable consumption depends on three elements: technology change on the part of companies, behavior change on the part of consumers, and public policies that provide incentives for both of these changes. Incentives are often financial (as in the case of tax breaks or no-fee periods) and are therefore not sustainable.

   Are incentives the best way to change behavior? If the incentive disappears, will people simply revert to their old ways?

2. **How is corporate social responsibility (CSR) helping societies move in a more sustainable direction? What policies, trainings, or other mandates could be given to individuals in these positions?**

3. Think about incentives for a local or national government to develop and implement policies for sustainable development and living.

   What are the costs associated with developing a relatively simple policy, such as a ban on distributing plastic bags? What about for a more complex policy, such as mandating zero waste in new construction projects?

4. A government cannot enforce a policy if the infrastructure is not in place to support the policy.

   So how do you develop larger-impact policies? Why should one government create a policy (such as a ban on plastic bags) when other governments have not implemented the same policy?

CHAPTER 12.

Mobilizing the Business Community in Brazil and Beyond

by Jorge Abrahão, Paulo Itacarambi, and Henrique Lian

Chapter 12 discusses how society must shift our economic model to protect social and environmental interests, and thereby ensure a sustainable future. The authors describe a green economy as one that recognizes planetary limits, addresses social inequities, protects the interests of future generations, and strives to eradicate poverty.

1. **What is a "carbon market"? Are there different types of carbon markets? Which countries use them? What are their successes? Where is there room for improvement?**

2. Many tangible goods have monetary value: the more rare they are, the more valuable they are considered.

   How subjective is valuation? How does the value of a good change over time? Does society value anything solely for its existence?

3. **Can you think of any other organization like the Ethos Institute? How successful have they been? What makes an organization like the Ethos Institute successful? What would it take for all companies to register or work with an organization like this?**

CHAPTER 13.

Growing a Sustainable Future

by Monique Mikhail

Chapter 13 argues that small-scale farmers and low-input, agro-ecological farming techniques must be incorporated into policies in order to ensure a sustainable food supply. Mikhail concludes that these agricultural practices will enhance food security both regionally and globally, as small-scale farmers improve productivity and the availability of food locally.

An SRI (System of Rice Intensification) instructor in Cambodia offers advice to a farmer on how to pull rice seedlings without damaging their roots.

1. Agricultural practices over the last few decades have resulted in monoculture production systems that export a limited number of commodity crops and have led to significant loss of plant genetic resources.

   What are the drawbacks to monoculture? From an agricultural perspective, what are the negative environmental impacts that come from decreased biodiversity in farming?

2. The chapter describes how low-input, agro-ecological farming techniques can raise yields, improve soil fertility, conserve natural resources, and reduce dependence on expensive inputs.

   If it is true that we can produce just as much food without monocultures, chemical inputs, or genetically modified crops, **why do so many farmers and agribusinesses use these approaches? How did farming practices evolve to their current state?**

3. **What are some barriers that prevent rural families from building small, supplementary gardens? If individual families started supplementing their household's food supply via small gardens, would they contribute significantly to addressing poverty and hunger in their communities?**

4. Mikhail emphasizes education, information availability, and information dissemination in creating sound agricultural policy.

   How could governments or agro-business operations support education in local, rural, and small communities? How could they ensure that information gets to individuals and groups that want to farm? What institutions or infrastructure would be needed to promote the long-term success of crops?

5. Large companies have dominated global research and development, resulting in products such as Monsanto's Roundup herbicide and genetically modified Roundup Ready Soy. Consider Monsanto's commitments to corporate social responsibility.

What is Monsanto doing to support small farmers and agro-ecology? What or whose interests lie at the heart of their production? (See also www.monsanto.com/ourcommitments/Pages/sustainable-agriculture.aspx.)

CHAPTER 14.

Food Security and Equity in a Climate-Constrained World

by Mia MacDonald

Chapter 14 discusses the importance of reversing the recent shift from smaller agricultural production toward large, input-intensive factory farms. MacDonald argues that to prevent agricultural production from increased consolidation in large factory farms, governments and the public will need to collaborate in policymaking efforts.

Healthy spinach in a school garden, Zimbabwe

1. Research shows that consuming less meat is not only less expensive and better for you, but also better for the environment. According to one estimate, you save more water by not eating 1 pound of meat than you do by not showering for six months; meanwhile, a meal of fruits, vegetables, and grains generates 24 times fewer greenhouse gas emissions than 6 ounces of conventionally raised beef. Think about your own meat consumption.

   On average, how many meals do you eat a day that contain meat or dairy? How many ounces (or grams) of meat or cheese do you eat per week? Have you considered becoming a vegetarian—why (or why not) have you made the shift?

2. **What local and regional effects does factory farming have on water, air, and soil resources? What are some of the differences in the impacts between poultry farming, meat farming, and dairy farming?**

3. The chapter notes that "expanding global meat, egg, and dairy production has a direct relationship to global climate change."

   How does meat and dairy production contribute to climate change? What emissions result from livestock farming? What causes those emissions?

4. According to the U.S. Department of Agriculture, the aggregate U.S. food supply in 2000 provided 3,800 calories per person per day, of which roughly 1,100 calories was lost to spoilage, plate waste, and cooking and other losses—putting dietary intake at just under 2,700 calories per day. The USDA recommends approximately 1,800–2,200 calories per day to maintain weight, depending on age and activity level.

   How do you think Americans (and people in other industrialized nations) contribute to the food issues discussed in this chapter? What can governments do to solve these problems?

CHAPTER 15.

Biodiversity: Combating the Sixth Mass Extinction

by Bo Normander

Chapter 15 describes the dramatic loss of species globally, a rate that is currently approximately 1,000 times higher than in pre-industrial times. Normander argues that in order for biodiversity loss to be halted, leaders must agree to commitments that protect regions of rich biodiversity and collaborate to protect species at risk of extinction.

1. Politicians have largely failed to protect nature, and the world has witnessed a dramatic and continual loss of biodiversity.

   Why is the loss of biodiversity a concern for humans? What important services do we get from having biodiverse ecosystems?

2. The extreme rate of biodiversity loss has been called the "sixth mass extinction" in Earth's history, and the only one caused by a living creature—humans. Scientists highlight five principal causes of biodiversity loss: habitat change, overexploitation, pollution, invasive alien species, and climate change.

   What are some direct and indirect threats to biodiversity caused by humans? How can these threats be lessened?

3. The chapter notes that: "Biodiversity is invaluable and cannot be truly measured in monetary terms… [however,] preserving Earth's biological diversity is a fundamental step on the path toward achieving economic prosperity."

   What financial tools can be used to preserve biological diversity?

4. Many land species are not equally threatened across continents or countries, and they may not naturally exist within multiple political borders.

   Who should be responsible for setting statutes and policies regarding biodiversity? Is this the responsibility of members of a world summit, or of the United Nations or UNEP? Why or why not?

CHAPTER 16.

Ecosystem Services for Sustainable Prosperity

by Ida Kubiszewski and Robert Costanza

Chapter 16 details the importance of measuring the value of ecosystem services to facilitate better management of natural resources and environmental planning.

Leaflet

Ecosystem service: drawing water from the Ogallala aquifer, Buffalo Lake National Wildlife Refuge, Texas

1. The chapter notes that, "By not having a number attached to the contributions of [ecosystem services] in terms comparable with economic services and manufactured capital, the value of ecosystem services is often perceived to be zero."

   What is an ecosystem service? How much would you "sell" clean air for? How much would it cost to produce enough oxygen for everything on Earth that breathes it?

2. Many people may not recognize the role that a specific ecosystem service plays in their well-being, leading them to undervalue this resource. Consider a public park that you pass every day on your way to work but never see utilized. Across the street is a school that has its own play area for students. The community decides to build a convenience store in place of the "under-utilized" park, even though research shows that viewing green spaces from homes and classrooms can actually improve student attention and class scores.

   Would you still argue that no one is using the park? Can you think of other ecosystem services that are not "obvious" or easily measured?

3. **What is the "tragedy of the commons"? Are there any ecosystem services that we depend on regularly today that are threatened by the tragedy of the commons?**

4. Given the levels of uncertainty that exist in ecosystem service measurement, it is important to monitor, model, and gather as much information as possible about these systems, thereby allowing adaptive management.

   Due to the high levels of uncertainty, **should policymakers be managing ecosystems by using the precautionary principle?**

CHAPTER 17.

Getting Local Government Right

by Joseph Foti

Chapter 17 outlines why governments need to incorporate the public into decision-making processes, in order to ensure that local institutions are transparent and accountable. Foti argues that if local governments fail to include local citizens in the governance process, then social stability and environmental sustainability will not be feasible.

1. **Do you think that the right to a clean environment should be a basic human right? How can this right be enforced? Does this right ensure environmental justice?**

2. Local democracy can promote sustainability at other scales of government as well, and can spur policy innovation.

   How engaged in policymaking or government processes do you feel personally?

3. In environmental governance, there are many barriers to transparency, accountability, and inclusiveness at the local level.

   Have you experienced barriers participating in environmental processes in your community, or have there been disagreements about who has jurisdiction over a certain environmental issue?