Traveler checking in for their flight at an airport counter.

1 GETTING YOUR GLOBAL BEARINGS

Navigating the World

LEARNING OBJECTIVES

After studying this chapter, you will be able to:

1.1 Define the field of international studies

1.2 Contrast the different borders that shape the modern world and their main units of analysis

1.3 Describe the different stages of globalization

1.4 Examine the pros and cons of globalization

1.5 Explain the concept of citizenship and how it has changed over time

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You can't escape it. The world has become smaller as the food you eat, the clothes you wear, and the products you use come from all around the globe. Your own daily routines are closely connected to the world beyond your doorstep. As distances shrink and traditional borders become fuzzy, we have to approach the world in a new way. We have to learn to think differently. In Douglas Adams's science fiction classic, *The Hitchhiker's Guide to the Galaxy*, the protagonist, Arthur Dent, is thrust into a tour of the galaxy without warning. Overwhelmed by this new challenge, he is relieved after receiving his hitchhiker's guide emblazoned with the words DON'T PANIC.[1]

Anyone embarking on a journey to understand the world today might benefit from similar advice. You must embrace the many changes taking place, but you might want some help in planning your trip. What you really need to set you at ease is a "hitchhiker's guide to the global arena" that will provide a road map for the world of today and the people who inhabit it. This book will serve as that guide as it lays out the foundations of international studies and describes the knowledge, skills, and experience you will need to get your global bearings.

Our ability to navigate the world's borders has been transformed by the emergence of new technologies—we can find our way through a completely new city with the touch of a screen. Still, most of us will face geographic, political, economic, social, and cultural challenges as we traverse these borders for the first time. Our job in this book is to introduce you to ways of approaching some of these new and potentially strange challenges. So don't panic! This book will be your resource through the entire journey.

TOWARD A WORKING DEFINITION OF INTERNATIONAL STUDIES

The goal of international studies is to prepare students for meeting the challenges of a rapidly changing world. A working definition of **international studies** is a field of inquiry that examines the broad array of human relationships that involve cross-border interactions. International studies is one of the fastest growing majors in the United States today—in large part because students and teachers alike recognize that we live in a rapidly changing landscape and know that we need a new set of tools to engage with it. The field is different from traditional studies of international relations and their narrower emphasis on politics, in that it offers a unique and broader way to examine the challenges of a global world order. While a focus on politics helps us think about how countries around the world interact with one another, it does not tell us very much about how ordinary people are connected to or impacted by the world around them and how they, in turn, affect it.

As a course of study, international studies draws on multiple disciplines and perspectives. These may include anthropology, business, communication, economics, geography, healthcare, history, languages, literature, political science, religion, and sociology. Relationships among these different disciplines are often hard to manage for academic institutions, but the changing nature of the international system and the ability to understand it requires looking at the world through these multiple lenses. Ultimately, international studies is designed to help students forge a new identity for themselves that is responsive to their environment.

DIFFERENT WAYS OF LOOKING AT THE WORLD'S BORDERS

Each of these academic disciplines represents a different way of studying the world, focusing on a particular aspect as its unit of analysis. For our purposes, we can think of those units as making up different kinds of "borders," the features that most strongly define the various parts of any given system (Table 1.1). Every day you cross borders physically and intellectually. You leave your home to cross from street to street, city to city, state to state, or even country to country. In your classes, you look at the world through different lenses that guide your educational experience from art to science. As we look to understand the multiple dimensions of the international system from a variety of perspectives and vantage points, we examine five major types of borders: geographic, political, economic, social, and cultural.
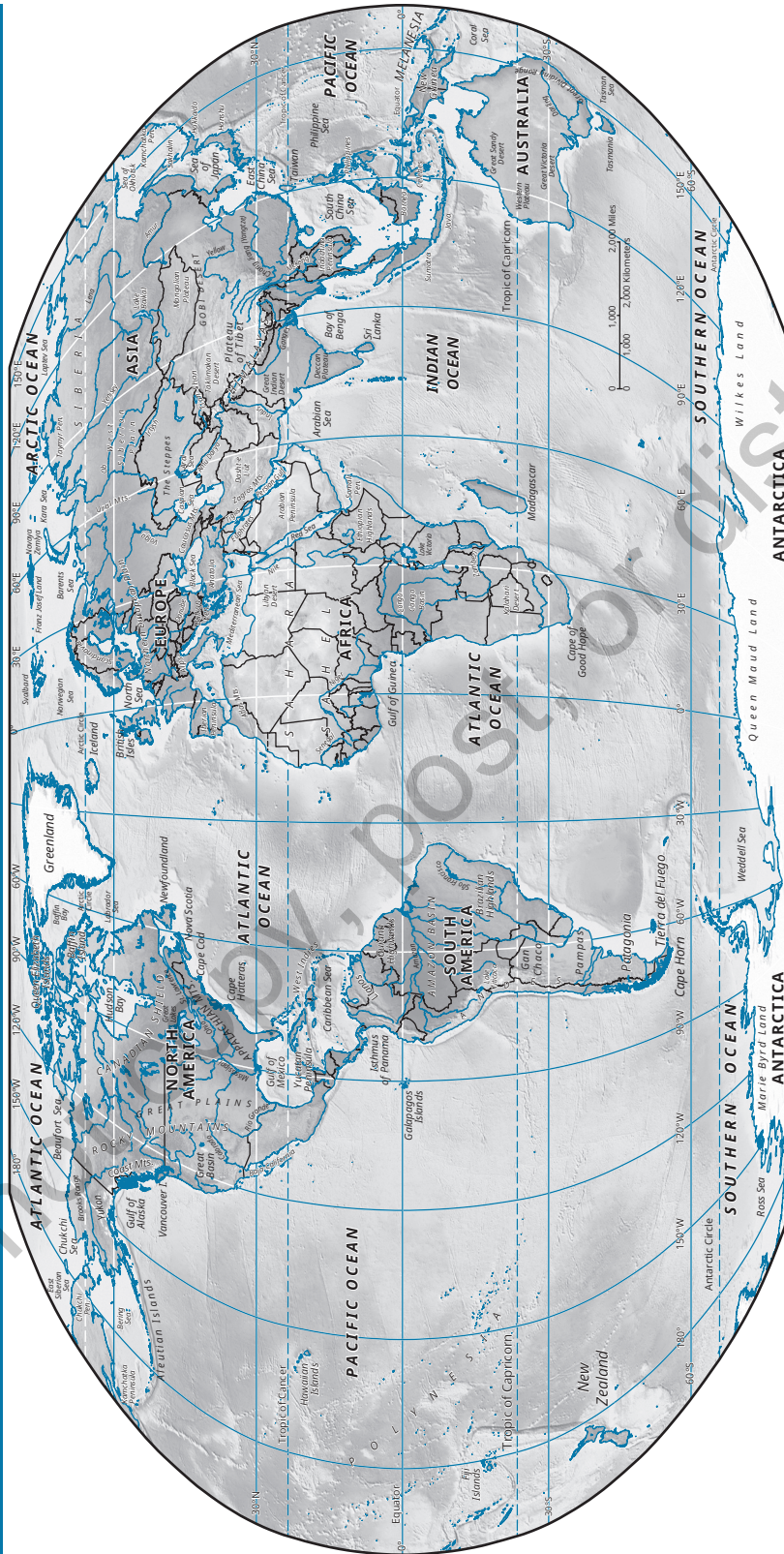
TABLE 1.1 ■ The Borders of International Studies		
Type of Border	**Main Unit of Analysis**	**Primary Academic Field of Study**
Geographic	Physical earth	Geography
Political	States	Political science
Economic	Markets	Economics
Social	Class	Sociology
Cultural	Populations	Anthropology

In the highly regarded 2014 documentary series *Cosmos: A Spacetime Odyssey*, host Neil deGrasse Tyson notes that our cosmic address begins on Earth, then proceeds to the solar system, then expands to the Milky Way galaxy, and reaches all the way to the observable universe! Looking at Earth from outer space, it appears as a peaceful blue globe distinguished by landmasses and bodies of water. After closer inspection, we can begin to identify rivers, deserts, and mountain ranges (refer to Map 1.1). These **geographic borders** affect how and where humans have settled and the degree to which they interact with one another. The academic field of geography studies these borders, measured by bodies of water, various elevations, and expanses of forest and desert.

Over time, these geographic borders have changed, expanded, and shrunk. Volcanoes, glaciers, earthquakes, and meandering rivers transform the landscape. Geographic borders are also altered by the environmental impact of melting polar ice caps, retreating wetlands, and expanding deserts. Furthermore, the migration and relocation of people to certain areas can be problematic. In addition to potentially straining the absorptive capacity of these spaces, these inhabitants may be susceptible to their particular properties. The valleys subject to monsoon flooding in Bangladesh and the converted deserts of wildfire-prone areas of southern California are just two examples of our sometimes precarious interface with nature.

MAP 1.1 ■ The World's Geographical Borders

MAP 1.2 ■ The World's Political Borders

While geographic borders may shift, they are still fairly simple to identify. The rest of the borders of international studies, however, are distinguished in a more nuanced manner. Looking at a modern map of the world (refer to Map 1.2), we see a series of recognizable lines and boundaries. These lines represent the **political borders** of the world. These political borders form states, critically powerful actors in the world today. Defined largely by governments in control within these boundaries, states remain a primary focus for students of international studies. While the United States uses the term "states" within their internal borders, states refer to countries or nations at an international level.

The sheer number of states is important to recognize as well. As of 2024, there are 193 independent states recognized by the United Nations (UN). Only one hundred years ago, roughly fifty states existed. Because the end of World War II brought incredible devastation to the European continent and consequently started to end colonialism, some thirty-six new states had come into existence by 1960. The existence of so many relatively new states is important to recognize, particularly when observing that these new political borders often divide very old cultures. The field of political science focuses on these important actors.
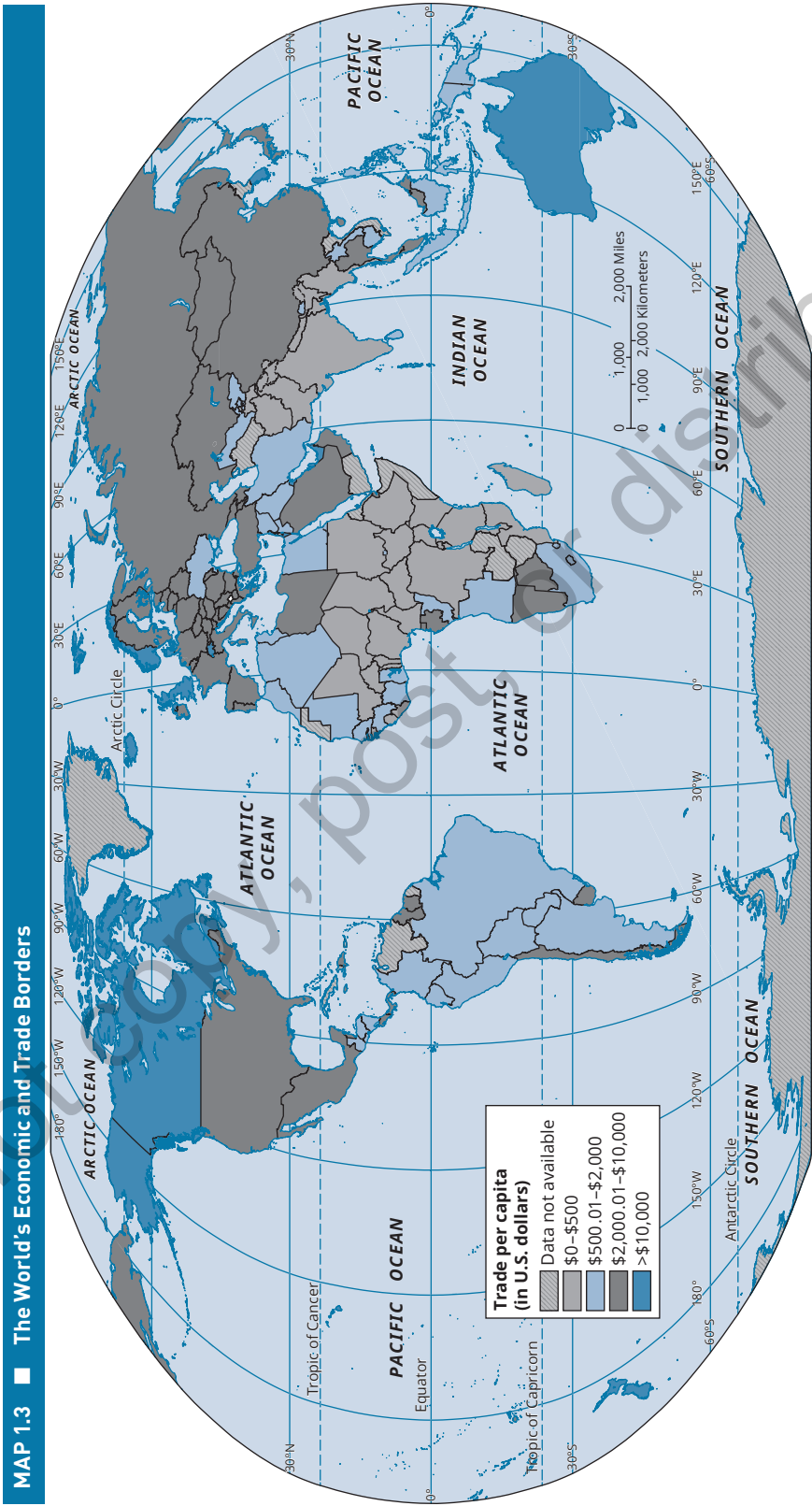
International studies involves much more than government members sitting around a table discussing issues of war and peace. Beyond political borders that form states, the existence of **economic borders**—those that form international markets—is central to the relationships among states, nations, and individuals (refer to Map 1.3). Markets, or the exchange of goods and services, represent dynamic forces that provide almost everyone with the items they consume. The resulting global marketplace is driven not just by states but also by other actors, such as transnational private corporations and individuals. The discipline of economics examines these borders and their effect on you and the international system.

Think about your morning routine:

You may have woken up to the alarm from your Korean-made smartphone, checked your social media accounts—Facebook, X (formerly Twitter), Instagram, TikTok, and Snapchat—gotten out of a bed with linens from Egypt or Malaysia, and struggled to get to the kitchen. Once there, perhaps you made a cup of Brazilian coffee or tea grown in Sri Lanka. You might have even had a banana from Costa Rica or an orange from Morocco. Next, you went into the shower with the fixtures possibly made in Germany. Then you slipped into your Levi's made in Vietnam, T-shirt made in India, and Converse made in China. Afterward, maybe you headed for school in your Toyota, a Japanese car brand assembled in Kentucky. You stopped to buy gas, imported from Saudi Arabia or Venezuela, arrived on campus, and then searched for a parking space—a problem confronted worldwide! The broadness of global markets can also manifest itself in the creations of these goods and services—supply chains have also gone global! Your Korean-made smartphone might have chips made from Chinese minerals yet manufactured in Taiwan, and it might come in a cardboard box made in Japan.
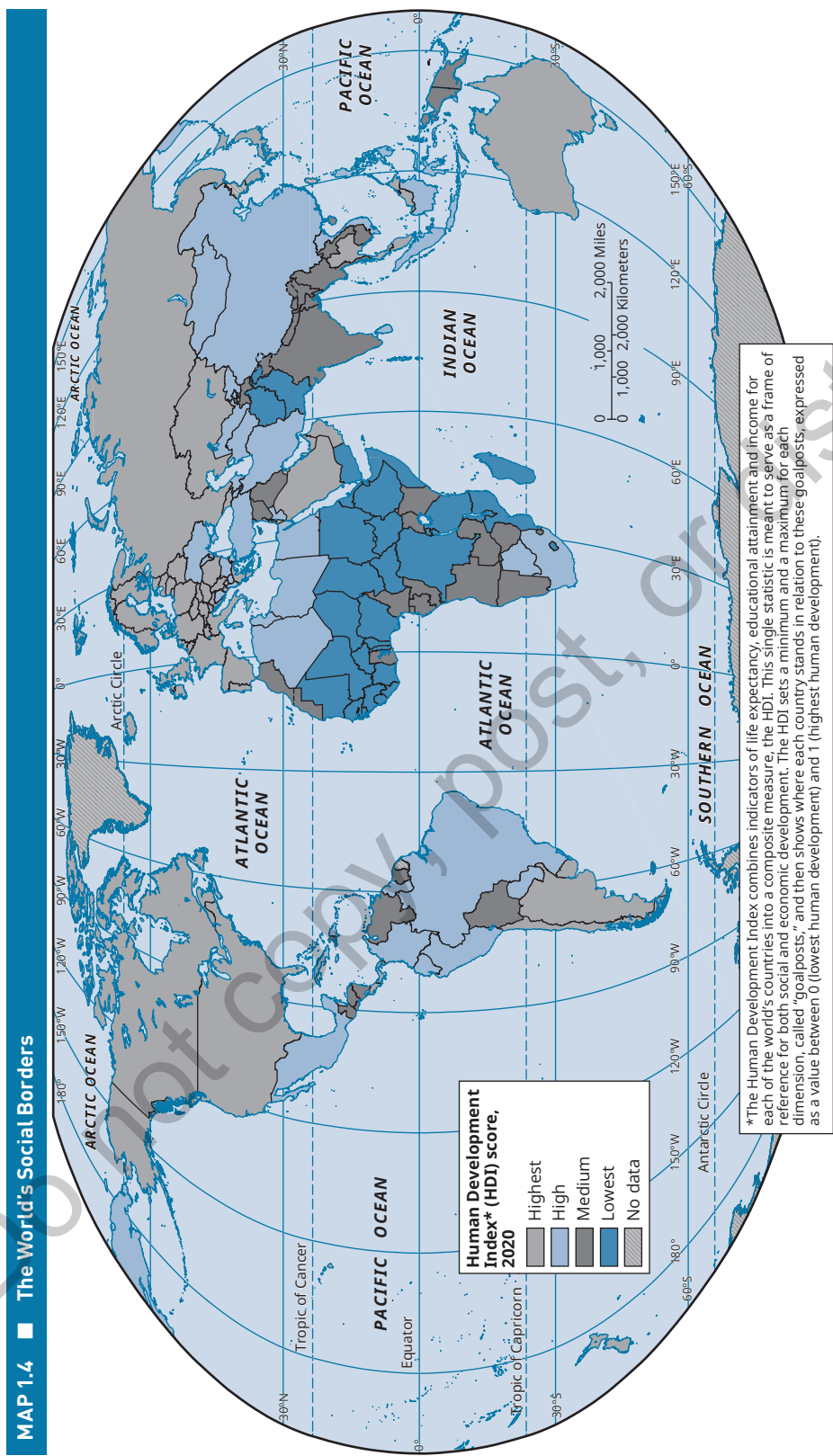
Your ability to purchase goods across international borders has much to do with economic success, but access is unequal. Goods and services, and the resources needed to produce them, are not distributed evenly across the world's population—they go to those who can afford and have access to them. As a result, this uneven distribution and contact produces a divide along **social borders** (refer to Map 1.4). In other words, it separates people into different social classes.

Karl Marx is the best known advocate of using class as an important means of analysis. He argued that class divisions would arise as a consequence of capitalism. Such divisions are even more pronounced today along the north-south line formed by the equator, such that societies to

MAP 1.3 ■ The World's Economic and Trade Borders

Trade per capita (in U.S. dollars)
- Data not available
- $0–$500
- $500.01–$2,000
- $2,000.01–$10,000
- >$10,000

Source: The World Trade Organization, "Trade Maps: Trade Per Capita." http://www.wto.org/english/res_e/statis_e/statis_maps_e.htm

MAP 1.4 ■ The World's Social Borders

Human Development Index* (HDI) score, 2020

- Highest
- High
- Medium
- Lowest
- No data

*The Human Development Index combines indicators of life expectancy, educational attainment and income for each of the world's countries into a composite measure, the HDI. This single statistic is meant to serve as a frame of reference for both social and economic development. The HDI sets a minimum and a maximum for each dimension, called "goalposts," and then shows where each country stands in relation to these goalposts, expressed as a value between 0 (lowest human development) and 1 (highest human development).

Source: HDRO calculations based on data from UNDESA (2019a), UNESCO Institute for Statistics (2020), United Nations Statistics Division (2020b), World Bank (2020a), Barro and Lee (2018) and IMF (2020). https://hdr.undp.org/data-center/country-insights#/ranks

the south of the equator, known as the "Global South," are less economically developed, and have lower human development, than those that lie to the north. The inherent structure of the world's political and economic systems creates a world of haves and have-nots that furthers class divisions. Understanding these divides and the hardships they impose is part of the field of sociology.

The **cultural borders** that form societies constitute a related area and additional layer that must be considered. Such social groups can be defined in terms of language, religion, ethnicity, or a common historical experience. Such cultural distinctions provide us with some of the most important insights into the world's people. There may be some two hundred different states, but there are more than six thousand languages, dozens of global religions,

Migrants in a cayuco navigating the Mediterranean Sea on January 3, 2024. They were rescued by the crew of NGO ship Open Arms just before bad weather arrived.

Antonio Sempere/Europa Press via Getty Images

countless folk religions, and hundreds of different ethnic groups (refer to Map 1.5). These socio-cultural groups then greatly outnumber official states and are often called nations.

The term nation is problematic however because, though governments decide who belongs or has membership (generally referred to as **citizenship**) in a state, it is largely up to individuals to determine their cultural identity. The countries that are members of the UN, for example, are referred to as *nation–states*. With this term, there is an implicit assumption that political borders and cultural borders generally coincide. This symmetry is not always the case, and the African continent offers an excellent example. There are fifty-four African states and more than three hundred distinct nations on the sub-Saharan African continent. Many of the problems surrounding the violence, leadership, and economic stagnation in that region must begin with the recognition that colonialism created many new states that split very old socio-cultural groups.

One of the striking characteristics of our world today is that humans routinely cross these borders. This is due, in large measure, to advances in technology that enable us to go around many existing barriers. This is perhaps best demonstrated by the technological revolution and the presence of the Internet. We can now connect with one another in ways previously unimaginable. In just over one hundred years, the transition from horse and buggy to cars and planes enhanced physical mobility, while communications, through radio and television, transformed society. In the twenty-first century, access to smartphones, computers, and cloud technologies have been bridging geographic, political, economic, social, and cultural divides, especially with the advent of AI integration.

At the same time, our responses to this transformation have been mixed. Following decades of policies aimed at extending these connections, we have seen a growing backlash fueled by frustrations over some of their uncontrollable or unanticipated effects. This is reflected in the abandoning of international agreements and treaties, the retreat from free trade, the adoption of restrictive immigration laws, and other initiatives to harden existing borders. As the rapid spread of the COVID-19 pandemic of 2020 so vividly revealed, however, these borders remain highly contentious and exposed despite efforts to secure them.
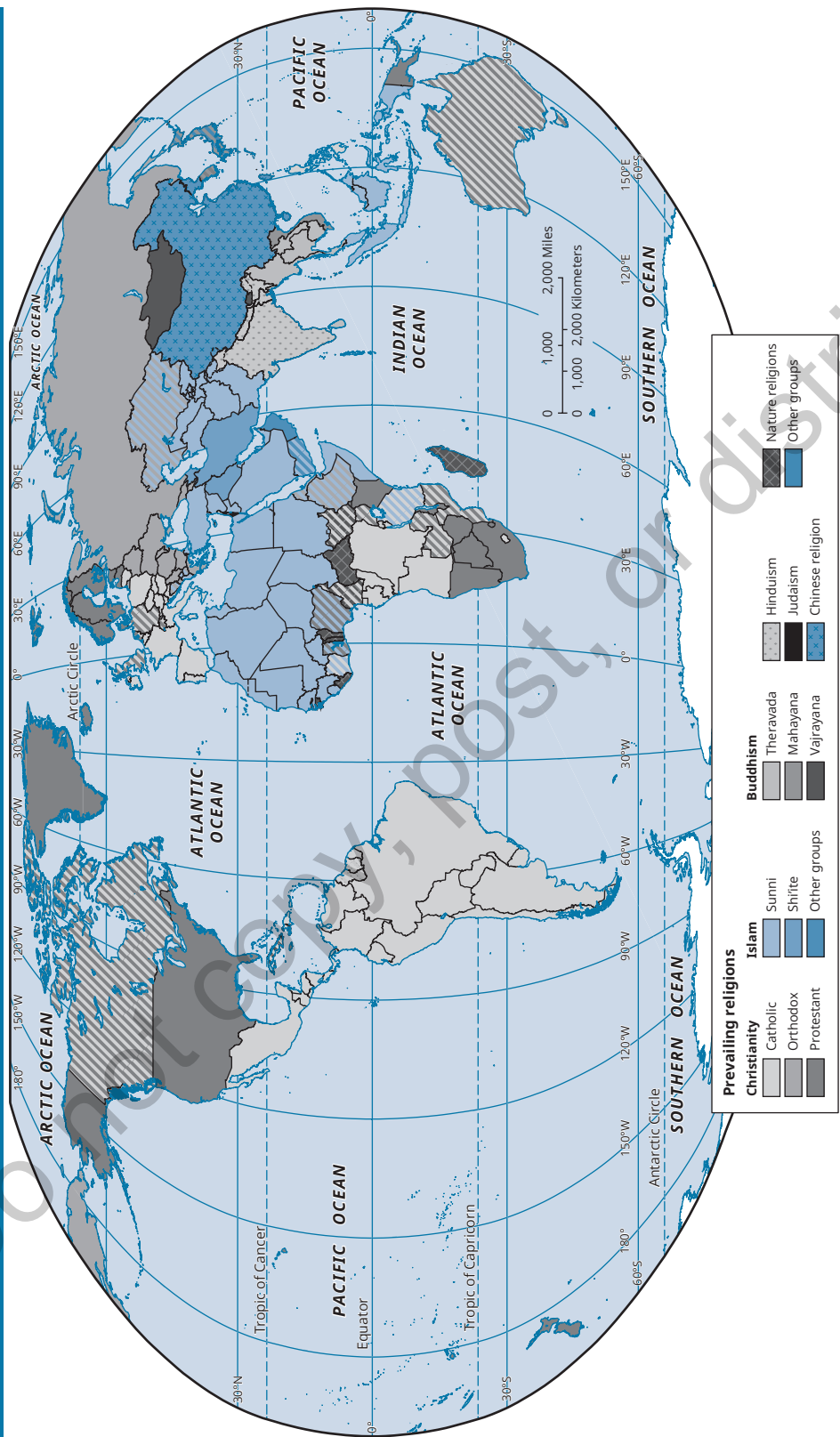
As we address these different borders—and how they are changing—in subsequent chapters, we offer an historical context within which to view them. We cannot understand the present or attempt to project the future without appreciating how situations and circumstances have evolved over time. We are also mindful of the infamous warning from philosopher George Santayana more than a century ago that "those who cannot remember the past are condemned to repeat it."[2]

MAP 1.5 ■ The World's Cultural Borders

Prevailing religions

Christianity	Islam	Buddhism	Hinduism
Catholic	Sunni	Theravada	Judaism
Orthodox	Shiite	Mahayana	Chinese religion
Protestant	Other groups	Vajrayana	Nature religions
			Other groups

Note: It is important to note that religions are just one aspect of culture.

HOW YOU CAN CONNECT

You can define and establish your sense of personal identity through connections to your

1. Country;
2. State, province, or local community;
3. Religion;
4. Language;
5. Race or ethnic group;
6. Gender;
7. Socio-economic status; or
8. Some combination of all these identities.

THE EVOLUTION OF GLOBALIZATION

The most useful concept to frame our understanding of the dynamics of today's world is **globalization**, a buzzword that emerged during the latter stages of the Cold War and the ensuing interconnectedness of the international arena. Originally coined by Theodore Levitt in a 1983 *Harvard Business Review* article titled "The Globalization of Markets," it referred to changes in behaviors and technology that allowed companies to sell the same products around the world.[3] Today, the definition is much broader. Generally, the term is used to describe the political, economic, social, and cultural flows across the world. It includes a broad range of interactions, from trade and financial relationships to the integrated communication networks that have developed to facilitate those connections. The giant scope of this term is the very reason this book exists and is necessary.

There is still some controversy, however, regarding the extent and impact of this connectivity. Some have argued that this marks the beginning of the end of the current global system—that something even bigger than globalization is happening. They point to the emergence of a new era of **hyperglobalization**, with the progressive erosion of the borders that have differentiated national economies and sustained the centrality of nation–states. They argue that this development has resulted in a significantly altered environment, as defined by the following changes:

1. The nation–state is in steady decline and is now merely one of a growing number of players or actors on an increasingly multilevel world stage, where the practical limits to sovereignty have become more pronounced.

2. There are a growing number of issues that are global in scope and cannot be dealt with effectively by individual countries or even small groups of countries without some overarching system of global governance.

3. The mobility of capital has produced new patterns of finance and commercial exchange that do not necessarily correspond to flows that fit neatly within existing political borders.

4. The future will be marked by an increasing number of transnational interactions and institutions that will lead to a widening and deepening of integration processes—politically, economically, and socially.[4]

Sakhile Sibindi checks her phone in Matobo, Zimbabwe. Many local villagers climb the hill on a communal trek to make phone calls, send messages, and check social media.

Not everyone agrees with this assessment. Skeptics point out that nation–states are resilient, endure politically, and have the capacity to regulate the global economy. While not disputing some of the important changes that are bringing different parts of the world closer together, these critics are less certain of the uniqueness or overarching significance of these developments. They argue that expansion of trade and investment is occurring within prevailing structures and continues to be shaped by existing borders. While more and more trade across the world is between transnational companies, trade balances are still measured on a country-to-country basis. In addition, the resurgence of nationalism, protectionism, and other more restricted forms of identity are shaping relationships and suggesting potential limits to the cooperative spirit required to nurture and maintain global connections.

There is certainly historical evidence to substantiate this claim, as previous waves of interconnectivity were frequently strained or even severed due to emerging conflicts. The high levels of trade and investment that characterized the global economy of the late nineteenth century, for example, came to an abrupt halt with the outbreak of World War I in 1914. The volume of trade had risen sharply, with merchandise exports rising from 5 percent of the world's **gross domestic product (GDP)** in 1870 to 8.7 percent in 1913.[5] Merchandise trade represented 12 percent of the **gross national product (GNP)** for "developed" countries, a level unmatched until the 1970s.[6] Postwar efforts to revive the global economy and political order were hindered by lingering distrust and failure to devise an effective collective security system. Key elements of this story ring true today, particularly in light of the concerted efforts of some states to limit their international exposure following the global financial crisis of 2008 and the more recent backlash against globalization in the United States and other parts of the world.

The inconsistent and somewhat fuzzy patterns of integration evident across global political and economic arenas are reflected in what some have labeled the *third wave* of globalization theory.[7] This view, often referred to as the *transformationalist* perspective, emphasizes the complexity of globalization. Its proponents see globalization as an extended historical process that goes back as far as the early "globalizers" in the third century BCE who traveled the Silk Road trade route linking the Chinese and Roman empires. This initial wave was followed by a more pronounced period during the 1500s with the rise of European metropolitan centers and merchant classes. The activities of the Dutch and British East India trading companies marked the expansion of these centers into previously uncharted areas, bringing with them the second wave.

Transformationalists view the more recent trends that have been stimulated by major advances in technology as unprecedented regarding their growth and intensity and as serving to alter fundamental political, economic, and social relationships. The lines between what is domestic and what is international have become increasingly blurred. The national origin of particular products, for example, may be difficult to discern given the multiple sources of inputs or assembly. This is portrayed quite vividly by business professor Pietra Rivoli, who follows the life cycle of a T-shirt from its origins in a Texas cotton field to its manufacture in a Shanghai factory and its eventual appearance at a used clothing market in Tanzania.[8] Similar challenges present themselves when it comes to music, food, and fashion, as they have become increasingly influenced by styles and tastes originating in many places.

Even as the sovereign authority of states has diminished and the world economy has become increasingly deterritorialized, third-wave theorists emphasize the importance of recognizing the uneven patterns of and different responses to these globalizing trends.[9] Nation–states still enjoy the legal right to sovereignty. Territorial boundaries maintain both their political and commercial significance, despite the fact that they may no longer serve as the "primary markers of modern life."[10] As crops are raised and goods are produced locally, countries across the global economy tend to operate within regional contexts that often serve to limit contacts or integration outside those networks. While there are considerable and mutual stakes in sustaining these ties and relationships, their strength will be affected by the behaviors and policy choices of those who are most directly impacted.

GLOBALIZATION: WINNERS AND LOSERS

Given these disagreements and differing interpretations, it may not be so easy to get a clear sense of what globalization is all about. In fact, globalization has become a highly contentious issue. While many argue that everyone benefits from these changes, it has not always been the case. Consumers may gain from access to more goods and lower prices, but they have become more vulnerable to political and economic fluctuations abroad that affect these supply chains. As economic interdependence has promoted a free trade agenda, concerns have arisen about the consequences of unrestrained competition on companies and workers seeking to establish their niche in the global market. People may be living and interacting with their global neighbors on a level unprecedented in human history, but they are apprehensive when such interactions are perceived as threatening their traditions and customs.

An increasingly connected world means more currencies cross the globe each day. Pictured here are Swiss franc (CHF) coins and banknotes, the currency of Switzerland.

iStockphoto.com/assalve

At the heart of the matter for many of those who support globalization is the idea that it promotes a better quality of life for a greater number of people. Enhanced access to goods produced around the world, the argument goes, serves to improve overall standards of living while giving people the opportunity to accommodate more of their basic needs. Not only is more "stuff" obtainable, but it is also available at a cheaper cost through a more open and integrated marketplace. Diversification in the types and locations of manufacturing facilities may also create jobs in places—particularly across the "Global South"—where there may have been only limited opportunities before. If we happen to examine the label of one of our shirts, for example, it is likely that it was made by workers in Indonesia, Mexico, Sri Lanka, Vietnam, or some other country where production costs are relatively lower.

Proponents of globalization further believe that it empowers individuals both economically and politically. Advances in communication, coupled with greater opportunities to travel and experience unfamiliar places, increase awareness of the challenging and vexing issues facing the world. They also create opportunities to network, organize, or even join in protest with others who may be similarly impacted by these matters. In addition to facilitating direct engagement, these activities may serve as catalysts in promoting cooperative and collaborative cross-border policy initiatives involving both governmental and nongovernmental actors.

While everyone may be directly or indirectly affected by globalization, not all benefit equally from it. This reality has produced frustration among those who feel unable to control their destiny. *New York Times* columnist and best-selling author Thomas Friedman talked about the difficulties in keeping up with globalization or adapting to its demands—what he referred to as a hardware/software type of problem—and went on to address reasons for broader social and political resistance to the process in his seminal book on globalization, *The Lexus and the Olive Tree*.[11] Ultimately, he came to label the policies that would be required to get with the globalization program and reap its benefits the "**golden straitjacket**," whereby a state would need to balance its budget, cut state bureaucracy, promote the private sector, and encourage free trade to compete effectively in the global market. Even in a Western-based, politically democratic, and relatively free trade economic environment, these objectives are hard to achieve.

For many of the less advantaged people of the world, these prescriptions may not even be necessarily advisable. They see themselves as being left behind, as transnational corporations (TNCs) and other key agents of the globalization system manipulate their status in pursuit of their own economic interests. Consequently, this loss of economic control makes them susceptible to decisions that are made in faraway places that do not necessarily consider local interests. This trend has prompted many to argue that while globalization may well expand the economic pie, it is also contributing further to the divide between the rich and the poor.

Examples of these differential impacts abound in both "developed" and "developing" countries. Globalization skeptics decry the transfer or outsourcing of jobs as manufacturing moves from traditional industrial countries to offshore locations. While relocation may create jobs where they did not previously exist, it displaces workers who do not necessarily have the background or skills to pursue opportunities that offer comparable wages. The workplace conditions for those now performing these tasks are often unhealthy or unsafe, resembling the sweatshops of a bygone era. Furthermore, outsourcing is not limited to manufacturing.

One of the fastest-growing areas is in information technology (IT). By 2020, three of India's largest IT services firms—Tata Consultancy Services (TCS), Infosys, and Wipro—employed a combined total of nearly seven hundred thousand workers.[12] The creation of these types of jobs in India and elsewhere is drawing people from rural areas to the city, contributing to the increasing urbanization of the world. While IT workers may be compensated relatively well by local standards, as people move to the emerging megacities of Latin America, Asia, and Africa to pursue employment opportunities, living conditions for those at the lower end of the economic ladder are often below acceptable human standards. The problems of sanitation, inadequate housing, overcrowding, and serious healthcare issues are pervasive.

In addition to impacting our political and economic lives, globalization is influencing how we perceive ourselves and our place in the world. At a time when it appears critical to preserve a rich diversity of perspectives and approaches to address common challenges, globalization may be undermining that process. For some, the increasing integration of people across the planet makes it more difficult to protect what is unique and different. They see the diffusion of a particular set of customs, symbols, and ideas—cultural homogenization—as a threat to their basic ways of living and how they define themselves.

A French teenager holds an antibusiness protest sign during an "Occupy France" demonstration, protesting corporate greed and government austerity policies.

Directphoto Collection/Alamy Stock Photo

The pressures to conform to the practices and beliefs of the dominant culture could also jeopardize the very survival of those whose traditions are deemed unacceptable.

Opposition to globalization has become more public and pronounced, resulting in large-scale protest demonstrations. One of the first was in late November 1999, when trade ministers from 135 countries assembled in Seattle, Washington, to launch a new round of global trade talks. Delegates to the World Trade Organization (WTO) meeting were greeted by tens of thousands of demonstrators who disrupted the proceedings. The "Battle of Seattle," as it was labeled, was a debate about more than trade. It turned into a broader discussion about globalization. Since that time, similar protests have occurred almost every time there has been a meeting of a major international organization associated with promoting the globalization agenda. While it may not be particularly useful to think of globalization as good or bad, it has become increasingly apparent that there have been winners and losers.

Throughout history, states have turned inward when they thought the intrusion of the outside world would jeopardize their way of life. They have believed that minimizing contact would limit their vulnerability. China tried it twice. The first was during the fifteenth century under the Ming dynasty with the decision to ground all seagoing vessels to protect the Chinese base of knowledge. Later, under Mao Zedong in the 1960s, the Cultural Revolution was instituted to shield the country from outside forces that were deemed responsible for perverting the basic principles and ideology of the communist revolution. Iran assumed a more insular posture after the revolution in 1979 and the establishment of an Islamic republic. Under the leadership of Ayatollah Khomeini, Iran's government sought to sever all ties to Western influences to strengthen its Islamic hold on the country.

The United States also has a history of avowed isolationism (with the notable exception of its intervention in Latin America). It can be traced from the farewell address of President George Washington to the events following World War I. While the United States was reluctant to enter World War I, when it did, then President Woodrow Wilson characterized it as "the war to end all wars." Immediately thereafter, Wilson advocated the creation of the League of Nations to provide collective security for its members. His colleagues in the U.S. Senate did not agree, however. When the Treaty of Versailles that ended the war and embraced Wilson's ideals came to them for ratification, they did not approve it.

In all these cases, and to varying degrees, isolation did not work. Today, China has adopted a global economic strategy while maintaining a closed, nontransparent political system. In addition to coping with the fallout from its souring trade relationship with the United States, China—like all other countries—has experienced significant economic dislocation because of the COVID-19 pandemic.[13] Distrust of outsiders remains. In contrast to the Great Wall of China that was built hundreds of years ago, an electronic wall has now been constructed that filters Internet content and monitors those who engage with it. Over time, Iran has rejected isolationism as well and is presently seeking to bolster its influence and prestige in the Middle East and beyond through political engagement and the development of nuclear capabilities.

Despite domestic pressure to limit the role of the United States in world affairs during the early twentieth century, the ensuing turbulence punctuated by the financial crash of 1929 and the rise of extreme nationalist political ideologies in Europe and Asia returned the United States to an activist role. This commitment remained intact throughout the post-World War II period. More recently, there have been significant departures from this path. Through its "America first" platform, which underscored the need to prioritize domestic needs, the Trump administration looked to reduce the country's global footprint. This set off vigorous debate over the advisability of the approach and how best to secure the role of the United States in the world. The Biden administration was more globally focused.

Today, technological innovation, the integration of markets, and overlapping financial networks preclude absolute isolation. Britain can vote to limit obligations by exiting the European Union (the so-called Brexit strategy), but its external entanglements and vulnerabilities do not disappear. We cannot build up the walls, disconnect the computers, cut the phone lines, take out the satellite networks, and turn off the TV indefinitely in the face of an emerging set of challenges—more commonly known as **global issues**. They are global not simply because they are happening all over the world but also because they transcend state boundaries and require a collective response. No single entity (government, company, nation, organization, group, or individual) possesses the ability to deal with, much less solve, these issues by itself. While this is not an exhaustive list, some of the most pressing global issues include protecting our physical environment, terrorism, developing "cleaner" energy sources, guaranteeing basic human rights, managing population growth, creating sufficient wealth to alleviate abject poverty, addressing pandemics, and halting the spread of weapons of mass destruction.

The difficulty of addressing these issues is compounded by the fact that they are growing exponentially. The metaphor of the lily pond used by Lester Brown—borrowing from the philosopher Jean Boudin—illustrates the use of a riddle to teach schoolchildren the nature of exponential growth.[14] A lily pond contains a single leaf. Each day, the number of lily pads doubles—two leaves the second day, four leaves the third day, eight leaves the fourth day, and so on. Eventually, the lilies overflow beyond the pond and begin to die. By that time, the pace of growth has overwhelmed the pond's absorptive capacity and a solution is no longer possible. And so it may be for global issues.

The lily pond in Giverny, France, that served as inspiration for the famous French impressionist artist Claude Monet.

Personal photo by Elaine M. Chernotsky

The growing interconnectedness of the global system compounds the difficulty of responding to these types of challenges effectively. Governments and other actors can no longer disregard what happens in other parts of the world, because no one country has the capability to address all the ramifications of problems that spill across borders and require a coordinated response. The stakes are high as we consider the daunting tasks of minimizing violence, addressing global health, protecting human dignity, promoting social justice, and ensuring the sustainability of the planet. Furthermore, progress in one area may have adverse effects on another. Such is the nature of a complex interdependent world.

The metaphor of a spider's web is also useful in conceptualizing today's global problems and challenges. Touch that web anywhere, even lightly, and it vibrates everywhere. Similarly, the reach of global problems resonates beyond any immediate locale. This book is not only an introduction to international studies and the different borders it crosses but also an introduction to some of the global issues confronting the world today and the tools that must be employed to address them.

The first step in making sense of global issues is to clearly define them—what are the facts, data, and trends that delineate the challenges and the stakes? Who are the actors most directly engaged and impacted, and what are their perspectives? How can divergent perspectives and views be accommodated and reconciled to identify an approach that benefits everyone? As we have noted, it is often borders—political, economic, social, or cultural—that prevent cooperation and elevate self-interests over a common good. University of Chicago psychologist Mihaly Csikszentmihalyi has suggested that it is imperative to recognize the actual interconnections of causes and effects.[15] One example is the debate over the environment. As corporations use the Amazonian rain forests to generate wealth, subsistence farmers also are clearing them to survive. While these actions may be justifiable in the short term, they are contributing to the destruction of the world's vital oxygen supply. Experts estimate the following:

> We are losing 137 plant, animal and insect species every day due to rainforest deforestation. That equates to fifty thousand species a year. As the rainforest species disappear, so do many possible cures for life-threatening diseases. Currently, 121 prescription drugs sold worldwide come from plant-derived sources. While 25 percent of Western pharmaceuticals are derived from rainforest ingredients, less than 1 percent of these tropical trees and plants have been tested by scientists.[16]

As reflected by this dilemma, the intricacies of our interconnected world are often difficult to master. Even as we may make considerable progress in addressing one set of challenges, we may aggravate other problems that we cannot afford to ignore. Collective action is required, but it is not always easy to attain.

THE CHANGING DEFINITION OF CITIZENSHIP IN A GLOBAL ERA

Traditional notions of citizenship date back to the time of the ancient Greek city-state and have focused on membership in distinctive political communities that are very much tied to a particular place. Since the mid-seventeenth century, that place has been the state. In return for certain protections and rights, citizens are expected (and often compelled) to assume responsibilities and obligations to it. Primary political loyalties and identities are defined by a connection to a particular physical space and have been differentiated based on geo-political borders.[17] In the early days, the Romans came from Rome and owed their allegiance to their state and its leaders.

People across the world are reconsidering these matters. Much of the turmoil that can be observed today can be traced, in part, to a fundamental rethinking of both individual and collective identity and belonging. In addition to an increasing number of states that cannot sustain themselves, such as Yemen and Somalia, countless others are struggling to satisfy the basic needs of their citizens.

Ecotourism, directed toward conservation efforts and wildlife observation, has become increasingly popular.

iStockphoto.com/FG Trade

At the end of 2023, there were 117.3 million forcibly displaced individuals "as a result of persecution, conflict, violence, human rights violations or events seriously disturbing public order."[18] Of that number, refugees accounted for 43.4 million, with seventy-three percent of these coming from five countries—Afghanistan, Syria, Venezuela, Ukraine, and Sudan. The migration phenomenon has touched every region of the world and has had considerable impacts (Figure 1.1). Access to citizenship rights and privileges for noncitizens has become a controversial topic in many countries. The magnitude of this challenge is exemplified by the European Union (EU). The EU had gone a long way toward redefining citizenship by extending entitlements available to citizens of member states residing elsewhere in the union. For instance, a citizen of France, one of the EU member states, can travel freely throughout Germany by virtue of both states' membership in the organization. The arrival of increasing numbers of refugees, asylum seekers, and displaced persons from outside the EU over recent years has produced considerable debate and has resulted in some new directives that impact the future course of the policy.[19]

FIGURE 1.1 ■ Countries With the Largest Numbers of International Migrants, 2000 and 2021 (Millions)
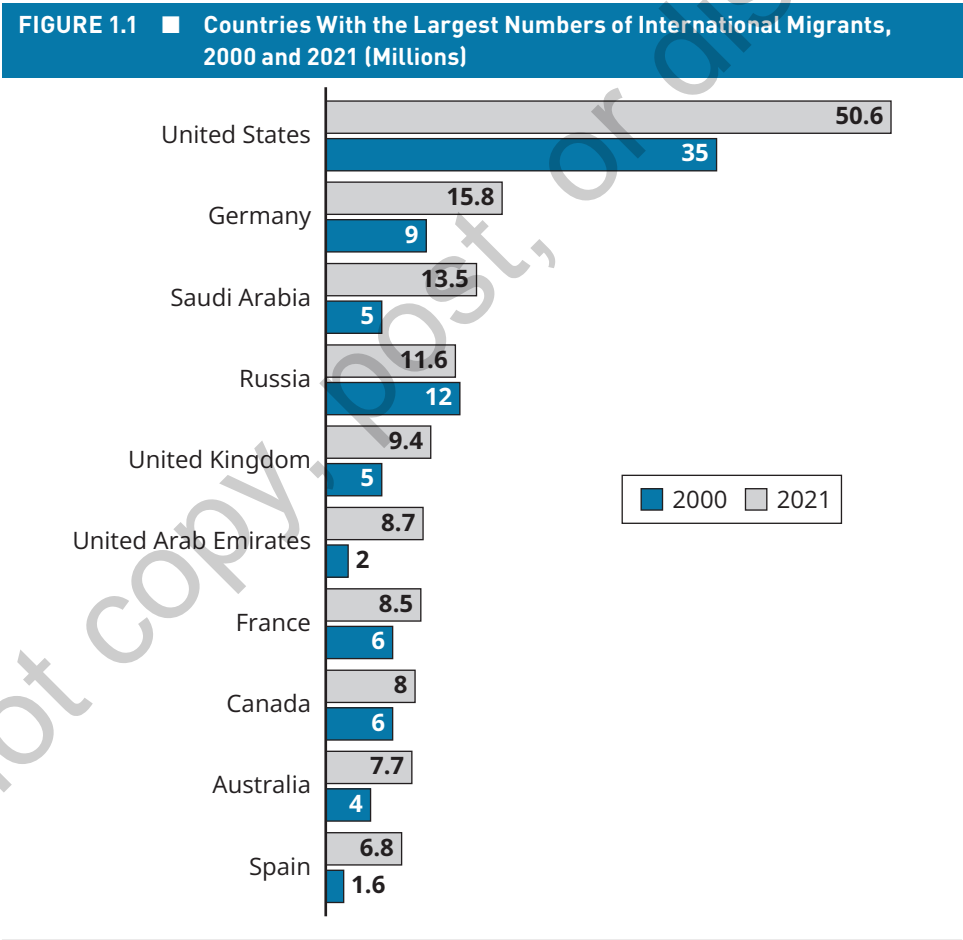
Source: World Population Review, World Migration Report (2024). https://worldpopulationreview.com/country-rankings/immigration-by-country

Nigel Dower suggests that **global citizens** are individuals who see themselves as members of a global community and who confront the challenges we face from a global perspective.[20] From this vantage point, global citizenship is about belonging and taking responsibility. Global

citizens are those with the knowledge, skills, and desire to act on behalf of a set of beliefs and ideals to bring about a more just and compassionate world.

Oxfam, a British nongovernmental organization (NGO) noted for its extensive development and relief activities, has offered one of the more widely cited definitions of global citizenship. It defines a global citizen as someone who

- Is aware of the wider world and has a sense of their own role as a world citizen
- Respects and values diversity
- Has an understanding of how the world works
- Is outraged by social injustice
- Participates in the community at a range of levels, from the local to the global
- Is willing to act to make the world a more equitable and sustainable place
- Takes responsibility for their actions[21]

The notion of global citizenship is not new. The 1993 Parliament of World Religions, for example, suggested the need to adopt a global ethic that included a commitment to a culture of nonviolence, a just economic order, tolerance, and equal rights. Similarly, the 1995 Commission on Global Governance urged the inclusion of an ethical dimension that incorporated respect for the rights of all people and shared responsibilities to contribute to the common good based on the values of justice and equity.[22]

At least some of the controversy surrounding the idea of global citizenship stems from its terminology. For many proponents, a *global* citizen implies nothing much more than a globally oriented or globally minded person who is both sensitive to the effects of globalization and interested in some form of personal engagement. Rather than posing any threat or danger to existing forms of citizenship, this view offers the possibility for additional outlets for expression and action. Globalization has not rendered national citizenship obsolete. Broader acceptance of this approach might, at the very least, help offset the divisiveness that has hindered efforts to resolve so many recent conflicts. Martha Nussbaum, a leading contributor to the discussion of citizenship and a proponent of this more expansive view, suggests the need for a cosmopolitan perspective that accentuates our obligations and commitments to others.[23] For physician Arthur Clark, there is no other choice. Decrying the rise of extreme forms of ethnic nationalism, he worries about our ability to counter this trend and the behaviors they legitimize. Responsible citizenship, he proposes, is similar to the practice of good medicine; it requires empathy and respect for others, solid grounding in the basic principles that must be applied in confronting challenges that arise, and an approach to problem solving that combines pragmatism with a healthy dose of optimism.[24]

SPOTLIGHTS IN INTERNATIONAL STUDIES

Preparation for a Life Abroad

By Rachel Werz, International Studies Graduate, United States

Over ten years ago, I was sitting in a class just like yours, wondering what international studies was actually about and what I could do with it in the future. International studies can be hard to pin down because it's so fundamentally interdisciplinary. I didn't realize it at the time, but now I believe that's its biggest strength.

As a freshman, I only knew I was interested in current events and wanted to study abroad. International studies helped me narrow and define my interests while still taking classes that contributed to my major. I took an anthropology class about Israel and Palestine, a history class about the Holocaust, and an Islamic politics course, and I participated in Model UN. Eventually, I discovered a passion for the Middle East and North Africa, studied abroad in Morocco, and graduated with a minor in Islamic Studies.

I don't think I could have explored my interests as much as I did if it weren't for international studies with its interdisciplinary nature. By letting me take courses on language, culture, history, and politics, international studies widened the lens through which I view the world, while at the same time making it seem like a smaller, more understandable place. Studying it gave me the confidence to navigate the world as a global citizen and prepared me for a life abroad.

Despite graduating during the recession, I felt like I was entering a world full of opportunities. Within a few months, I was leaving the United States with my future husband and a one-way ticket to Indonesia in my hand. As we explored a new continent together, we knew we wanted to find a way to stay. I started applying for ESL jobs in South Korea while traveling through Southeast Asia, using computers in hostels to fill out applications and having Skype interviews in the quietest Internet cafés I could find. Before long I found myself in Seoul teaching English at a private academy. It was there that I realized I actually enjoyed teaching and might be good at it. I spent my evenings working through an online TEFL certification course, applied for the Korean public school system, and was offered a job at an elementary school in a small city named Yangsan.

Photo courtesy of Rachel Werz

I had only intended to stay in South Korea for another year, but I found myself staying four more. What started as a "work-abroad experience" turned into a whole new life abroad. I got married, changed apartments four times, bought a car, paid my bills (even paid off my student loans!)—all the things you associate with "real life." I made a close group of friends from all over the world, went to their weddings, threw baby showers, and watched their babies when I wasn't busy. I attended training sessions to become the best teacher I could be, learned the Korean language after a lot of hard work and countless late night classes, and all the while pursued my hobbies, like spoken-word poetry and the local theater scene.

After almost six years of this, the decision to leave was extremely difficult. South Korea was our home. When people asked if we were "returning home," I didn't know what to say. Should I understand that as America, or South Korea?

During our last year in Korea, my husband and I were accepted into the Peace Corps, fulfilling a long-held dream for us both. Today we are training teachers in Indonesia, back where

our journey first began six years ago. I feel like my education and experience have come full circle. I'm still in Asia, my new comfort zone, but now I'm dusting off my old Arabic books and teaching in a middle school madrasah in the most populous Muslim nation in the world. My dream of helping bridge the Muslim world and America, born in an international studies classroom ten years ago, is now my job.

CONCLUSION: WHERE DO WE GO FROM HERE?

International studies seeks to introduce the perspectives and competencies required to prepare for citizenship in the global community. This book contributes to that mission by addressing the following objectives:

1. It examines the geographic, political, economic, and socio-cultural borders that shape our world and considers the forces that have reshaped those borders over time.

2. It explores the dynamics of globalization by tracing the various ways it has influenced the underlying structure and operation of an increasingly interdependent world.

3. It introduces the key actors, ideas, institutions, and relationships that shape the global system and influence policy responses to significant events and challenges that arise.

4. It surveys some of the critical issues affecting political security and economic prosperity across the world and the ability of different groups to preserve their heritage and cultural identities.

5. It reviews the contributions of the academic disciplines that comprise international studies to our understanding of the complexities of the world.

6. Finally, it suggests different paths that students might pursue to acquire the knowledge, skills, and experiences that will enable them to navigate and contribute to the betterment of the world of the twenty-first century.

To achieve these objectives, this book embarks on a journey that crosses the borders of the world and those that define international studies. Following this introduction, Chapter 2 describes the physical or geographic borders. Today, more than ever, people are aware of planet Earth as a finite resource, and we explore some of the more significant challenges we face in sustaining our ecosystem and the people who rely on it. Chapter 3 provides the jump-start to this trip by examining the critical role of technology in fueling development over time and in facilitating the crossing of global borders. At the same time, we note how differential access to the more advanced tools of innovation adds to the difficulty of alleviating persistent inequities and imbalances.

The next six chapters launch the voyage in earnest, as we encounter the various borders that frame our interactions and the challenges affecting their operation. Chapter 4 introduces the political borders of the world and the events that have shaped and transformed the structure of the nation–state system. Maintaining security is the key task of these borders. Chapter 5 takes a closer look at the risks posed by the persistence of conflict and war (as reflected in the case study of Israel/Palestine), weapons of mass destruction, and terrorism. Chapter 6 uncovers the economic borders that have operated over time, from barter economies to the transnational

financial networks that function around the clock today. The ongoing struggle to reconcile diverse interests while maintaining sufficient levels of activity and output—most notably in the areas of trade, investment, finance, and development—are addressed in Chapter 7. In Chapter 8, identity and the importance of social and cultural borders are examined. This section of the text concludes with Chapter 9, which considers how religion, ethnic conflict, and fragile states threaten identity and, in some cases, the very existence of certain groups of people.

We then take the journey beyond borders to look at the prospects for global cooperation. Chapter 10 explores the efforts to promote a more global view of the world, including the expansion of international law and the development of different types of transnational organizations. Chapter 11 tackles some of the issues that transcend borders and require a more global response—poverty, disease, and human rights—while also considering enhancements to global governance.

We end with Chapter 12 by providing a road map for what you can do—where you can go from here. This chapter addresses the role individuals can play in influencing the direction of this new global order and what steps students might take to connect to the world and become effective citizens. It includes an overview of the career opportunities available to respond to the challenges presented throughout the book.

In addition to the narrative that lays out the information in the text, we have incorporated various features designed to place the discussion in a broader context and bring the chapters to life. Each of the chapters that define the borders (2, 3, 4, 6, 8, and 10) include an historical overview and a review of how particular academic disciplines have contributed to our understanding of these respective borders. Prominent scholars who have shaped these fields are introduced, and their words are transmitted directly for your consideration through **In Their Own Words**. In an effort to get you thinking about potential remedies and policy approaches, the chapters delineating the challenges impacting the various borders (5, 7, 9, and 11) close with a **What Can Be Done?** section. You will find additional features interspersed throughout the book to help focus your attention:

- **How You Can Connect** boxes offer suggestions on steps you might take to engage directly with your world.

- **Pro/Con** boxes, accompanied by **Where Do You Stand?** questions, present alternative perspectives on some important controversies we need to address and invite you to consider your own position on these matters.

- **Understanding Cross-Border Conflict: How Can International Studies Help?** narratives explore the dimensions of some critical global conflicts and how they are impacted by the different borders that are the focus of international studies.

- **Defining Moments** discussions identify important milestones in the evolution of select issues that have considerable bearing on matters of security, prosperity, and identity.

- **Spotlights in International Studies** showcases interviews with current and former international studies students from around the world reflecting on how international studies has led them to where they are today.

    There is a popular saying that suggests that everything local is global and everything global is local. While this may seem confusing at first, the message is quite clear. If we want to understand the world and get to a point where we might make a difference, we must learn

to *think globally and act locally*. This is the essence of international studies. It is not enough to simply acknowledge the linkages that exist; it is necessary to construct an action plan to embrace those connections, take advantage of the opportunities they present, and tweak them to ensure they advance the common good. The goal of this book is to offer you a path to do exactly that—to provide you with an intellectual map that will show you the many borders you will cross and the tools you will need to be an effective global citizen.

KEY CONCEPTS

citizenship

cultural borders

economic borders

geographic borders

global citizens

global issues

globalization

golden straitjacket

gross domestic product (GDP)

gross national product (GNP)

hyperglobalization

international studies

political borders

social borders

DISCUSSION QUESTIONS

1. What is International Studies? Why do you think it is a growing in popularity? Why do you think it is needed as a field of study? What specific examples can you think of relevant to what is going on in the world today?

2. What do you think of the various "borders" the authors chose? How would you describe the world today? Do you think the idea of borders is a good way to study the world? Why or why not?

TO LEARN MORE

Books and Other Print Media

Nigel Dower, *An Introduction to Global Citizenship*. Edinburgh University Press, 2003.

This classic provides a theoretical and historical context for considering the idea of global citizenship and suggests how it may be applied in dealing with an array of current global issues.

Thomas L. Friedman, *The Lexus and the Olive Tree*. Farrar, Straus and Giroux, 1999.

This best seller, which is still widely quoted today, broke important ground in offering a comprehensive look at the dynamics of globalization and highlighting the tensions between the forces of change and the desires of some to maintain traditional ways of life.

Thomas L. Friedman, *Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations*. Farrar, Straus and Giroux, 2016.

Thomas Friedman's latest epic focuses on three forces—technology, globalization, and climate change—that are accelerating all at once and transforming our lives in truly fundamental ways.

Jeffrey E. Garten, *From Silk to Silicon: The Story of Globalization through Ten Extraordinary Lives*. HarperCollins, 2017.

This book explores the history of globalization by tracing the lives of ten people who changed the world through their activities.

Richard Haass, *The World: A Brief Introduction*. Penguin Press, 2020.

The book, written by one of the more influential analysts of international affairs and American foreign policy, is intended as a primer that provides the background and context necessary to make sense of our interconnected world.

Marc Levinson, *Outside the Box: How Globalization Changed from Moving Stuff to Spreading Ideas*. Princeton University Press, 2020.

Levinson traces the historical evolution of globalization, suggesting that it is entering a new phase where the movement of services, information, and ideas takes precedence over the movement of "stuff."

James Organ and Ben Murphey, *A Voice for Global Citizens: A UN World Citizens' Initiative*. Democracy Without Borders, 2019.

This report of the International Campaign for a UN World Citizens' Initiative recommends that the UN should strengthen its legitimacy by developing procedures that allow individual citizens to put proposals on the UN agenda. Although unlikely to have a serious hearing, it is an intriguing report that speaks to the idea of global citizenship and the need to democratize global institutions.

Michael O'Sullivan, *The Levelling: What's Next after Globalization*. Public Affairs, 2019.

This book looks at how globalization has restructured the world and its economy in the post-Cold War era, looking at both the benefits and the costs—or what O'Sullivan terms the peaks and valleys.

Peter Singer, *One World Now: The Ethics of Globalization*. Yale University Press, 2016.

Singer takes a look at some of the important challenges facing the world and addresses them from an ethical perspective. He makes a strong case for a global approach, arguing that these problems cannot be solved at the national level.

Kenneth A. Stahl, *Local Citizenship in a Global Age*. Cambridge University Press, 2020.

Stahl examines some of the complexities of citizenship today, suggesting the need to reconsider traditional notions in the face of increasing exclusionary pressures.

Manfred B. Steger and Paul James, *Globalization Matters: Engaging the Global in Uncertain Times*. Cambridge University Press, 2019.

Arguing that globalization is still relevant, the authors develop a new "engaged theory of globalization" to address and assess its challenges.

Peter Zeihan, *Disunited Nations: The Scramble for Power in an Ungoverned World*. HarperCollins, 2020).

Zeihan surveys some of the critical changes reshaping the world over recent years against the backdrop of the retreat of the United States from a preeminent global role and the absence of broad consensus regarding where we ought to be headed.

Websites

Center for Strategic and International Studies (CSIS), https://www.csis.org/

CSIS is an important think tank on international affairs and offers information and policy perspectives on a wide array of topics. The website also includes material on its many programs and projects.

Council on Foreign Relations, "Backgrounders," https://www.cfr.org/backgrounders

These informative summaries provide useful background and source information on significant issues confronting the world today.

Foreign Policy in Focus, https://fpif.org/

FPIF takes a critical look at the way the United States engages with the rest of the world, calling for a more cooperative approach in addressing a wide array of global issues.

The Globalist, https://www.theglobalist.com/

An online magazine that provides daily features that covers developments that shape global economics, politics, and culture.

Global Citizen, https://www.globalcitizen.org/en/

This platform offers information about significant global issues and provides a pathway to action in addressing these challenges.

International Forum on Globalization, http://ifg.org/

The International Forum on Globalization is an international organization that analyzes and critiques the effects of globalization on culture, society, politics, and the environment.

International Monetary Fund (IMF), "Globalization: A Brief Overview," https://www.imf.org/external /np/exr/ib/2008/053008.htm; "Globalization: Threat or Opportunity?" https://www.imf.org/external /np/exr/ib/2000/041200to.htm. These two early pieces offer a concise overview of the key aspects of globalization and its effects, as well as a summary of its more significant opportunities and threats.

State University of New York (SUNY) Levin Institute, "Globalization 101," http://www.globalization10 1.org/

This website is a project of the Levin Institute in the SUNY system. It provides a very good overview of what globalization is and an in-depth analysis of numerous issues. It also includes a series of videos.

UNESCO Global Citizenship Education, https://gcedclearinghouse.org/

This is the clearinghouse for materials relating to a range of global issues that is part of the Global Citizenship Education program sponsored by the UN agency focusing on education, scientific, and cultural matters.

YaleGlobal Online, https://yaleglobal.yale.edu/

The Whitney and Betty MacMillan Center for International and Area Studies at Yale University published this informative online magazine, *YaleGlobal*, as well as scholarly articles and multimedia presentations by globalization experts from around the world. Unfortunately, it ceased publication in July 2020. However, the archive remains online and offers considerable material on a range of topics.

Videos
Babel (2006)

Winner of the Golden Globe award for Best Motion Picture, Drama, this movie depicts a crosscutting set of events taking place in Morocco, Japan, and Mexico that highlight global interconnectedness.

The Big Debate: Has Globalization Gone Too Far? (2018), available on YouTube.

This is a spirited exchange regarding the advantages and disadvantages of globalization on national economies.

Globalization at a Crossroads (2011), available on YouTube.

This is a concise documentary produced by Films for the Humanities & Sciences that highlights the debate over the impacts of globalization.

Globalization Isn't Declining—It's Transforming (2018), available on ted.com.

Arindam Bhattacharya argues in this TED Talk that globalization, which some have argued is on the decline, is actually on the rise in a number of important ways.

Globalization: Rise of Networks (2019), available on YouTube.

This short film looks at how globalization is transforming the world through the ongoing expansion of information networks.

Life 8 (2009), http://www.bullfrogfilms.com/catalog/l8.html

This is a sixteen-part series about the effects of globalization on people around the world. Although the segments were filmed a while back, they offer a close-up view of how the global economy directly impacts the lives of people. Programs from previous series are also available. Bullfrog Films also offers a wide selection of videos focusing on climate change, sustainability, and social justice.

Life in a Day (2010), available on YouTube.

From National Geographic, this fascinating documentary was created from 80,000 clips submitted to YouTube depicting daily life from 192 nations on July 24, 2010. It offers insight into how similar and different life is across the planet.

The True Cost (2015), https://truecostmovie.com/about/

This documentary captures the essence of globalization as it explores the impact of fashion on people and the planet. As it looks at the clothes we wear, the people who make them, and the environmental impact of production processes, it asks us to consider who really pays the price.

What Does It Mean to Be a Citizen of the World? (Hugh Evans, 2016), available at ted.com.

This brief yet compelling TED Talk by Hugh Evans of Global Citizen puts forward a strong case for personal engagement.

A World on the Brink (2018), https://vimeo.com/265833444

This is the first of a multi-part series that examines some critical transformations and uncertainties facing the world. This episode considers the basis of today's global order and how mass migration, global trade, and terrorism pose new threats and challenges.

A World Without Borders (2016), https://iai.tv/video/a-world-without-borders

This is an admittedly dry yet highly informative debate over the benefits of a borderless world offered by the British nonprofit Institute of Art and Ideas.

This familiar National Aeronautics and Space Administration (NASA) image is the most requested photo of Earth, depicting it as a watery blue marble floating alone in a sea of space. Viewed this way, it is easy to see how important stewardship of our global commons is for our mutual well-being. In this chapter, we explore a variety of other ways of looking at and understanding Earth—the starting point for our journey.

NASA and the National Space Science Data Center

2 POINT OF DEPARTURE
Planet Earth

<div style="border:1px solid #1a6ea0;">

LEARNING OBJECTIVES

After studying this chapter, you will be able to:

2.1 Define the field of geography and explain its key units of analysis and measurement as it relates to issues of population and environmental issues

2.2 Describe the key challenges facing our physical world

2.3 Compare sources and trends in population growth

2.4 Explain the sources of food insecurity

2.5 Identify alternative sources of energy and how each affects environmental security

2.6 Recognize the impact human beings are having on the sustainability of the planet

2.7 Review key global initiatives designed to address climate change

</div>

Everyone has responsibility for Earth as a common resource, and we all must work together to maintain it. It is a shared resource that represents a **global commons**, a natural asset that is available to all. Clean air, a healthy environment, and access to the oceans and outer space all fall into this category. But sharing this global commons requires that all people use it in a responsible way to protect not only their individual interests but also those of future generations. Noted economist Jeffrey Sachs, director of Columbia University's Center for Sustainable Development from 2002–2016, suggests that our ability to manage our interconnectedness to the planet is perhaps the most significant challenge of the twenty-first century.[1]

Ecologist Garrett Hardin captured the tension between individual interests and shared resources in his famous essay, "The Tragedy of the Commons," first published in 1968.[2] Hardin posed a hypothetical scene in which a village of herdsmen shares a common pasture for grazing their sheep. If each herdsman adds a sheep, he alone will benefit from future sales, but the costs of grazing for that sheep will be shared by all. An individual herdsman will add sheep because he does not feel the negative effects by himself. The benefits to him are great, but everyone shares the negative impacts. The incentive, then, would be for each herdsman to increase his personal flock. The ultimate result, however, would be overgrazing of the commons until there is nothing left and, hence, the tragedy of the commons. Hardin concludes with the sobering warning that the freedom of individuals to pursue their own interests without considering the impact of their choices on others could bring ruin to all.[3]

The tragedy of the commons helps us appreciate the challenge of sustainable development. The term *sustainable development* can be traced back to the World Commission on Environment and Development, better known as the Bruntland Commission, convened by the UN General Assembly in 1983 to address growing concerns about the deterioration of the environment stemming from economic and social development.[4] The commission's 1987 report, *Our Common Future*, would provide what has become the most widely used definition of **sustainable development**: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[5]

This chapter explores our connection to Earth as the starting point of our journey toward understanding the borders that have shaped our world. First, the study of geography is introduced as a way to appreciate the expanse of our planet and how it is represented through maps. This gives us a sense of the patterns of human settlement—why we have come to live in certain

places but not in others, and why some areas flourish while others do not. Some of the critical issues that impact the health of our environment are then examined: population growth, food production, energy, and climate change. Finally, we explore some ways you might enhance the physical sustainability of our habitat for future generations.

GETTING OUR HEADS AROUND THE EARTH: AN INTERDISCIPLINARY APPROACH

Viewed from space, Earth appears as a physical mass marked by oceans, mountains, deserts, rivers, forests, and fields. From this perspective, it appears static, when in fact it is not. Over the course of time, the borders that have differentiated this mass have been changed by natural events, from continental drift thousands of years ago to more recent hurricanes, wildfires, earthquakes, tsunamis, droughts, and floods. Earth's physical attributes, such as where arable land, mineral riches, or waterways are located, have to a large extent determined where people have settled. The fundamental challenge of geography has been that there is no one place where any of us can stand on the planet in order to observe the whole thing at once. It is also nearly impossible for any one person to conceive of all the ways in which people are connected to one another and to the planet. Our image of what the earth looks like has changed radically over time and has been profoundly shaped by technological developments.

For starters, we owe the word **geography** to Greek scholar Eratosthenes, who was born around 275 BCE. Eratosthenes was interested in writing and learning about Earth, and the term he coined for this activity came from the Greek language—*geo*, meaning earth, and *graphos*, meaning description.[6] His greatest accomplishment in this regard was the first scientific calculation of the circumference of Earth based on his observations of the sun.

One of the earliest investigators whose impressions had lasting effects was Claudius Ptolemy. Born sometime late in the first century CE, Ptolemy was of Greek origin but lived in Alexandria, Egypt. Two of the major texts he produced, *Geography* and *Almagest*, were efforts to map the world in a system of degrees that measured distances from the equator.[7] Relying on limited knowledge, Ptolemy created a map that introduced the concepts of latitude and longitude (see Figure 2.1). While his calculations were off and much of the world was not known to him at the time, his contribution to measurement was significant and enduring.

The modern discipline of geography developed much later in the mid-1800s. Alexander von Humboldt (1769–1859) was a German naturalist who is often called the "father of modern geography" for his contributions to an understanding of the dynamics of the physical world and humans with their environment.[8] His great work, *Cosmos*, included some of the first systematic observations about climate and its link to geography. Juxtaposing a review of ancient writings about the natural universe with the technologies emerging during his time, von Humboldt sought a scientific way to understand the planet.

Today, the discipline of geography is generally divided into two branches: physical geography and human geography. **Physical geography** focuses on the study of Earth and its resources. **Human geography** refers to how humans interact with the physical environment and how political, economic, social, and cultural factors influence these connections.

The study of maps, or **cartography**, unravels how these physical and human borders are depicted. Maps can show **topography**—any of Earth's physical features, including mountains, rivers, lakes, and streams, and their relationships to one another in terms of location and elevation. They can also portray political borders, which are frequently influenced by topography but fundamentally drawn by people to serve political interests. Many modern states, for example, are

FIGURE 2.1 ■ Ptolemy's Map of the World
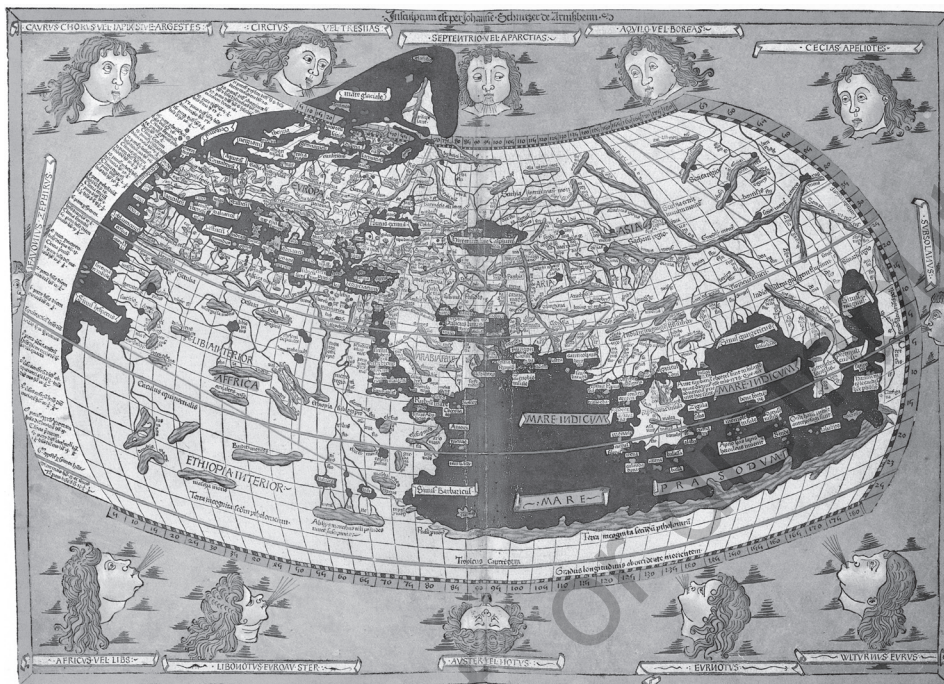
Source: Lord Nicolas the German (Donnus Nicholas Germanus), cartographer Johann the Blockcutter of Armsheim (Johannes Schnitzer or Johannes de Armssheim), engraver Ptolemy Jacobus Angelus, translator, Public domain, via Wikimedia Commons.

the artificial constructs of former colonial powers that do not necessarily recognize the historical patterns and natural relationships of a given area's inhabitants. Another type of map can show economic distinctions, such as the location of resources and trade routes. Social and cultural divisions can also be uncovered by noting how ethnic and cultural identities interface with political and economic borders. Even cooperation across borders can be mapped in terms of regional and international organizations.

Modern technologies have changed the field of geography and how mapping occurs. Geographic information systems (GIS) combine the power of computers with satellite imagery to produce new ways of understanding spatial relationships and include new tools such as Google Earth and the global positioning system (GPS). These technologies are able to utilize different kinds of information about geography, from physical dimensions to human interventions, to track changes in the environment.[9] As a result, they offer a far more comprehensive picture than what had been available previously. This is particularly useful in understanding some of the critical challenges we face. For example, the National Snow and Ice Data Center has used Google Earth to track changes in the polar ice cap over time.[10] Countries are also using GIS technology for more strategic purposes that include pinpointing the location of military installations, potential improvised explosive devices (IEDs), and even the whereabouts of suspected terrorists.

These technological innovations have made us more sensitive to the finite nature of the planet on which we live. The earth is not an unlimited resource, and our charge must be to extract and utilize the resources we need to sustain our lives while not inflicting undue harm that might threaten future generations.

Ecology, environmental science, and climate science have become fundamental in the effort to study these human impacts. **Ecology** is the branch of biology that examines the interactions among organisms and their environment, focusing on the relationships and dependencies between living creatures and their surroundings. **Environmental science** is an interdisciplinary field that integrates physical, biological, and information sciences to study and address environmental problems, emphasizing the impact of human activities on natural systems. **Climate science** is the study of Earth's climate system, including the analysis of long-term weather patterns, the factors influencing climate change, and the implications of these changes on both natural and human systems. Together, these fields provide critical insights and solutions to mitigate the adverse effects of human activities on our planet.

With its interdisciplinary perspective and approach, international studies can help us appreciate why we may have difficulty interfacing appropriately with our environment. Dealing with such issues as population management or climate change is not simply a matter of negotiating physical space or utilizing the tools at our disposal. Political considerations may constrain efforts to devise solutions, as they have in the case of finding suitable living arrangements for waves of refugees from all over the world. When it comes to implementing policies to protect rainforests or limit unhealthy emissions, financial considerations can undermine the effort. Our relationship with planet Earth is a complicated one. The following sections address some of the challenges of managing resources and how they have been handled.

IN THEIR OWN WORDS
ALEXANDER VON HUMBOLDT

Although expressing himself in a way that may be unfamiliar, Alexander von Humboldt conveys a message that is as relevant today as it was in the nineteenth century—the need to systematically explore both the potential and limits of the planet.

There dwells an irresistible charm, venerated by all antiquity, in the contemplation of mathematical truths—in the everlasting revelations of time and space, as they reveal themselves in tones, numbers, and lines. The improvement of an intellectual instrument of research—analysis—has powerfully accelerated the reciprocal fructification of ideas, which is no less important than the rich abundance of their creations. It has opened to the physical contemplation of the universe new spheres of immeasurable extent in the terrestrial and celestial regions of space, revealed both in the periodic fluctuations of the ocean and in the varying perturbations of the planets.[11]

As you move through the chapter, what are some of the new methodologies and recent scientific insights that might help us gain a greater understanding of the strategies to better sustain life on the planet?

WHERE WE LIVE

As a starting point, it is important to understand that where people settle is not always a choice made freely. The borders that shape where we live are human-made. People can be uprooted by conflict and forced to flee their homes. They often have few, if any, options regarding where they resettle and under what terms and circumstances. The result is they may end up having to live in inhospitable environments. In 2023, the United Nations High Commissioner for Refugees estimated that 117.3 million people were forcibly displaced worldwide.[12] This figure has risen steadily

over the years, with children accounting for more than half the total. Conflicts across Africa in countries such as the Democratic Republic of the Congo (DRC), Somalia, South Sudan, and the Middle East (stemming from the wars in Palestine, Syria, and Yemen) are responsible for a considerable share of recent movements. While 36.4 million are refugees relocating across national boundaries, an even greater number—62.5 million—are displaced within their own countries.[13]

There are many reasons why people might be displaced, and there are four categories to describe these situations. A **refugee** is a person who has been forced to flee their country due to persecution, war, or violence and who has a well-founded fear of persecution for reasons such as race, religion, nationality, political opinion, or membership in a particular social group. An **internally displaced person (IDP)** is someone who has been forced to leave their home but remains within their country's borders, typically due to armed conflict, generalized violence, human rights violations, or natural disasters. An **asylum seeker** is someone who has fled their home country and is seeking international protection, but whose claim for refugee status has not yet been determined. A **migrant** is a person who moves from one place to another, often across international borders, for various reasons such as employment, education, or family reunification, and not necessarily due to persecution or violence. Each of these terms reflects different legal statuses and protections under international law.

Economic pressures can also lead people to relocate. Sometimes, the best option is to migrate to places within their home countries where they can find work but where human habitation is not particularly sustainable over time. These areas are often along borders, where factories have been built and shantytowns are constructed with homes built from cardboard and any other materials that can be found. Overcrowding, coupled with the absence of electricity, running water, and adequate sewage and waste, make for a difficult existence. Many of the communities hosting the manufacturing facilities or *maquiladoras* across the U.S. border, in Mexico, exemplify these conditions.
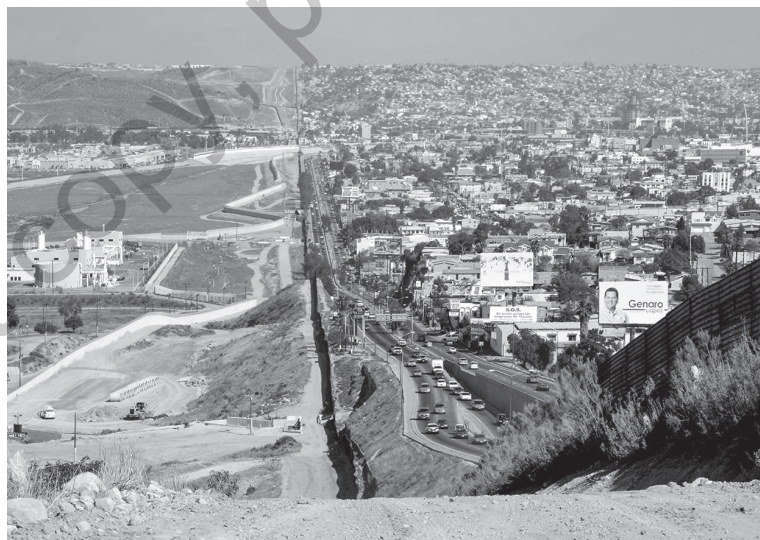
U.S.-Mexico border between San Diego, California (left) and Tijuana, Mexico (right), separated by a corrugated iron fence made from repurposed landing mats after the Vietnam war.

Contraband Collection/Alamy Stock Photo

Living and working in this type of situation can further deepen and aggravate social and cultural divisions. While those who move to cities for work frequently have rising expectations about their futures, they may easily find themselves relegated to marginal status. The success that was so eagerly

anticipated often goes unrealized. This is why many look beyond their borders in the search for a better life and an opportunity to send remittances (financial or in-kind transfers made by migrants to their families or communities) back home. The United Nations International Organization for Migration (IOM) tracks, studies, and tries to understand migration around the world and has identified an overall increase in remittances in recent decades, from $126 billion to $702 billion from 2000 to 2020. Despite the economic impacts and the increased difficulty of international travel during the COVID-19 pandemic, remittances only dropped 2.4 percent in 2020 compared to 2019.[14]

Finally, it is important to note that settlement patterns may be significantly influenced or altered by environmental considerations. The Internal Displacement Monitoring Centre of the Norwegian Refugee Council reported that in 2023 alone 26.4 million were internally displaced due to natural disasters, the leading causes being floods, storms, and earthquakes. This figure exceeded the 20.5 million people fleeing conflict during the year. Disasters are not restricted to any particular area, but their burdens often fall disproportionately on those in the poorest regions, where management capabilities are more limited. The five countries with the highest IDP figures were China, Türkiye, Philippines, Somalia, and Bangladesh. Resettlement is further complicated by the fact that environmental refugees are not generally covered under international provisions designed to assist displaced people. They may have a particularly difficult time finding safe haven in places where the political backlash against migration has gained traction.[15]

POPULATION AND CONSUMPTION

One of the underlying factors perpetuating uneven development has been the rapid growth of the world's population. As more and more people come to inhabit the planet, protecting and managing shared resources becomes even more problematic. Whether intentional or not, the actions of this growing population have significantly impacted our environment, from the destruction of natural habitats and extinction of animal and plant life to the pollution of the atmosphere.

To put this growth in perspective, in just one minute, taking births and deaths into account, the population of the world expands by 150 people, with a growth rate of 2.5 per second.[16] By 2050, it is estimated that world population will reach 9.9 billion. The fastest rates are expected across Africa, where population will likely double. This will account for around 58 percent of the total increase in the number of people inhabiting the planet between now and then.[17] Figure 2.2 shows the most populous countries in 2024 and their projected growth by 2050. In 2020, the top ten countries accounted for 57.7 percent of total world population; it is estimated they will account for 53.8 percent in 2050.
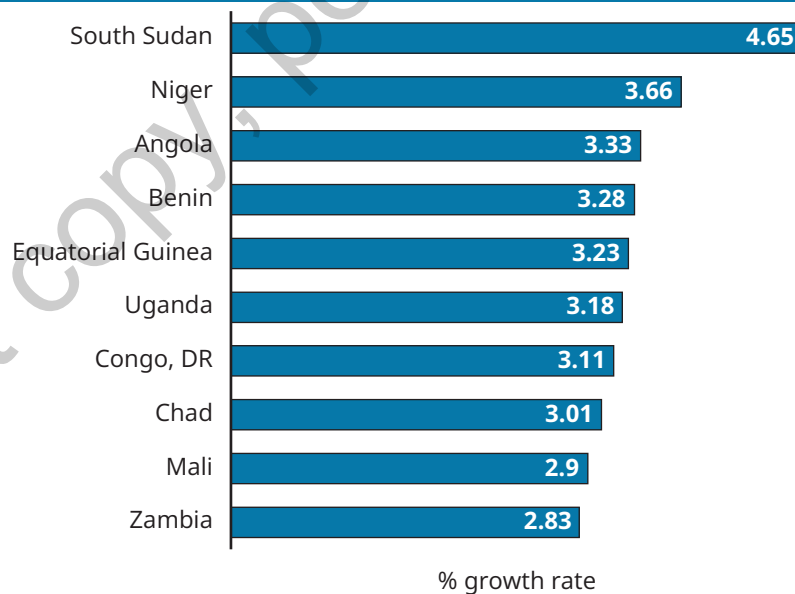
There are several factors that can be examined that include access to education, food, and healthcare. For example, in the largest, least educated, and most populous Indian state of Uttar Pradesh, the total fertility rate (TFR) is 2.74 children per woman. The rate for India as a whole is 2.03 down from 2.68 a decade ago.[18] The proportion of women using birth control is considerably less than the national average and is lowest among those with little or no education, and limited access to birth control, who often have the most difficulty feeding and sustaining their families. While the overall growth rate for India has slowed, population continues to expand annually at the rate of 1.17 percent, and the country has surpassed China as the most populated.[19] Cultural values also continue to push births in many areas, because the desire for a boy is great, family planning practices may be discouraged on religious grounds, and rural parents are still influenced by the need for large families to support them. Figure 2.3 suggests where the greatest growth in population is occurring—primarily in sub-Saharan Africa, as discussed later in the chapter—by measuring crude birth rate, which is the most commonly used indicator in determining population growth.

FIGURE 2.2 ■ The World's Most Populous Countries
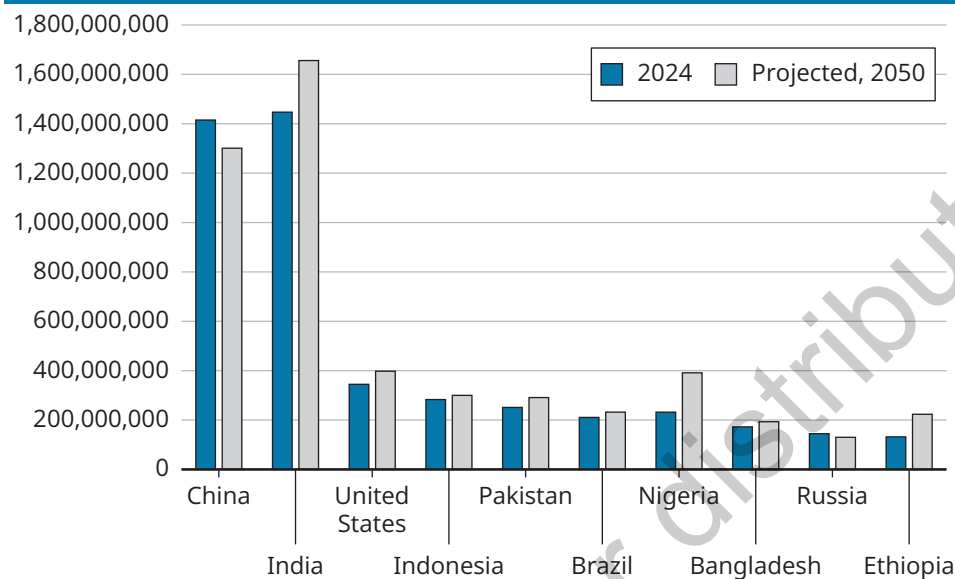
Sources: Data are from internetworldstats.com, with data from U.S. Census Bureau, https://www.internet worldstats.com/stats8.htm, https://www.worldometers.info/world-population/population-by-country/

FIGURE 2.3 ■ Countries with Leading Population Growth Rates, 2024

Country	% growth rate
South Sudan	4.65
Niger	3.66
Angola	3.33
Benin	3.28
Equatorial Guinea	3.23
Uganda	3.18
Congo, DR	3.11
Chad	3.01
Mali	2.9
Zambia	2.83

Source: CIA. (n.d.). *The World Factbook*. https://www.cia.gov/the-world-factbook/field/population-growth-rate/country-comparison/

People walking down a street at the Zaatari camp, the largest Syrian refugee camp in the world
KHALIL MAZRAAWI/afp/AFP via Getty Images

The demographic composition of a country has profound implications for its economic and human development. The number of people of working age, the proportion of children or elderly people, and even the male to female ratio can create social and economic challenges. And these factors change over time, in what is called the **demographic transition model**.

The demographic transition model describes the transformation of countries from having high birth and death rates to low birth and death rates through five distinct stages. In the first stage, known as the High Stationary stage, both birth and death rates are high and fluctuate due to factors like disease, famine, and war, resulting in slow and variable population growth. In the Early Expanding stage, death rates decline significantly because of improvements in healthcare, sanitation, and food supply, while birth rates remain high, causing a rapid population increase. The Late Expanding stage sees a decline in birth rates due to societal changes, increased access to contraception, and improved education and employment opportunities for women, leading to slower population growth. In the Low Stationary stage, both birth and death rates are low, stabilizing the population as countries achieve high levels of economic development, urbanization, and advanced healthcare. Some demographers propose a fifth stage, the Declining stage, where birth rates fall below death rates, potentially leading to population decline, seen in some highly developed countries where career priorities, economic challenges, and lifestyle choices contribute to very low fertility rates.

The demographic transition has significant effects on a country's development. In the early stages, high population growth can strain resources and infrastructure, posing challenges for economic development and social services. As countries move to later stages, reduced population growth can lead to a more balanced and sustainable development, with more resources available per capita and improvements in living standards. However, in the final stage, potential population decline can result in a shrinking workforce and increased dependency ratios, posing challenges for economic growth and the sustainability of social support systems (see Figure 2.4). Understanding the demographic transition is crucial for policymakers to address the varying needs and challenges at each stage of a country's development.

Managing population—both nationally and globally—is often complicated by the need to balance multiple and sometimes competing objectives. The "Pro/Con" debate regarding the alleged impacts of population growth addresses this dilemma.

FIGURE 2.4 ■ Population Distribution by Country, Age, and Gender

Afghanistan – 2020

China – 2020

Niger – 2020

United States – 2020
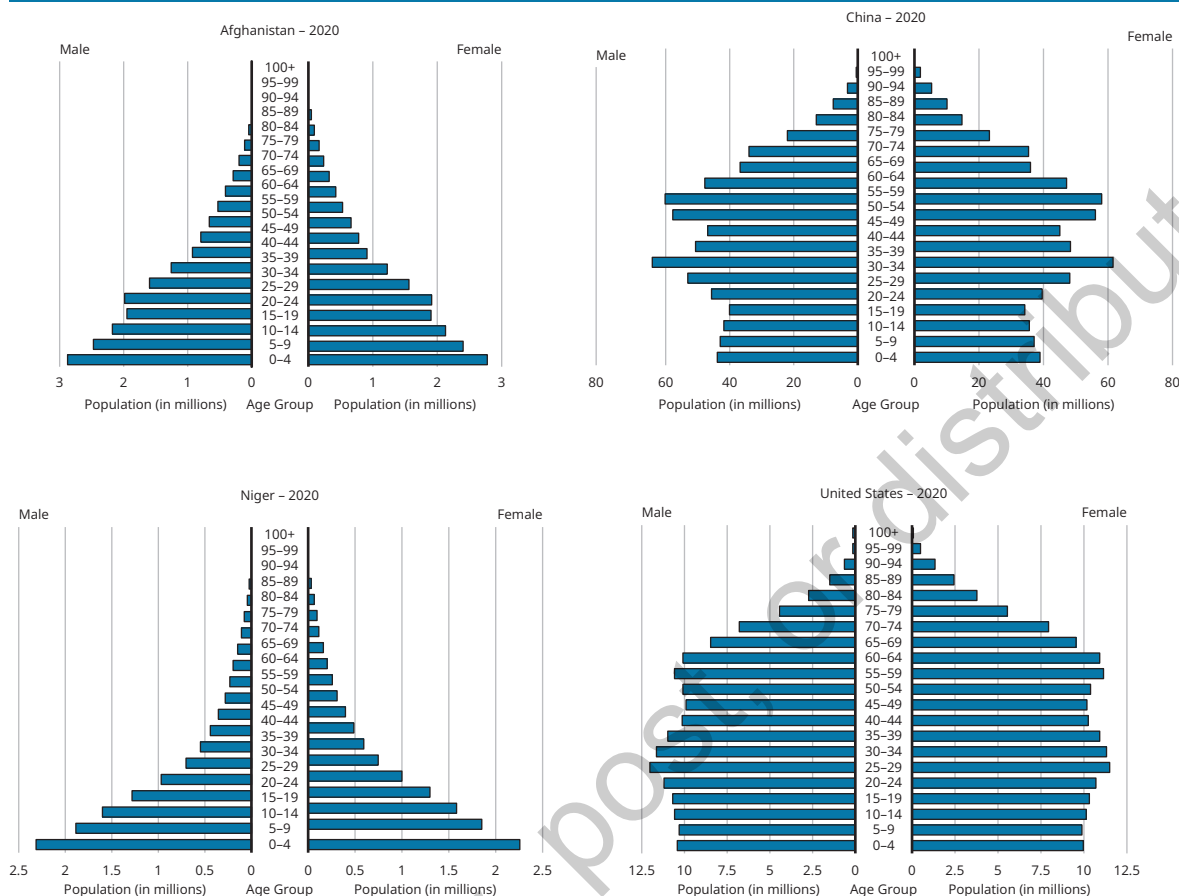
Source: CIA. (n.d.). *The World Factbook*, "Population Pyramids." https://www.cia.gov/library/publications/the-world-factbook

PRO/CON

Can the World Sustainably Feed Nearly Ten Billion People in 2050?

Pro	Con
Channing Arndt	**Teodora Zglimbea**
Director, Environment and Production Technology Division, International Food Policy Research Institute. Written for *CQ Researcher*, September 2021	Campaigner, Population Matters. Written for *CQ Researcher*, September 2021
This goal can be met, but it requires an ambitious transformation of our food systems, supported by investments in innovation and evidence-based policies.	As the global population continues to grow, so does the demand for food, water and energy. Adding biodiversity loss, land degradation, water shortages and climate change to the equation makes feeding an extra 2 billion mouths a critical challenge.

Currently, the global food system emits about the same net amount of climate-warming greenhouse gases as worldwide electricity generation. Food systems also are major sources of habitat destruction, biodiversity loss and pollution. By 2050, we want a far more nature-positive food system, ideally one that stores more greenhouse gases than it emits.

The food system remains the world's largest employer. While it has served as a ladder out of absolute poverty for billions of people, many workers in food systems still earn very low incomes. By 2050, we must continue to leverage the demonstrated ability of food systems to improve livelihoods and inclusion.

About 40 percent of the world's population cannot currently afford healthy diets, contributing to obesity co existing with undernutrition, such as high rates of stunted growth among children. By 2050, we want healthy diets to be affordable to all; and we want consumers, notably women, to be equipped to make deliberate choices for themselves and their children.

All this must be accomplished in the context of a rapidly changing climate.

Realizing this vision for 2050 will require attention and resources, including major investments in innovation at multiple levels— farm, landscape, ecosystem, processing, distribution and consumption. Three examples provide a sense of the possibilities. Solar energy now enables low-cost electrification almost anywhere. Bio-innovations, such as the Nobel Prize-winning CRISPR-CAS gene-editing technology, bring tremendous promise. And digital innovations are rapidly penetrating the developing world.

Evidence-based policies and smart governance mechanisms are also needed at all levels: community, national, regional and global. For example, governance mechanisms for common property resources, such as healthy ecosystems, need to be developed and deployed. Also, countries cannot benefit from bio-innovations (such as CRISPR-CAS) if regulations prevent their deployment. And, protectionism limits trade as a mechanism to cope with the disruptive effects of a warmer and more volatile climate.

Ten billion people will require 56 percent more food by 2050, according to the World Resources Institute. Despite already using half of all habitable land for agriculture, 2 billion humans did not have access to sufficient food in 2019. Eighty percent of extinction threats to mammals and birds are due to agriculture, while 90 percent of fish stocks are overexploited. The modern global food system is responsible for about one third of all greenhouse gas emissions, making it the single biggest contributor to climate change.

Using more land for food production would have a devastating effect on the climate, environment and biodiversity, so extra food will need to be produced by expanding agricultural yields, distributing food more equitably and efficiently, minimizing food waste and switching from animal agriculture to a more plant-based system. But the benefits from every gain in efficiency are offset—and can even be cancelled out— by increased demand.

A major report on diet and sustainability, the EAT-Lancet Commission in 2019, concluded that a population of 10 billion could be fed sustainably if radical action is taken to revolutionize dietary habits and food pro duction—but warned that if the population exceeds 10 billion this is "increasingly unlikely." The United Nations projects that the world population will grow beyond 10 billion. Are these the margins we want to work within—maybes, possibles and ifs? Addressing population growth is a matter of utmost urgency if we are to avoid a growing population of malnourished people and irreversible environmental damage.

The question is not can the world sustainably feed 10 billion people, but why establish that dangerous challenge if it can be avoided? The good news is that the best actions to end and reverse population growth have an overarching positive effect on all aspects of society: empowering women and investing in girls' education, reducing poverty, enhancing global justice, meeting the contraceptive needs of every woman on the planet and choosing smaller families.

(*Continued*)

(*Continued*)

Finally, sufficient attention and resources must be dedicated to the developing world, notably Africa, where the challenges are greatest. With evidence-based attention and a commitment to innovation, this grand challenge of the 21st century can be met.

Source: Z. Caldwell, "Food Security," *CQ Researcher* (2021). CQ Press. https://doi.org/10.4135/cqresrre20210903

Where Do You Stand?

Subsidies to industrialized farms in developed countries keep world prices for staple crops low. That's a big benefit for consumers but makes it almost impossible for small farmers in developing countries to make a living raising those crops. Do you think this is fair or wise policy? Should developed countries stop subsidizing their farmers?

1. How can we ensure that healthy diets become affordable and accessible to all by 2050?
2. How can we balance the need for increased food production with the need to protect biodiversity and ecosystems?
3. Do governments have a legitimate right to impose population control policies to address food and other resource constraints?

FOOD AND HUNGER

Can the planet adequately provide for this growing population? Human efforts to sustain its population and to develop and progress have strained Earth's **carrying capacity**. In other words, our needs have placed considerable strain on the world's ecosystems, especially in a context where "develop and progress" is synonymous with a disproportionate increase in consumption. This thereby threatens the global commons and suggests the possibility of a potential tragedy, as envisioned by Hardin.

First and foremost, it is important to recognize that people require access to sufficient amounts of food and clean water for survival. This is our most basic physiological need, as noted by psychologist Abraham Maslow. While Maslow identified five levels of human needs (discussed more thoroughly in Chapter 11), the first is the most basic. Only once this is satisfied can people move up the pyramid to address safety, belonging, esteem, and ultimately self-actualization.[20] Providing for the world's expanding population while protecting the environment is no easy task.

The idea that population growth would severely strain available resources is not new. Thomas Malthus (1766–1834), an English economist with an interest in demographics, wrote of this possibility in "An Essay on the Principle of Population," first published anonymously in 1798 and later revised and updated. Malthus speculated that the rate of growth of the world's population would outstrip the production of food.[21] This notion is referred to as the **Malthusian dilemma**.

The production of food is also impacted by geographic changes taking place, both natural and human-made. Natural disasters—from forest fires to drought—that destroy crops and render lands unviable are just one type of obstacle. Environmental degradation through the overuse of arable land and fertilizers also has a negative effect. The challenges are not

limited to production. The global system for the production and distribution of food is complex and is vulnerable to a variety of disruptions including war and conflict. For example, the conflict between Russia and Ukraine that began in 2022 disrupted the availability of wheat. Additionally, inequality in economic capacity of the world's poorest countries makes it difficult for them to benefit from the global system. Together, these elements play a considerable role in influencing both the price and safety of our food. A closer look sheds light on these concerns.

Despite Malthus's forecast, food production has increased over time, but the ability to feed a growing population has been weakened by other factors. The use of pesticides and chemicals designed to increase crop yields over the short term, for example, can have longer-term adverse effects on the soil that lasts for generations. The environmental danger is often most severe in developing areas where regulations may be limited and the need for food is acute. The UN Food and Agriculture Organization (FAO) reports that following years of relatively steady progress in reducing hunger, the number of undernourished people has been inching upward since 2015. Current figures suggest that there are still more than 735 million hungry people in the world, with the majority of these living in the "Global South." India and China have the largest overall numbers, while East and sub-Saharan Africa are most impacted proportionally. While these figures are staggering, even more disconcerting is the fact that more than 113 million people experience acute hunger requiring immediate assistance. Once again, Africa is the most severely impacted, owing largely to pervasive conflict, lack of infrastructure, and an array of climate-related shocks that produce erratic rain patterns, flooding, droughts, and extreme temperatures.[22]

Across much of Africa, food produced locally is often exported to earn money, and environmental conditions and political uncertainties often hinder distribution networks for supplies that remain available. For example, a succession of unfavorable rainy seasons has left 2.2 million people in need of emergency food assistance in Somalia, already reeling from a prolonged period of war. Civil conflict in the DRC continues to strain its food system, already burdened by the presence of large numbers of refugees and displaced persons as well as an outbreak of the Ebola virus. Meanwhile, an extended drought in Ethiopia affecting livestock and crop production has left more than eight million people in desperate need of food assistance.[23]

Hunger is not simply about having enough food; it is also about the lack of access to food that provides adequate nutrition. The FAO, which monitors global food issues, refers to this condition as **food insecurity** and defines it as "a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life."[24] Children are the most vulnerable. More than three million children die each year from chronic undernourishment—dietary energy consumption that is continuously below the minimum requirement for a healthy lifestyle. Countless others are impacted by insufficient vitamin and mineral intake, which stunts their weight, height, and cognitive development.[25] Figure 2.5 identifies the countries with the greatest percentage of their populations suffering from undernourishment.

Adding to these challenges is the stark contrast in food consumption between rich and poor nations. In many affluent countries, food consumption far exceeds nutritional needs, leading to issues such as obesity and food waste. The excessive consumption in these nations highlights a global imbalance where resources are plentiful in some regions but scarce in others. This inequality exacerbates food insecurity in "developing" countries, where access to sufficient, safe, and nutritious food remains a significant challenge. Addressing global hunger thus requires not only increasing food production and improving distribution but also tackling the disparities in food consumption and ensuring a more equitable distribution of resources worldwide.

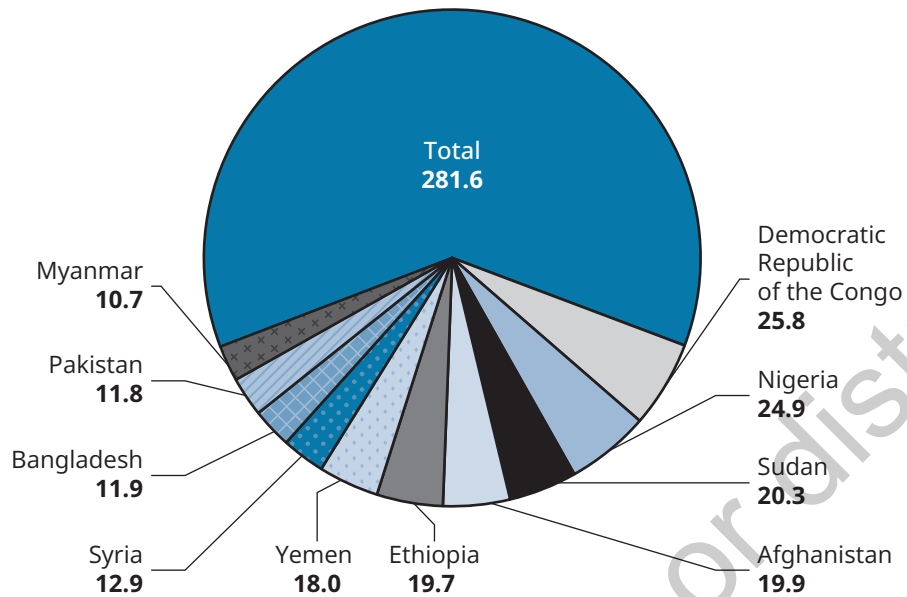| FIGURE 2.5 ■ The World's Most Undernourished Populations (by Percentage), 2020–2022 |
|---|
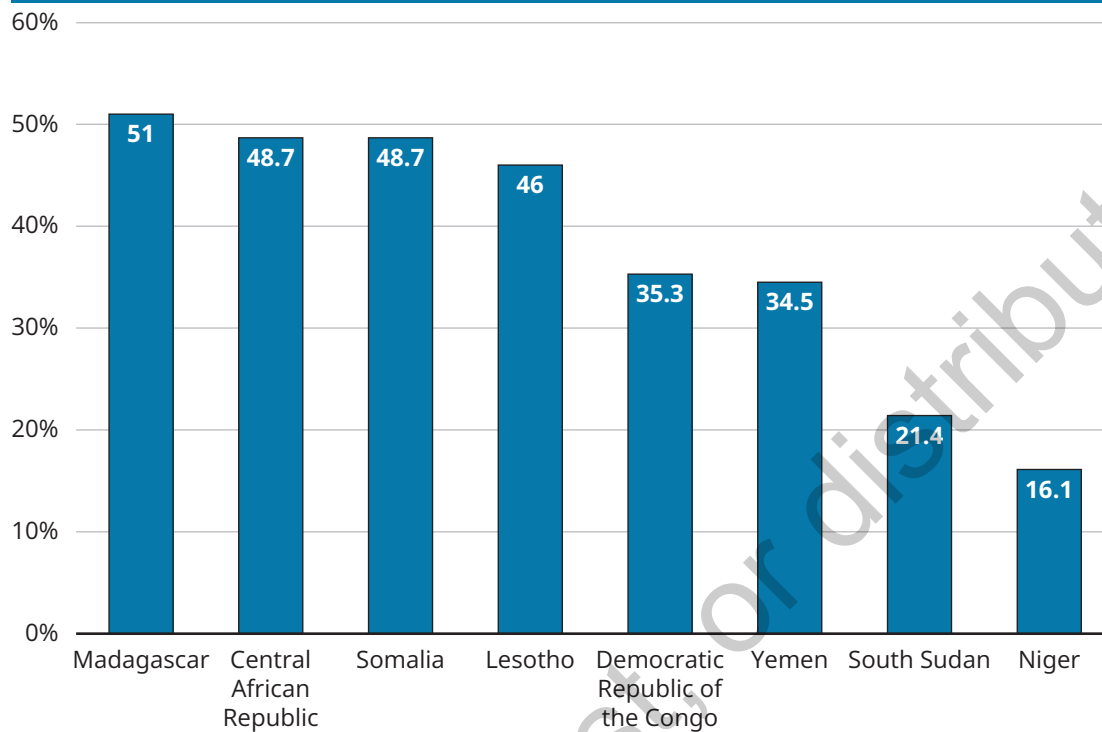
Source: Global Hunger Index. (2024, April 17). *2023 Global Hunger Index Report*. https://www.globalhungerindex.org/

There are many efforts to provide food aid, coordinated by both governmental and non-governmental entities. Internationally, the UN World Food Programme (WFP) is a key actor in emergency food aid response. The WFP was awarded the Nobel Peace Prize in 2020 for its work to combat hunger. While aid is welcomed, it is frequently hard to get to the people who need it most. One of the greatest inhibitors is conflict. The safe transportation and distribution of food can be impeded by the lines of battle or even the logistics of navigating vastly overcrowded refugee camps. This situation is particularly problematic in sub-Saharan Africa. War in central Africa has resulted in large numbers of displaced people from the Central African Republic (CAR), estimated to be more than six hundred thousand. In the DRC, the figures are even higher, with an estimated 4.5 million people affected by food insecurity across the country. In South Sudan, nearly seven million people (60 percent of the country's population) are lacking sufficient food due to the continuing effects of ongoing conflict. Other areas are affected as well. In Yemen, a proxy war between Saudi Arabia and Iran has produced a humanitarian crisis of significant proportions while leaving an estimated twenty million of the country's twenty-eight million people hungry.[26]

The magnitude of the food crisis is reflected in the vast numbers of people in dire need of assistance. In 2023 alone, the WFP serviced 152 million people in eighty-three countries. While natural conditions such as drought or floods leave many in harm's way, it is not surprising that the problem is often most acute in countries either experiencing serious political turmoil directly or accommodating refugees fleeing neighboring areas. Figure 2.6 identifies the countries with the largest number of people facing acute food insecurity from 2016–2023. Two major donors contributed 51.8 percent of all the funding for this work (the United States and Germany).[27]

FIGURE 2.6   ■   Countries With the Largest Number of People Facing the Highest Levels of Food Insecurity (in Millions), 2023

Total
281.6

Democratic Republic of the Congo
25.8

Nigeria
24.9

Sudan
20.3

Afghanistan
19.9

Ethiopia
19.7

Yemen
18.0

Syria
12.9

Bangladesh
11.9

Pakistan
11.8

Myanmar
10.7

Source: Food Security Information Network. (n.d.). 2024 Global Report on Food Crisis, *Global Network Against Food Crises: Integrated Actions for Lasting Solutions.* https://www.fsinplatform.org/report/global-report-food-crises-2024/

Children at the Nuseirat Refugee Camp in Gaza City wait in line to receive food from a charitable organization. Palestinians continue to struggle with hunger due to the embargo imposed on the region.

Moiz Salhi/Anadolu via Getty Images

Cost is also an issue limiting the supply of food to those in need. Food is a primary commodity, and commodity prices can vary widely. While prices spiked in 2008 due to the global financial crisis and again to even higher levels in 2011, they began to come down in 2014 and have generally continued to moderate.[28] Food prices are difficult to project, however, given the

number of factors that can influence the availability of most commodities. In addition to growing demand and natural conditions that might limit production, political volatility, an unanticipated pandemic, or even an uptick in investor speculation to manipulate markets can push prices upward. Figure 2.7 documents recent trends in food prices.

FIGURE 2.7 ■ The Shifting Cost of Food
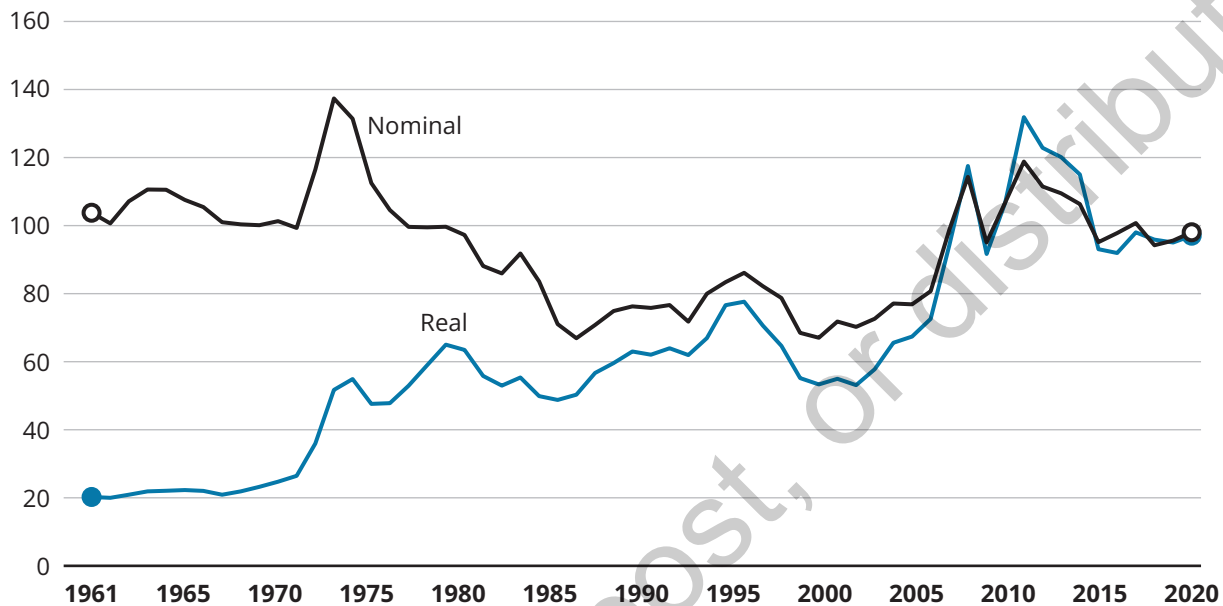
Source: Food and Agriculture Organization of the United Nations. (n.d.). *World Food Situation: FAO Food Price Index.* http://www.fao.org/worldfoodsituation/foodpricesindex/en

Note: The FAO Food Price Index is a measure of the monthly change in international prices of a basket of food commodities. It consists of the average of five commodity group price indexes (representing fifty-five quotations), weighted with the average export shares of each of the groups.

Food insecurity affects certain groups of people more profoundly than others, but it is a truly global challenge that crosses borders and reflects both the opportunities and limits of collective action. On the one hand, we see public and private international organizations intervening proactively in response to conflicts and natural disasters that disrupt production and distribution systems and leave millions in desperate need of food each year. These efforts do not always succeed, however, because the magnitude of crises in such places as Syria, Myanmar, and Sudan can easily overwhelm these efforts.

Meanwhile, planting new fields in the Amazon and other places to offset the loss of cropland from drought and other climate-related conditions present their own problems. In Australia, for example, more than twenty-seven million acres burned in 2019 and 2020—killing twenty-nine people, destroying more than 2,500 homes, and resulting in the loss of an estimated 1.25 billion animals. The unprecedented number of fires across the Amazon rain forest in 2019, moreover, threatened to undermine its vital role in pulling greenhouse gases out of the atmosphere. They also served as a stark reminder of the difficulties of reconciling national and global interests, even when it comes to matters impacting directly on life on the planet. Economic and political considerations drove the Brazilian government headed by Jair Bolsonaro to tolerate slash-and-burn farming practices and to open the rainforest more broadly to commercial exploration despite considerable outside pressure to reverse these policies.[29]

ENERGY

Beyond the struggle for food, Earth is also being compromised by lifestyle and consumption choices. The use of energy offers an important example of the challenge. One of the key components of sustainable development is that it does no harm to future generations. The global demand for coal, oil, and other nonrenewable sources of energy taxes the environment and calls attention to the fragile nature of the world's ecosystem.

Persistent demands for economic development exacerbate the need for energy. The world has relied extensively on oil for its industrial development, but the oil supply is finite. One alternative has been nuclear energy. Once popular in the United States, Japan, and parts of Europe as a source of cleaner and more efficient energy, safety has been a persistent concern. An accident at the Three Mile Island nuclear plant in Pennsylvania in 1979 and the far more serious malfunction in Ukraine at the Chernobyl facility in 1986, which affected the health of thousands of inhabitants and rendered a significant amount of surrounding land unusable and uninhabitable due to contamination, dampened support. The meltdown of reactors in Japan resulting from a 2011 tsunami appeared to be an important watershed. Not long after the Japanese tragedy, Germany curtailed its program and announced it would phase out nuclear energy production by 2022. A number of other countries also began to review their policies. After years of waning enthusiasm, however, the United States has reversed course to some degree. The 2018 Nuclear Energy Innovation Capabilities Act aims to revitalize the nuclear industry by supporting existing plants and developing advanced reactors to jump-start the industry. Advocates note that these reactors would generate zero-emission electricity and would lessen reliance on coal and natural gas.[30]

Energy disasters are not limited to the nuclear arena and can affect both air and water supplies as well. The harvesting of natural resources for energy has had its own set of challenges and disasters. A gas plant leak in Bhopal, India, in 1984 killed 3,800 people and sickened several thousand.[31] The explosion on the BP *Deepwater Horizon* oil rig in the Gulf of Mexico in 2010 gained considerable notoriety, killing eleven workers and spilling roughly five million barrels of oil into the water. Perhaps even more significant over the longer term is the lesser known Taylor Energy oil spill triggered by Hurricane Ivan in 2004. It went virtually undetected until discovered by monitors assessing the *Deepwater Horizon* tragedy and has continued to impact the Gulf. An estimated four million gallons had spilled into the waters by the end of 2017 and the leak is still not fully under control. Taylor Energy repaired only a fraction of the damaged wells, proceeding instead to cease drilling and liquidate its assets to escape accountability. This case points to the potential dangers that lie ahead as interest in expanding offshore drilling in the United States and elsewhere has resurfaced.[32]

THE HUMAN FACTOR

Through our efforts to sustain ourselves and to provide for our basic needs, we have both purposefully and inadvertently contributed to the degradation of our environment. In addition to global warming and climate change, the depletion of our rain forests, the desertification of arable land, the pollution of our water supply, and the compromising of our air quality are among the more significant impacts. A closer look illustrates the impacts of our activities.

Approximately 31 percent of Earth's surface is covered by forest, with only five countries accounting for more than 54 percent of the total (Russia, Brazil, Canada, the United States, and China). Due to **deforestation**, roughly 18.7 million acres of forest are lost each year, the equivalent of twenty-seven football fields every minute. In addition to the ecological consequences, this trend has important economic implications. Worldwide, more than

fifty-four million jobs are tied either directly or indirectly to this sector.[33] Population growth has contributed significantly to this loss of trees, because the clearing of forests provides opportunities for cultivating crops and grazing animals. The practices of commercial logging companies seeking to capitalize on the worldwide demand for timber have also added to this devastation. The consequences are significant not only for the land but also the wildlife that resides there.

Trees play a critical role in maintaining the balance of the ecosystem by storing carbon. Their removal releases carbon, thereby contributing to global warming and climate change. While the rate of deforestation appears to be slowing, it is still considered by the FAO to be alarmingly high, with a net loss of approximately 4.7 million hectares per year between 2010 and 2020; the most significant damage occurring in tropical areas. Table 2.1 offers a snapshot of the world's forests, whose health impacts directly on our ability to meet future water, climate, biodiversity, and energy needs.[34]

TABLE 2.1 ■ The World's Forest Areas, 2020				
	Forest Area (Mill. Hectares)	**Percentage of World Total**	**Net Annual Forest Change 2000–2010 (Mill. Hectares)**	**Net Annual Forest Change 2010–2020 (Mill. Hectares)**
Africa	637	15.7	–3.4	–3.9
Asia	623	15.3	2.4	1.2
Europe	1,017	25.1	1.2	0.3
North and Central America	753	18.6	0.2	–0.1
Oceania	185	4.6	–0.2	0.4
South America	844	20.8	–5.2	–2.6
Total World	4,059	100.0	–5.2	–4.7

Source: Food and Agriculture Organization of the United Nations. (2020). *Global Forest Resources Assessment 2020.* https://openknowledge.fao.org/server/api/core/bitstreams/9f24d451-2e56-4ae2-8a4a-1bc511f5e60e/content

A related consequence of our activities is **desertification**. This refers to the degradation of land in arid, semi-arid, and dry sub-humid areas resulting from variations in the climate and human activities.[35] It is estimated that around 75 percent of the world's land is already affected, with an area equivalent to half the size of the European Union's 1.6 million acres damaged annually. More than a hundred countries have been touched, and two billion people are now living on land that is especially vulnerable—concentrated heavily across some of the poorest areas of Africa and Asia. Given the scope of the problem, restoration efforts such as the UN's Great Green Wall Initiative in Africa are only making a modest difference.[36] Desertification is hindering food production, increasing downstream flooding, and reducing water quality. It is responsible for the displacement of some seven hundred million people due to the scarcity of land-based resources.[37]

Similar problems exist for water—arguably the most critical resource for human survival. Estimates suggest that globally, two billion people lack safe drinking water and 3.6 billion

lack access to safely managed sanitation.[38] The presence of toxic pollutants in the water supply has contributed significantly to this crisis. The use of bodies of water as waste disposal sites and the runoffs from chemicals and fertilizers used for industrial and agricultural purposes have been particularly problematic. Purposeful efforts to redirect the flow of water periodically add to the complexity. This prompted a dispute between Ethiopia and Egypt in 2013, for example, when Ethiopia moved to divert a part of the Nile River to construct a hydroelectric dam. While the parties ultimately agreed to ensure that the project did not adversely affect countries downstream, the controversy has endured, and the competition for water remains highly politicized.[39]

Across an already volatile Middle East, access to water has become a source of additional tension. In Iraq, for example, the lack of sufficient rainfall and neighboring Türkiye's construction of dams on the Euphrates River to support development have impacted agricultural output. Jordan, one the world's most water-deprived countries, has struggled greatly to secure adequate supplies. This has strained the water-sharing arrangement governing the so-called Island of Peace, a small pocket of lush terrain along its border with Israel, which once served as a symbol of cooperation between the two countries.[40] Some have suggested that future conflict in the region may be as much about water as it will be about competing claims to the land.

Members of the FEMA New York Task Force rescue a woman and her dog from floodwaters caused by Hurricane Helene in Polk County, North Carolina, on September 27, 2024.

FEMA / Alamy Stock Photo

UNDERSTANDING CROSS-BORDER CONFLICT
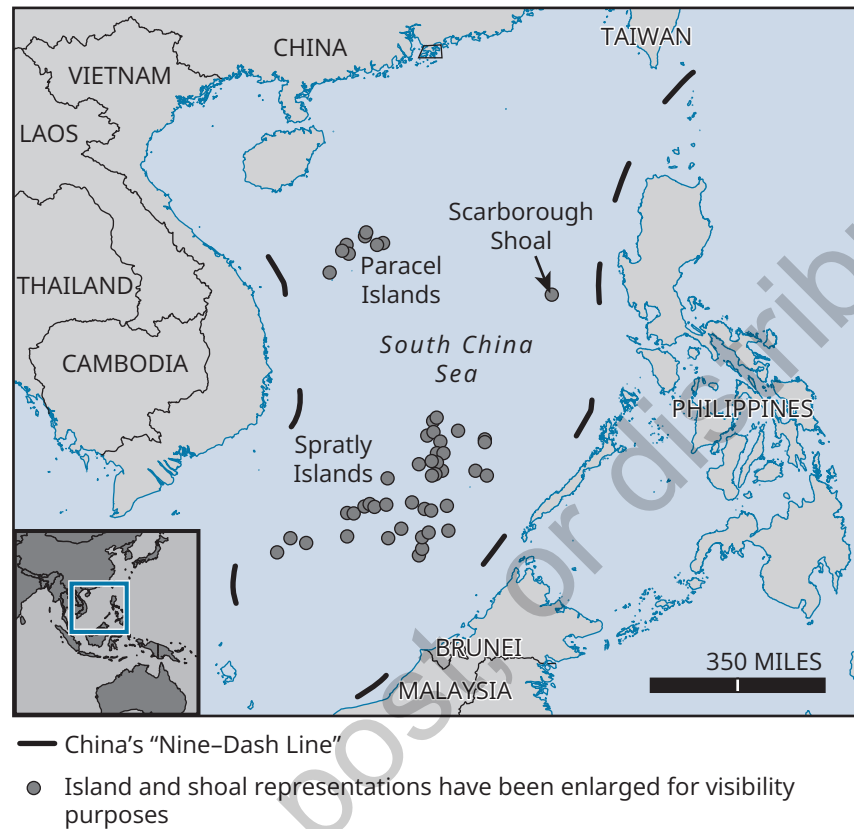
How Can International Studies Help?

The South China Sea

The South China Sea is one of the most contentious waterways in the world today. The disputes, which revolve around a number of critical issues and involve an array of pivotal actors, suggest how physical attributes can assume considerable economic and political importance. The sea is estimated to carry approximately $3.4 trillion in annual trade and is believed to contain the equivalent of around eleven billion barrels of oil and 190 trillion cubic feet of natural gas. For the United States and China, it also represents an important geostrategic test of wills with respect to power and influence across the Asia Pacific.

Map 2.1 offers a glimpse into the complexity of the challenge. In close proximity to numerous countries, there are competing claims to sovereign control of the South China Sea and the right to access and free passage. China has been particularly assertive in this regard. It has actually added 3,200 acres of land since 2013 to bolster its alleged historical entitlements, including the creation of new islands in the Spratly Island group by adding sand to existing reefs and the construction of ports and military installations. For China, these are considered legitimate steps to protect its security and consistent with its interpretation of prevailing international norms and standards.

Vietnam, the Philippines, Taiwan, Malaysia, and Brunei have all put forward their own competing claims. Tensions spiked in July 2016, when an arbitration panel under the auspices of the UN Convention on the Laws of the Sea ruled in favor of the Philippines in one of its territorial disputes with China. The proceedings were boycotted by China, which indicated

MAP 2.1 ■ The South China Sea

— China's "Nine–Dash Line"

● Island and shoal representations have been enlarged for visibility purposes

Source: CRS Graphic. (2023, August, 21). *China primer: South China Sea Disputes* (Figure 1). https://crsreports.congress.gov/product/pdf/IF/IF10607

it would not be bound by the ruling. For its part, the United States has become increasingly entangled in the drama, periodically sending military ships and planes into the area under the guise of ensuring freedom of navigation and to constrain China. This presents its own dangers, because there were eighteen unsafe incidents reported in the area between 2016 and 2018 involving United States and Chinese ships and aircraft. An international crisis was narrowly avoided in September 2018, when a Chinese warship and an American destroyer almost collided while jockeying for position. These types of encounters are likely to become even more frequent as both countries move to enhance their military force capabilities and reinforce their presence in the region.

This is more than a localized set of skirmishes. The significance of the South China Sea extends well beyond the immediate vicinity. With its considerable resources and strategic location, the sea is a source of significant financial leverage and provides a means to promote and extend political security. Given the concerns of both China and the United States, the disputes can also influence the future direction of this most important relationship. With much at stake, a failure to reach some sort of accommodation could prove highly destabilizing for many years to come.

What is the role of crossing borders in resolving this issue? How can the cross-disciplinary focus of international studies help?

Questions

1. What role does geography play in adding to the intensity of this conflict?
2. What are the political motives behind the actions of the countries involved in this dispute?
3. What are the economic stakes for each of the countries engaged?
4. Do social and cultural factors come into play?
5. Can the international community play a constructive role in mediating the tensions?

Sources: Howard W. French, "What's Behind Beijing's Drive to Control the South China Sea?" *Guardian*, July 28, 2015, https://www.theguardian.com/world/2015/jul/28/whats-behind-beijings-drive-control-south-china-sea-hainan; "Understanding China's Position on the South China Sea Dispute," *ISDP*, June 2016, http://isdp.eu/publication/understanding-chinas-position-south-china-sea-disputes; Jane Perlez and Steven Lee Myers, "U.S. and China Are Playing 'Game of Chicken' in South China Sea," *New York Times*, November 8, 2018, https://www.nytimes.com/2018/11/08/world/asia/south-china-sea-risks.html; Council on Foreign Relations, "Territorial Disputes in the South China Sea," *Global Conflict Tracker*, updated August 28, 2019, https://www.cfr.org/interactive/global-conflict-tracker/conflict/territorial-disputes-south-china-sea

Human activity has also damaged the atmosphere, perhaps irreparably. Air pollution from industrial output and the burning of fossil fuels, combined with the devastation of the rain forest, which naturally absorbs carbon emissions, has produced what is commonly referred to as the **greenhouse effect**. While the release of greenhouse gases—that is, gases that trap heat in the atmosphere[41]—occurs naturally, the amount of these gases in the atmosphere has expanded significantly due to the burning of fossil fuels. As a result, the average temperature of the earth has increased. National Oceanic and Atmospheric Administration data suggest that the five hottest years on record have all occurred since 2010.[42] While there are a number of contributing factors, *global warming* stems largely from the large-scale emissions of carbon dioxide and other greenhouse gases into the atmosphere. Figure 2.8 identifies the largest carbon dioxide emitters. Although a worldwide problem with implications that extend beyond geographic borders, the bulk of emissions originate in a handful of countries. Only five (China, United States, India, Russia, and Japan) are responsible for 57 percent of all releases, while the top fifteen countries account for 72 percent of the total.

Deforestation, desertification and the greenhouse effect are caught in a vicious cycle, where they create feedback loops with each other and, along with other disruptions, cause **climate change**. With its biggest effects being seen in rising global temperatures, sea level rise, and increased frequency and intensity of extreme weather events. The warming climate leads to the melting of polar ice caps and glaciers, contributing to higher sea levels that threaten coastal communities with flooding and erosion. Extreme weather events, such as hurricanes, heatwaves, droughts, and heavy rainfall, are becoming more common and severe, causing widespread damage to infrastructure, agriculture, and ecosystems. Additionally, climate change is disrupting natural habitats and biodiversity, leading to species extinction and altering ecosystems' functionality. These changes not only impact the environment but also pose serious risks to human health, food security, water supply, and economic stability, disproportionately affecting the most vulnerable populations and amplifying global inequalities.

FIGURE 2.8 ■ The World's Largest Carbon Emitters, 2022 (Million Metric Tons)*
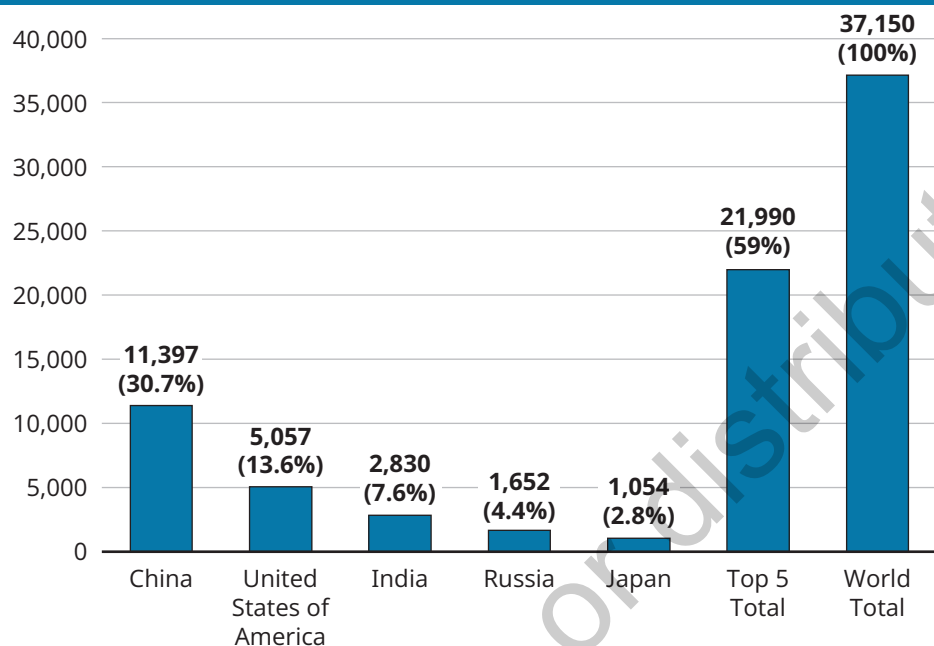
Source: Global Carbon Atlas. Retrieved September 20, 2024, from https://globalcarbonatlas.org/emissions/carbon-emissions/

*Includes carbon dioxide emissions from consumption of petroleum, natural gas, and coal and from flaring of natural gas.

THE GLOBAL RESPONSE

There have been numerous international efforts to address these issues, beginning with the Earth Summit in 1992. Organized by the UN Conference on Environment and Development in Rio de Janeiro, Brazil, this meeting was designed to generate support for a set of guiding principles and policies to slow down and perhaps someday eliminate pollution-generating activities. Subsequent meetings resulted in further agreements. The Kyoto Protocol that was adopted in 1997 and went into effect in 2005 incorporated specific guidelines to reduce greenhouse gases. While "developed" countries committed to lowering their annual carbon emissions, "developing" counties were exempted from the mandate, even as they were encouraged to engage. With few mechanisms available to ensure compliance, the results were limited at best, with the United States and China continuing to contribute heavily to the fouling of the atmosphere. In fact, worldwide emissions actually rose nearly 40 percent between 1990 and 2009.[43]

In June 2012, the UN Conference on Sustainable Development met for the Rio+20 Conference to mark the twentieth anniversary of the 1992 Earth Summit. Delegates renewed their broad commitment to a common vision but did not go very far in tackling the structural barriers impeding more directed action to protect the global commons. As the world's population increases and the burdens of maintaining the global economy mount, environmentally related pressures persist. For "developing" countries, the task is magnified by the lack of resources to effectively address these challenges—even if there is the political will to do so.

Of particular concern are the effects of climate change. Following four years of negotiations, the 21st Conference of the Parties to the UN Framework Convention on Climate Change (referred to as COP21) was held in Paris in late 2015 to hammer out a comprehensive plan. The Paris Agreement, as it came to be known, was significant. In addition to reaffirming the goal to limit the increase in global temperature to below 3.6 degrees Fahrenheit (2 degrees Celsius), signatories agreed to set national targets for reducing their greenhouse gas emissions. Although there would be no penalties for failing to reach those targets, the agreement contained provisions to enhance transparency and to encourage all countries to assume financial responsibility.[44]

In a major step forward, China and the United States affirmed their participation in 2016. These two countries alone generate close to 40 percent of total emissions.[45] In June 2017, however, President Donald Trump announced that the United States was withdrawing, arguing that the agreement placed a disproportionate burden on the country. While China and others reaffirmed their commitments, this step was a considerable blow that called into question the ability to meet the projected goals. The Biden administration brought the United States back into the fold during its first day in office, thereby restoring the country's commitment to reducing emissions. However, after President Trump took office in January 2025, the United States has weakened its climate policies and withdrew from international climate agreements again.

It is interesting to note that, despite the shifting political winds across the United States, a number of local communities have mobilized to implement environmentally friendly policies.[46] The Climate Mayor's Initiative has taken on new life, growing to more than four hundred municipalities representing seventy million people. Several thousand businesses, cities, and states have joined a coalition headed by former New York City mayor and 2020 presidential candidate Michael Bloomberg to curtail emissions. The overall impact of these and other efforts remains somewhat limited, because the Trump administration countered by cutting back regulations and clean energy initiatives.[47]

In a related development, more than 170 countries moved forward in October 2016 in Kigali, Rwanda, to address hydrofluorocarbons (HFCs), chemical coolants used in refrigerators and air conditioners that add to greenhouse gases in the atmosphere. Building on the Montreal Protocol, a 1987 agreement designed to phase out substances depleting the ozone layer, this pact was especially noteworthy for its legally binding nature and the inclusion of specific timetables and targets to replace HFCs with alternative coolants. Allowing for a more gradual implementation schedule, it took effect in January 2019 with some sixty-five countries but without the participation of the two largest producers and users of HFCs—China and the United States.[48]

CONCLUSION: WHAT CAN YOU DO?

Even if countries cannot reach agreement on how to attack these issues, the interconnected nature of the environment requires us to recognize the global consequences of our individual actions. The drive to encourage the use of alternative and renewable energy resources is a case in point. These renewable sources include solar technologies, wind harnessing for energy production, and geothermal energy generated from Earth's heat. Progress has been slow and sporadic due to the cost involved and the reluctance of governments and energy consumers to absorb that cost. The good news is that conservation activities are beginning to make a difference. Examples include the use of appliances with Energy Star consumption ratings, hybrid automobiles that use both gas and electricity, and fluorescent and LED lightbulbs.

The efforts of Ashton Hayes, a small English village of around one thousand people outside Liverpool, are also instructive. Spurred by the initiative of a single citizen, residents have undertaken a series of individual and collective steps to cut greenhouse emissions. They have installed solar panels and glazed windows to insulate their homes, used clotheslines instead of dryers, and even agreed to cut the number of airplane flights they take. Looking to become England's first carbon-neutral community, Ashton Hayes has reduced its emissions by 40 percent since beginning the experiment in 2006. About two hundred cities and towns from across the world have been in contact over the years to seek guidance, and a good number have adopted measures used in Ashton Hayes.[49]

What can you do to promote the sustainability of our planet? With regard to energy, you might begin by calculating your **carbon footprint**—a measurement of the amount of greenhouse gases produced daily through the use of fossil fuels for electricity, heating and air conditioning, and transportation. There are carbon footprint calculators that ask about your use of natural resources to heat and cool your home, how you get around town, and even your food preferences to help you identify areas where you can reduce your impact on the global system.

Another way you can make a difference is to follow the three *Rs*—*reduce*, *reuse*, and *recycle*. *Reduce* refers to the amount of waste you generate, particularly regarding disposable goods that cannot be recycled. According to the U.S. Environmental Protection Agency, between 1960 and 2015, the amount of waste each person generated in the United States rose from 2.7 to nearly 4.5 pounds per day. In 2015 alone, Americans produced 262 million tons of trash, while recycling and composting at a rate of 34.7 percent. This was considerably higher than the recycled rate of a mere 6.4 percent in 1960.[50] Waste that is not biodegradable continues to be a problem, however, and one of the more significant culprits is packaged goods. The challenge of managing waste is even greater for less developed countries that do not have adequate processing systems in place. More and more, they find themselves buried in this waste, with no place to dispose it.

One area of great concern is electronic waste (e-waste). A report of the World Economic Forum, in support of the United Nations E-waste Coalition, estimates that nearly fifty million tons of e-waste valued at $62.5 billion is generated each year, and this figure could rise to 120 million tons by 2050. To help better visualize the magnitude of the situation, current levels are the equivalent of 125,000 jumbo jets or 4,500 Eiffel Towers and would cover an area the size of Manhattan![51] China (7.2 million tons) and the United States (6.3 million tons) lead the way, followed by Japan, India, and Germany. On a per capita basis, the countries of the European Union are among the largest contributors.[52] Given the gold, silver, copper, and other metals contained in various electronic products, it is not surprising that up to 90 percent of this waste is illegally traded.[53]

With sales of electronic products rising across the developing world, there are additional concerns about increasing carbon emissions, the capacity of recycling facilities, and the hazards of e-waste disposal. As China has moved away from accepting waste, Thailand and other countries across Southeast Asia with limited environmental regulations have become important destinations.[54] In addition to the potential environmental effects, this could have severe health consequences. At one of the world's largest e-waste dumps in Accra, Ghana, workers suffer from skin diseases and respiratory illnesses due to excessive pollution levels.[55] While there have been important efforts to develop national recycling programs, the road is not always a smooth one. In India, for example, recycle and recovery projects in large urban centers such as Bangalore and Mumbai have struggled to gain acceptance as they seek to infuse state-of-the-art technologies and techniques that fit community needs.[56]

The second *R* emphasizes *reuse* as a way of reducing waste. The concept of reusable materials applies to salvaged goods from buildings that are torn down; these recycled goods are used to construct new

buildings or reused in other ways. For example, the ReStore outlets in the United States and Canada run by the nonprofit organization Habitat for Humanity take donated home improvement goods and resell them; the proceeds support the construction of Habitat for Humanity homes in local communities.[57] Another example is playground safety surfaces that consist of rubber mulch made from recycled tires. There is a need for caution when utilizing these materials, however, due to evidence suggesting potential health hazards to soccer goalies and others frequently and directly exposed to them.[58]

The success of these programs depends on the third *R—recycle*. Recycling allows materials that are considered waste to be transformed into usable items. It can be as simple as putting a plastic water bottle or newspaper in a recycling bin or purchasing goods made from recycled materials. It can include sharing with others through charitable donations of usable goods or simply swapping clothes with friends.

HOW YOU CAN CONNECT

You can reduce, reuse, and recycle by

1. Using reusable grocery and shopping bags
2. Carrying a reusable water bottle
3. Riding a bicycle or some other nonmotorized vehicle when feasible
4. Taking public transportation or carpooling whenever possible
5. Installing LED bulbs in your home
6. Adjusting your thermostat to limit energy consumption

The complexity of the challenge is exemplified by waste picking, a dangerous practice especially common among the urban poor in the Global South that involves salvaging recyclable goods from trash piles. This is a way of life for as many as fifteen million people, or 1 percent of city dwellers in developing countries.[59] In Brazil, for example, these pickers account for as much as 92 percent of aluminum and 80 percent of cardboard recycling.[60] Children are heavily engaged in this process and the ones most directly at risk. The country has taken some steps to improve health and safety conditions at these sites and has established cooperatives to promote alternative employment opportunities.[61]

The resources and interconnected ecosystems that support the planet are fragile. A recent study of the UN's Intergovernmental Panel on Climate Change (IPCC) speaks directly to the challenge ahead. By contributing directly to such extreme weather conditions as droughts and floods, climate change has limited the availability of land that would otherwise be available for cultivation. This is severely straining food production and distribution systems. Since poorer areas—especially in the Global South—are less equipped to handle these difficulties, people are migrating northward, only to find their entries blocked into countries increasingly reluctant or unwilling to admit them. Policies designed to provide more food may add to the dilemma. Draining wetlands to open more farmland, for example, releases carbon dioxide back into the atmosphere. Meanwhile, raising more cattle to expand the availability of meat poses its own challenge, because they are major producers of methane—a greenhouse gas.[62]

No matter how difficult the task, it is our responsibility to safeguard and sustain planet Earth. Natural borders cannot contain the effects of human activities, even as they complicate efforts to generate strategies to redirect or counteract them. Individual initiatives are an important first

step, but a more systematic and coordinated response is required. Some have suggested that technology is the key, because it links people around the globe and offers new ways to work together in addressing the issues before us. The role of technology is considered in the next chapter, which launches our trip across the other borders dividing the world today.

SPOTLIGHTS IN INTERNATIONAL STUDIES
COMPOSTING IN INDIA

By Rozita Singh, Head, Solutions Mapping, Accelerator Lab, UNDP India

In memory of Ms. Poonam Bir Kasturi (1962–2024), founder of Daily Dump, whose pioneering spirit and unwavering commitment to composting inspired a movement and changed how India thinks about waste.

In 2010, I watched a documentary called *Don't Rubbish It*. Little did I know that the nine-minute documentary would shape my "interest area"—solid waste management—and change the course of my professional journey. The documentary showcased a case study on composting featuring a Bangalore-based organization called *Daily Dump* (http://dailydump.org). The founder, Ms. Poonam Bir Kasturi, has designed a series of products suitable for household composting. I fell in love with the three-tier *khamba* model—it was a beautiful terra-cotta product especially designed for urban dwellers. Often, urban residents face space issues which hampers their ability to even attempt composting at home! The Daily Dump products can be kept anywhere (from open courtyards to tiny balconies), and what I liked most was that it made composting so much easier!

As urbanization increases, the problem of mounting garbage in the cities increases. With land fast becoming a scarce commodity, how long can we depend on landfills? The idea is to promote the habit of segregation at the source among the urban households in New Delhi, India. The technique is aerobic composting using terra-cotta pots that convert organic kitchen waste into manure in a very simple way. The intended outcome is to sensitize urban residents to the problem of increased solid waste generation and show them a sustainable solution to the problem. Using the pots will decrease the pressure on existing landfills by

Personal photo by Rozita Singh

offsetting the organic waste that currently constitutes roughly 60 to 70 percent of the total waste generated in an ideal household. My ultimate dream or mission is to convince the urban residents to adopt the practice of composting so that we handle our own waste responsibly.

As part of the British Council's Climate Champion Programme, I decided to make this my school project. It is part of the National Action Project (NAP), and I was selected to receive a grant. I became part of a group called Social Action Team under NAP, and along with my fellow climate champions from different cities, we took up waste management as our mission and started working on mini community projects. Upon graduation, this activity led me to a job as a Research Associate in the Centre for Research on Sustainable Urban Development and Transport Systems at The Energy and Resources Institute (TERI) in New Delhi, India, working on urban climate resilience issues. In 2016, my passion for working on urban challenges took me to Erasmus University, Rotterdam, where I went on to pursue my MSc in Urban Management and Development.

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I believe in the power of the "one"—the individual. As an eco-lover and graduate of a master's program in sustainable development practice, I feel that I should emulate the teachings of sustainable living. Moreover, this project is the perfect example of the three *R*s (reuse, reduce, and recycle). Turning your waste into compost is good for the environment and good for your soul. It is also a logical step because it doesn't make sense for organic waste to be sent to the landfill! On average, an urban Indian household generates 0.5 kg (1.1 lb.) of waste each day. When this mixed waste ends up in the landfill, it produces methane, a greenhouse gas. Imagine how many emissions you can save by not sending this waste to the landfill, instead turning it into manure. Individual action has the power to translate to a larger communal action. Collectively the Daily Dump users offset around 42,068 kgs of organic waste daily from the landfill (Figures last updated in May 2018). Imagine if the first user would have thought—"What can one person possibly do or achieve?" This movement wouldn't have reached the same scale or impact.

During my thesis period at Erasmus, I researched the topic of "Circular economy," a step beyond recycling that looks at the material economy our world runs on. The principles outline the age-old belief that "waste has value" and by being regenerative by design, we can "close the loop" and achieve a towards zero waste state. My current journey at UNDP Accelerator Lab network in the "Decade of Action" (10 years left for achieving the outlined Sustainable Development Goals target) is all about scouting for such impactful innovations.

Know more about the fastest and largest learning network here: https://acceleratorlabs.undp.org/

If you would like to learn more about the India Accelerator Lab, please visit our blog at: https://www.in.undp.org/content/india/en/home/blog/Stay_hungry_stay_foolish.html

KEY CONCEPTS

asylum seeker	geography
carbon footprint	global commons
carrying capacity	greenhouse effect
cartography	human geography
climate change	internally displaced person (IDP)
climate science	Malthusian dilemma
deforestation	migrant
demographic transition model	physical geography
desertification	refugee
ecology	sustainable development
Environmental Science	topography
food insecurity	

DISCUSSION QUESTIONS

1. Why do people migrate? And what are the four categories of migrants?

2. How do some scientific disciplines contribute to the understanding of global inequality?

3. How do population and consumption patterns contribute to environmental problems?

TO LEARN MORE

Books and Other Print Media

Michael M. Andregg, *Seven Billion and Counting: The Crisis in Global Population Growth*. Twenty-First Century Books, 2014.

Michael Andregg looks at the capacity of the planet to sustain a population projected to reach ten billion people before 2050.

Simon Dalby, Susan Horton, Rianne Mahon, and Diana Thomaz, *Achieving the Sustainable Development Goals: Global Governance Challenges*. Routledge, 2019.

The authors, who are experts in various aspects of global governance, discuss how to meet the challenges in reaching each of the Sustainable Development Goals.

Thomas L. Friedman, *Hot, Flat, and Crowded: Why We Need a Green Revolution—And How It Can Renew America*. Picador, 2009.

In this book, Thomas Friedman examines the global thirst for oil and its future environmental impact.

Jenny Goldie and Katharine Betts, eds., *Sustainable Futures: Linking Population, Resources and the Environment*. Csiro Publishing, 2014.

The authors discuss the challenges posed by continuing population growth to sustainability in Australia, particularly in how it relates to the depletion of natural resources.

Al Gore, *An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It*. Rodale, 2006.

Former U.S. vice president Al Gore's famous book and documentary film of the same name trace the pattern of global warming and its consequences and were quite instrumental in heightening awareness of the challenges presented by climate change.

Naomi Klein, *This Changes Everything: Capitalism vs. The Climate*. Simon & Schuster, 2015.

Naomi Klein puts forward a forceful case for reducing greenhouse emissions, suggesting the need for innovative approaches that recognize how the market system has contributed to the severity of the climate crisis.

Elizabeth Kolbert, *Field Notes from a Catastrophe: Man, Nature, and Climate Change*, rev. ed. Bloomsbury USA, 2015.

This update of Elizabeth Kolbert's 2006 classic on global warming puts forward a compelling case for addressing the many issues adding to the magnitude of the challenge.

Frances Moore Lappe and Joseph Collins, *World Hunger: 10 Myths*. Grove Press, 2015.

The authors identify some of the more common myths that distract us from addressing the underlying factors contributing to the persistence of hunger across the world today.

Nathaniel Rich, *Losing Earth: A Recent History*. Farrar, Strauss and Giroux, 2019.

In this book, Nathaniel Rich chronicles the early movement to raise awareness of climate change in the 1980s. It connects this to present policy discussions regarding this issue.

David Wallace-Wells, *The Uninhabitable Earth: Life After Warming*. Crown/Archetype, 2019.

This book, based on a best-selling article, warns about potential disasters that could result from global warming in the future.

Websites

GRID-Arendal, https://www.grida.no

Based in Norway, GRID-Arendal is a center that collaborates with UNEP to communicate information and data about the environment. It features excellent data and maps.

The Intergovernmental Panel on Climate Change, https://www.ipcc.ch

The IPCC is the official branch of the United Nations that assesses the effects of climate change in all parts of the world.

National Centers for Environmental Information, https://www.ncei.noaa.gov/

A massive archive of data dealing with all aspects of the global environment, including historical data showing how these aspects have changed over time.

Population Reference Bureau, https://www.prb.org

This organization provides information about population, health, and environmental issues around the world and seeks to influence policy on these matters.

Rise Against Hunger, https://www.riseagainsthunger.org

This international hunger relief organization provides food and other forms of aid to some of the world's most vulnerable.

Sustainable Development, https://www.sciencedirect.com/topics/earth-and-planetary-sciences/sustainable-development

A useful reference that defines "sustainable development" in terms of a balance of economy, environment, and community and discusses the goals necessary to achieve it.

World Atlas, https://www.worldatlas.com

This is a good, user-friendly site that includes a considerable number of maps and information regarding social, economic, and environmental conditions for countries across the world.

Videos

An Economic Case for Protecting the Planet (2018)

In this TED Talk, economist Naoko Ishii discusses economic practices that she believes should be changed in order to ensure the survival of the planet. Available at ted.com.

Before the Flood (2016), https://www.beforetheflood.com/explore

In this documentary film, producer Leonardo DiCaprio explores climate change and numerous ways in which it might be addressed. An accompanying website includes considerable amount of background material.

Future Food (2013), http://www.bullfrogfilms.com/catalog/ffs.html

With the world's population expected to rise to nine billion people by 2050, this six-part series looks to Peru, Kenya, India, Nigeria, China, and the United States as it examines how we might continue to feed ourselves in the twenty-first century.

How to Let Go of the World and Love All the Things Climate Can't Change (2016), http://www.bullfrogfilms.com/catalog/howto.html

This film travels to twelve countries on six continents to explore the realities and consequences of climate change.

An Inconvenient Truth (2006)

Former vice president Al Gore argues the case that we have reached a tipping point in climate change.

In Our Hands: Seeding Change (2017)

This documentary deals with a growing number of British farmers and food producers who work outside of the industrial food system. They seek to build an alternative food system that limits its damaging effects on the environment.

Let the Environment Guide Our Development (2013), http://www.ted.com/talks/johan_rockstrom_let_ the_environment_guide_our_development

Johan Rockstrom is head of the Stockholm Resilience Centre (http://www.stockholmresilience.org), which focuses on cooperative approaches to sustainability. In this video, he talks about the special relationship people have with the earth and how it must be protected.

The Lorax (2011)

This animated feature is based on the book by Dr. Seuss (1972), which explores the impact of over-consumption, environmental degradation, and personal responsibility.