Chapter 1
Introduction to A Comparative Geography of China and the U.S.

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The People's Republic of China (see Fig. 1.1) and the United States of America (see Fig. 1.2) are two nations evoking a multitude of associations, both good and bad, for many people around the world. Both countries have fostered distinct national identities and pride within their own territories; both realms have, lightly and not so lightly, exerted powerful influences beyond their borders which have resulted in pivotal roles throughout the world. All these interactions have created complex forms of interdependence leading to extensive friendly cultural exchanges and mutually beneficial trade relations but have also resulted in fears among some citizens in neighboring countries of a continued Americanization and Sini-cization. In short, 'America' and 'China' represent cultures, societies, economies and geographical regions which matter in our world.

This text book offers a comparative assessment of both countries' diverse geographies. While not comprehensive, it explores important aspects and dimensions of the two countries' human and physical features from the perspective of professional geographers from both nations. A comparison of the two countries invites both cross-cultural and inter-cultural perspectives, with the goal of providing more complete, multi-dimensional perspectives for these two important nations. For instance, our chapter providing a comparative look at agriculture and food production in China and the U.S. not only looks at the types of foods produced in particular regions, but also examines the increasing exchanges of food products and food consumption practices between the two countries. For example, shrimp caught in the South China Sea or raised in ponds along the Yangtze River are shipped to Dim Sum restaurants in New Orleans (U.S.), while 'American' fast food items like hamburgers are served in McDonalds in Beijing.

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Fig. 1.1 The People's Republic of China

Prior to a broader summary of the project, two fundamental questions should be addressed, to dispel concerns regarding the usefulness or appropriateness of the comparative approach we have chosen for the text:

Why not focus on just one of two nations—given that both nations are so complex and full of intricacies that understanding even one of these nations present quite a challenge?

Why select only two geographies, those of China and of the U.S., from the many—given that globalization has essentially affected the whole world?

The first question is rooted in the ideographic tradition of regional geography: all regions are unique. As a region's 'distinct character' is carved out and/or assembled

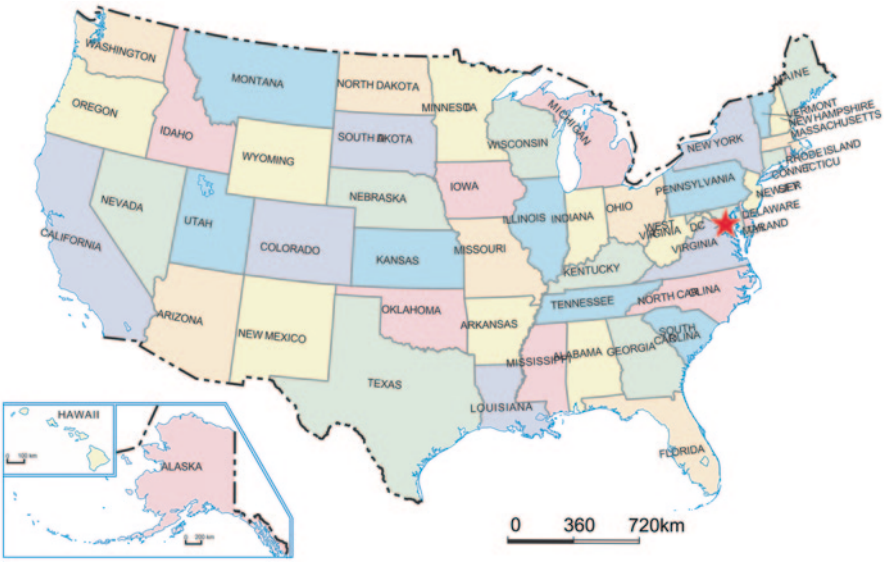

Fig. 1.2 The United States of America

to a 'regional portrait', scholars have not been encouraged to formulate generalities across neighboring or distant regions. This practice contradicts the reasonable interests of both the regional expert and the lay person who wish to see regions placed into broader contexts: "In which way is this region different from my home region? Why does this region have certain features or qualities I see in other regions represented as well?" The authors of this text believe that regional geographies can be successfully developed, while raising new types of questions, through the use of a comparative framework.

The second concern questions the common practice of regional geography in an era of globalization: Is it still valid to deal with the geographies of one or two countries to explain current changes, e.g. of resource uses in one country or region? Obviously, not only are the economies of China and the United States increasingly connected, rather all national economies worldwide have grown more and more "enmeshed" through the forces of globalization (Dicken 2007). Free market proponents of contemporary globalization ("hyper-globalists") go a step further; they argue that the power(s) of the state have been significantly eroded in the past decades and will (eventually) fade altogether. By contrast, the authors of this text book argue that the power(s) of the state continue to be central to almost all economies, and state actions continue to substantially shape the geographies of China and the United States. As both the economies and societies of these two great nations are among the more important agents of change in the world, a regional analysis of these two 'major players' may help promote a better under-standing of these processes throughout the world.

Table 1.1 Top five countries by land area size. (National Bureau of Statistics of China 2012)

Countries	Land area (km^2)	Of the world (%)
Russia	1709.82	12.72
Canada	998.47	7.43
United States	963.20	7.17
China	959.81	7.14
Brazil	851.49	6.33

There are five compelling reasons to compare the human and physical geographies of China and the United States:

1. China and the U.S. are large mid-latitudinal countries both located in the northern hemisphere
2. China and the U.S. are home to large populations marked by increasing cultural and ethnic diversity
3. China and the U.S. represent cultures with important contributions to world civilization (Eastern and Western traditions of world civilization)
4. China and the U.S. are leading economies in the Pacific realm and worldwide
5. China and the U.S. have significant political power in the world

1.1 Geographical Positions on Earth

The area size of the People's Republic of China and the United States of America are very comparable at about 9.6 million km^2 (or 3.6–3.7 million square miles). Depending on which claims one uses for both nations the two nations rank third and fourth after Russia and Canada (see Table 1.1). China and the U.S. each occupy approximately 6.4–6.5 % of the world's total land area (Fig. 1.3).

Located in East Asia, on the western shore of the Pacific Ocean, China has an extensive coastline home to much of the nation's population. From north to south, the national territory of the People's Republic of China extends some 5,500 km stretching from the center of the Heilongjiang River north of the town of Mohe (latitude 53°30' N) to the Zengmu Reef at the southernmost tip of the Nansha Islands (latitude 4°N). From west to east, the nation extends about 5,200 km from the Pamirs (longitude 73°40' E) to the confluence of the Heilongjiang River and Wusuli River (longitude 135°05' E). China share land borders with 14 nations extending over 22,800 km in length, in part due to the mountainous terrain that composes many of the borders. Moving from northeast to southeast, the nations include: Korea to the east; the People's Republic of Mongolia to the north; Russia to the northeast; Kazakhstan, Kirgizstan and Tajikistan to the northwest; Afghanistan, Pakistan, India, Nepal and Bhutan to the west and southwest; and Vietnam, Laos and Myanmar to the south. Across the seas to the east and southeast are the Republic of Korea, Japan, the Philippines, Brunei, Malaysia and Indonesia. As noted above, many of these borders emerged along natural barriers formed by deserts and high rugged

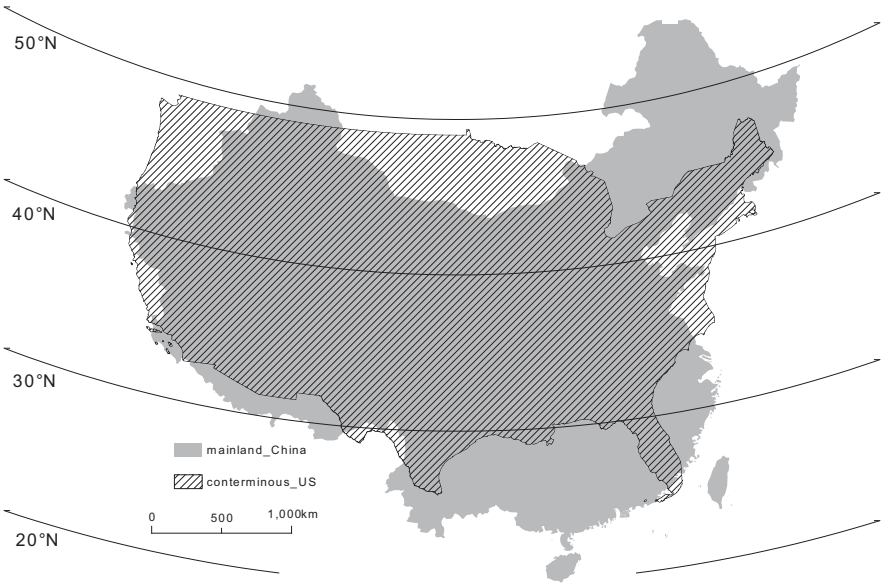

Fig. 1.3 Comparison of area size and latitudinal range of mainland China and the conterminous U.S

mountains. The North China Plain in eastern China is the largest area of lowland in the world. Tibet in western China is called "The Roof of the World", basically a plateau with a mean elevation of over 4,000 m (13,000 ft) surrounded by even higher mountains. To the south are the Himalayans, while to the northwest are the Kunlun Mountain, Tianshan Mountain and Altai Mountain. Eastern China has also mountains and hilly areas but much of the eastern regions are at a much lower altitudes than those of western China. The most important East-West running mountains in Eastern China are the Qinling Ranges commonly considered the natural boundary between North China and South China.

The United States of America are located in the western hemisphere with three major coastlines, with the Atlantic Ocean and the Gulf of Mexico to the east and southeast and the Pacific Ocean to the West. The U.S. shares borders with only two nations: Canada to the north and Mexico to the south. If all the widespread U.S. territories are taken into account including inhabited and uninhabited coastal areas in the Pacific and the Caribbean Oceans the United States is one of the world's most extensive cross-latitude countries of the world: from Point Udall, St. Croix in the U.S. Virgin Islands in the Caribbean as most Eastern point (64°34' W) to Orote Point, Guam (144°37' E) as most western point in the Pacific Ocean. The East-West extension of its fifty states (48 contiguous states of the U.S. plus Alaska and Hawaii) alone still makes up an overall remarkable length of close to 10,000 km (or 6,000 miles), from Peaked Island, the most western Aleutian Island, Alaska (172°26' E) to Sail Rock, just offshore of West Quoddy Head, Maine (66°56' W).

The South–North extension of the U.S. is—compared to China—less pronounced; it is largest between Alaska (most northern point: Point Barrow at 71°23')

and Hawaii (most southern point: La Lae at 18°54') excluding the Rose Atoll, uninhabited but still a part of official U.S. territory. The North-South extension within the 48 contiguous United States is even smaller than that including Alaska and Hawaii: only about 2,900 km (or 1,800 miles) from 49°23' (Lake of the Woods, Minnesota) to 24°31' (Ballast Key, Florida). Most of the mountain ranges in the U.S. run north to south including the Appalachians, the Rocky Mountains, the Sierra Nevada and the Coastal Mountains/Cascade Range of California. There are no major mountain ranges running east to west, though.

The U.S. borders with its main neighbors Canada and Mexico are very different in nature; whereas the border with Canada is generally considered the longest peaceful borderline in the world (Mayda 2010) the U.S. border with Mexico has become one of the most contentious and violent border zones in recent history. China's official territorial boundaries are disputed in a number of places by other Asian countries although the current situation is peaceful and negotiations with these nations are ongoing.

The large land area incorporated within both countries as well as the implications of their general locations on the earth seems to suggest the benefits of a comparison of their physical geographies including climates:

1) China and the U.S. are located in the northern hemisphere, within a similar latitudinal range.
2) Mainland China and the continental U.S. are situated within a larger continent, China within Asia and the U.S. within North America. For both nations, the southeastern coasts adjacent to oceans have proven to be vital economic engines for the rest of the nation. A major difference is that the U.S. has two coasts, with the Atlantic Ocean in the east and the Pacific Ocean in the west; the western sections of China surrounded by the dry steppe and deserts of Central Asia.
3) Both countries have a wide East-West span of their respective territory, with a time difference of over four hours (or longitudinal difference resulting in a natural time difference).
4) The climates of the two countries are both heavily influenced by the presence of large mountain ranges and major river basins, including the Himalayans and the Rocky Mountains, the Yangtze River Basin and Yellow River Basin, the Mississippi-Missouri River Basin.
5) The interior sections of the two countries have similar continental climates, dry and cold in the winter and hot in the summer. In turn, the coastal areas share similar warm and humid weather conditions with abundant precipitation.

Many of the differences that do exist in climatic conditions at the national level are simply due to the larger tropical zone in South China—a zone only to be found in the U.S. in the most extreme southern portion of Florida and on the Hawaiian Islands. The northern and northwestern sections of Alaska close to and beyond the Arctic Circle with tundra vegetation and arctic climates are only found in China on the frigid Qinghai-Tibetan Plateau.

Both countries are marked by a wide range of distinct topographic regions. What is common to these individual topographical features for each country, though, is that both nations have extensive areas of all four major types of land-forms: plains, plateaus, hills and mountains.

The topography of China is high in the west and low in the east displaying a typical stair-step pattern moving to the eastern coastal lowlands. Within the eastern Eurasian continental slope, China is still a very mountainous country with 40% of the land classified as either hilly or mountainous. The Chinese territory descends in three great macro steps from west to east. The first step is the Qinghai-Tibetan Plateau which is the world's highest plateau at an average altitude of 4,500 m (above 14,000 ft). The altitude of the second step is 1,000–3,000 m; and the third step ranges from low mountains in Fujian from about 1,000 m to sea level. There are four major basins in China, namely the Tarim Basin, Junggar Basin, Qaidam Basin and the Sichuan Basin. China has also four major plateaus: the Qinghai-Tibetan Plateau, the Inner Mongolian Plateau, the Loess Plateau and the Yunnan-Guizhou Plateau. Last but not least, China has three great plains: the North China Plain, the Northeast Plain and the Lower Yangtze River Plain. This complex mosaic of mountains, basins, plateaus and plains contribute to distinct hydro-thermal conditions which in turn result in complex patterns of soils and vegetation. China's vast physical differences as discussed above result in complex and diverse geographical landscapes which have been further transformed by the actions of humans for more than 10,000 years.

The continental United States has plains, plateaus, hills and mountains as well ranging from west to east include: the Coastal Ranges of California, the Cascade Mountains, the high Sierra Mountains, the Rocky Mountains and in the eastern United States, diverse lower systems including the White Mountains, the Berkshires, the Alleghenies, the Blue Ridge Mountains and others on the Appalachian Plateau. Hilly areas are widespread in the central U.S., but again there are no large mountain systems running east to west, and few true mountains between the Alleghenies and the Front Range in Colorado. There are several distinct plateaus such as the Columbia Plateau, the Colorado Plateau and the Ozark Plateau. Finally, there are interior lowlands largely covering the Midwestern states of the U.S. as well as the expansive Gulf Atlantic Coastal Plain reaching from Cape Cod in Massachusetts and Long Island in the north to the Texan/Mexican Gulf Coast in the south central portion of the nation.

The similarities between the two countries' basic physical geographies are remarkable and result, in many instances, in similar patterns of population distribution and land use. However, several significant differences can be detected as well and these differences, when appropriate, will be examined more thoroughly in later chapters of the text.

1.2 Population Ranking in the World

China and the U.S. are both populous countries. Their populations rank first and third in the world (see Fig. 1.4): 1,343,239,923 and 313,847,465. With respect to population the second largest country is India, while the fourth and fifth largest populations are found in Indonesia and Brazil.

The populations of both China and the United States are unevenly distributed. In China, the highest population concentrations are found on the southeastern coast where 43% of the total population lives on 13.3% of the nation's total land area.

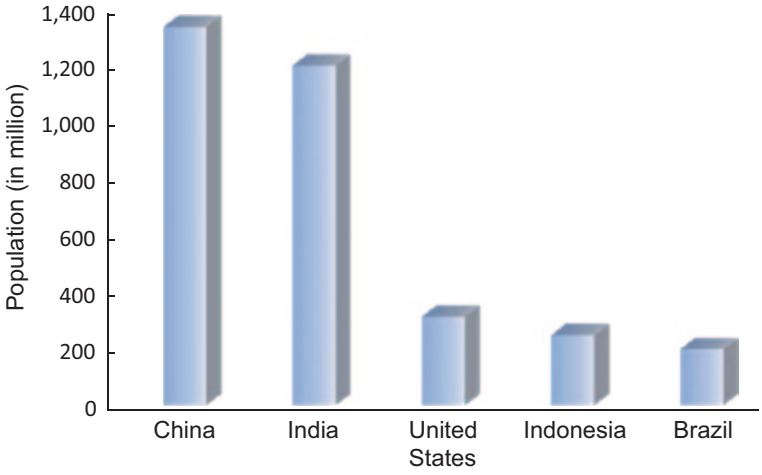

Fig. 1.4. Top five countries by population volume. (U.S. Census Bureau 2012)

If we divide China by the Huhuangyong line (running from Heihe in Heilongjiang Province to Tengchong in Yunnan Province) 95.4% live east from the line, 4.6% west of the line. There are great contrasts in population densities among those areas in China which are highly urbanized and economically more advanced such as the Pearl River Delta, the Yangtze River Delta and the Beijing-Tianjin-Hebei regional cluster and those areas that are more isolated and as a consequence less developed such as many rural areas within the Qinghai-Tibetan Plateau, the Loess Plateau and some of the interior basin regions.

In the U.S. population distribution and density is also highly variable. Whereas the original 13 states of the Union along the eastern coast and some of the earlier Midwestern states to the join the union contain higher population concentrations, the younger states in the Rocky Mountain West, for example, continue to have lower population densities despite recent growth spurs. Again, as in China, there are marked differences in the population densities among the heavily urbanized areas, such as the eastern 'Megalopolis' (Bosh-Wash city corridor along the eastern seaboard), the San Francisco Bay Area/Silicon Valley and the Southern California urban sprawl areas, and the rural areas of the Great Plains and the Mountain states, such as in Kansas/Nebraska, North/South Dakota and Idaho/Western Washington. The lowest population densities within the U.S. are found in Alaska, the largest U.S. state, but located in an extreme northern location.

Migration within the U.S. has contributed to significant population change in the past half-century, with rapidly growing areas since 1960 found particularly found in the West and South census regions of the country (California, Texas, Florida), at the expense of the older manufacturing or Rust Belt regions (Pennsylvania, Ohio, Michigan).

The ethnic composition of the populations of China is various, while the ethnic and racial compositions of the populations of the U.S. are both very complex, although, of course, there are also distinct differences between the two nations. Who are the 'Chinese' and who are the 'Americans'?

Officially, there are 56 recognized ethnic groups or nationalities in China. The Han people makes up China's (as well as the world's) largest ethnic group, with about 92 % of the population of the People's Republic of China (or about 1.2 billion persons). The 55 remaining ethnic minorities include the following with more than 1 million persons: the Zhuang, Manchu, Hui, Miao, Uygur, Yi, Tujia, Tibet-an, Mongolian, Bouyei, Dong, Yao, Korean, Bai, Hani, Li, Kazah and Dai. The largest group is the Zhuang nationality with more than 15 million persons. While considerably different in the past, at the present time ethnic minorities live mostly in areas that are less densely populated (such as in Inner Mongolia), areas at higher elevations (such as the Tibetans in Tibet, Qinghai, Sichuan) or in border regions (such as the Uygurs in Xinjiang). In times of war, migration and during other major political and economic events various ethnic minorities mingled and some nationalities are now widely scattered all over the country like the Manchu nationality—once concentrated only in Northeast China. Subsequently, some of the 55 ethnic minority groups have assimilated—more or less—to what might be called Han culture although there have been also efforts made to revive their cultural traditions. It is evident and widely recognized that every ethnic group has rich traditions which often go back many centuries; the folklore if many of the minority groups continues to be celebrated in the People's Republic of China in many ways. In five cases, the status of selected nationalities has led to the foundation of autonomous regions: the Guangxi Zhuang Autonomous Region, the Inner Mongolia Autonomous Region, the Ningxia Hui Autonomous Region, the Xinjiang Uygur Autonomous Region and the Xizang Autonomous Region (Tibet). The largest non-Han proportion of the population is found in Guangxi (about 17 million or 38 % of the total population). In two of the autonomous regions the minority populations surpass the Han populations: the Tibetans in Xizang and the Uygurs in Xinjiang. What unites all the various ethnic populations of China is the fact that more than 99 % are people indigenous people to the territory of the People's Republic of China—whereas in the United States this proportion is reversed: 1 % of the population are "indigenous" to U.S. territory, while 99 % claim ancestry from people who lived originally outside the territory of the U.S.

The United States of America has seen tremendous changes regarding its population's ethnic and cultural composition during the country's comparatively short history. While the dominant culture group in the newly founded United States of America (1776, with a first census 1790) has often been described as WASP (White Anglo Saxon Protestants), current trends in the structure of the U.S. population point to an evolving multi-cultural society. An expression of these ongoing complex changes is the presidency of Barack Obama, himself the son of a father from Africa and a mother with European ancestry, with leading members of his administration comprising most of the ethnic and culture groups in the United States.

In the last few decades, the percentage of non-Hispanic whites in the U.S. population has been gradually and consistently decreasing, from about 80% in 1980 to about 69% of the population (2000 Census figure, see Perez and Hirschman 2009). There are many regions of the U.S. including the L.A./Southern California Metropolitan Area where non-Hispanic whites no longer constitute the majority of the population but are simply another minority. The most rapidly growing population groups in the United States include Asian-Americans and Hispanics. In overall proportions, Hispanics have surpassed Americans in African descent (as of 2003) as the largest minority group. Hispanics' proportion the U.S. population are currently estimated at about 15%, while the proportion of African-Americans has remained at 13%. Americans with Asian descent including those of Chinese descent make up about 4% of the U.S. population. The proportion of Native Americans (or Indigenous Americans, or simply 'Indians') has remained unchanged over the past decade at 0.9% (or at 1.3%, when multiple ancestry is included) of the U.S. population. Many Native Americans continue to live on reservation lands since they were relocated in the eighteenth and nineteenth centuries.

America has been and remains an immigration country. The various immigration waves over the past 200 years reflect a very complex ethnic and cultural population structure. Whereas immigrants from Northern and Western Europe, from countries such as England, Scotland, Ireland, the Netherlands, France, Germany, Austria, Switzerland, Sweden, Norway and Denmark, made up the large majority of new arrivals to the country during the first 100 years (1790–1890), more and more immigrants to the U.S. 1890–1920 had ancestry from Southern and Eastern Europe. During this time period a large number of Greek, Italian, Polish and Russian immigrants made the U.S. their home. After a period with low immigration rates 1930–1950 (Great Depression, WWII) an increasing number of people started to come from Latin America, the Middle East and Asia. Since the 1970s these groups have been the main source regions for immigrants to the U.S. After 1990 many immigrants from Africa arrived in the U.S. as well. Whereas the main Latin American immigrant group was from neighboring Mexico, there are several leading immigrant groups from Asia among them from China (including Taiwan), the Philippines, India, Korea, Vietnam and Japan. The cultural complexity of immigrants from Asia is enormous and comprises small but distinct ethnic groups like the Hmong culture group (from Laos, Thailand and China), the Mongolian and the Nepalese.

There have also been significant changes as to the various religious groups making the U.S. their home. The U.S. census does not include information about religion, but other non-governmental associations provide useful information on this topic. While most people in colonial America and in nineteenth century U.S. belonged to Protestant church denominations such as the Episcopalian, Methodist or Lutheran Church over time, there was a slow and steady increase in the number of Roman Catholics. In addition to older largely Catholic immigration groups such as the Irish, Polish, Italian and German settlers that constituted much of the pre-WWI urban industrial work force, the large number of newly arriving Hispanics have made Roman Catholicism the largest denomination, if Protestant groups are

not combined. Other rapidly growing U.S. religious groups include the Church of Latter Day Saints ('Mormons') and a number of Islamic denominations (Sunni, Shiite, etc.). The complexity of religion and belief systems in the U.S. is a striking feature of American culture and incorporates a multitude of religious groups. Jews, for instance, who account for about 2–3 % of the U.S. population are organized in very different ways. Jewish community life in the U.S. has developed both in distinctly fundamentalist ways such as among Orthodox and Ultra-Orthodox Jews as well as among Reform Jews who have made deliberate adaptations to mainstream American life. Last but not least, new forms of religion in the U.S. such as a form of Zen Buddhism and New Age philosophies have become acceptable for many honoring the principle of religious freedom in the U.S.

While the 'melting pot' model—as a pathway for immigrants to assimilate to social and cultural life in the U.S.—was the dominant paradigm for most of U.S. history, different forms of bi-cultural or multi-cultural models have emerged more recently. The number of Spanish only speakers has increased considerably, mostly among first generation Hispanic immigrants which has caused many communities, local and regional agencies as well as business groups to communicate with the new residents in their language (and not in English only). There are several large culture groups where non-English languages are predominantly spoken at home including first and second generation Chinese immigrant families in the U.S.

It is important to keep in mind that we have increasingly seen a 'blending' of the various racial, ethnic and culture groups, and that the boundaries between the Census groups are no longer clear cut. More and more Americans belong now to two, three or more racial, ethnic and/or ancestry groups. This more complex demographic situation, with new "emerging American identities" (Perez and Hirschman 2009), has been confirmed in recent analyses of the Census 2000.

Finally, it should be emphasized that population census categories or nomenclatures for the various ethnic, cultural and racial groups have frequently changed. An example of the changing practices in this respect is the chosen names for the descendents of the former slaves from Africa: from 'negroes' and 'coloreds' (in use up to the 1950/1960s) to 'Black Americans' (during and after the civil rights movement) and 'African-Americans', currently used as the politically correct term.

A multi-cultural America is no longer defined along previously hardened racial, ethnic and cultural lines but on a consensus that diversity contributes to the strength and vitality of the nation. In present-day society the many facets of a culturally diverse population have been widely acknowledged—though not in all cases and instances.

Both China and the U.S. have seen conflicts and tensions over racial, ethnic and cultural issues in the distant and recent past. Some minority groups in both countries have had a hard time to be fully recognized, and their status in society has been lacking. The continued practices of their language and religion have been occasionally met with suspicion and disregard—both in 'mainstream' America and China.

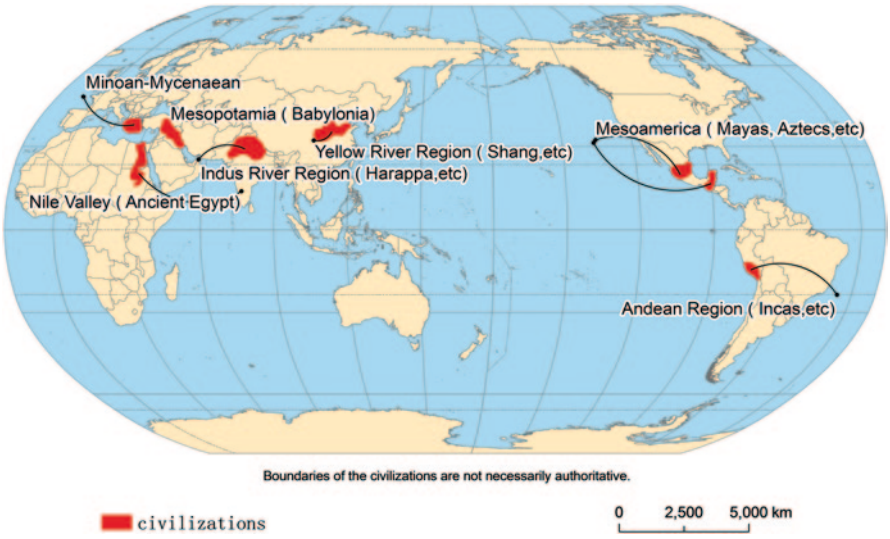

Fig. 1.5 Civilizations in the world

1.3 Cultural Contributions to World Civilization

The United States is a country in the Western Hemisphere, while China is a country in the Eastern Hemisphere. Both nations represent important cultures which have contributed significantly to world civilization—though contemporary American culture and Chinese civilization are grounded in very different traditions.

China is the site and origin of one of the greatest civilizations of the world. Ancient Chinese civilization extends backwards in time for more than 4,000 years with comparable cultural advancements made in early human history only in Egypt, Babylon and India during the height of their civilization (see Fig. 1.5). China's four great ancient inventions, namely the compass, gunpowder, papermaking and printing, are major contributions to the modernization of the world's economy and to humanity in a wider sense.

The early formation and development of Chinese civilization has been characterized more aptly in the following way:

The first light of Chinese civilization revealed itself 7,000–8,000 years ago, as indicated by the ruins of the Daxi Culture in Sichuan Province and Hubei Province, the Majiapang Culture in Jiangsu Province and Zhejiang Province, the Hemudu Culture in eastern Zhejiang and the Yangshou Culture along the middle reaches of the Yellow River and its main tributaries.

According to legend, the primitive tribes that inhabited the middle and upper reaches of the Yellow River were unified into two powerful tribes under the Yellow Emperor and Fiery Emperor, and began their push southward 5,000 years ago. After years of warfare, they conquered the Sanmiao and Jiuli tribes active in south China

under the leadership of Chi You. Part of the defeated tribe was incorporated into the tribes under the Yellow and Fiery emperors to become a component part of the Han people, which marked the beginning of the Chinese nation. This history has also given rise to the term "descendants of the Yellow and Fiery emperors" that Chinese often use to refer to themselves.

Archaeological studies have revealed that around 5,000 years ago the Chinese entered the stage of patriarchal society. Not only did villages begin to appear but also the initial forms of cities began to become evident. Extensive communities indicated that the population at the time had already reached a fairly large size and agriculture had made great headway. The earliest discoveries took place during this period. ShenNong tried and tasted various kinds of wild plants to select crops appropriate to be cultivated for food and herbal medicine to cure disease. The Yellow Emperor invented the compass, which helped him defeat Chi You. More importantly, the appearance of chariots greatly reduced labor intensity. Lei Su, wife of the Yellow Emperor, discovered silk making by raising silkworms, and produced the first garments, which allowed the ancient people to bid goodbye to the period when they wore animal skins and tree leaves. The tribe under Chi You in the south learned how to make weapons with copper, creating the conditions for making bronze vessels, metallurgy and alchemy of later times.

During the Xia Dynasty, 4,000 years ago, China entered the period of slave society. The Shang Dynasty (sixteenth to eleventh centuries BC), which replaced the Xia, saw the height of bronze culture, when superb smelting and casting techniques brought forth beautiful wares made of bronze. Pottery making also developed very rapidly with the appearance of primitive pottery wares. Sericulture and silk weaving reached maturity at this time.

From 475 BC to the end of the nineteenth century, China went through a long feudal period. Before the fifteenth century, China was one of the most powerful countries of the world, occupying a leading position in the development of productivity and technology. Ancient China enjoyed a developed agriculture and advanced irrigation system, an independent tradition of medicine and advanced botanical knowledge. China's four great inventions, namely, the compass, gunpowder, movable type printing and papermaking, not only changed the world but also accelerated the evolution of world history. Besides, China was rich in ceramics and silk textiles which were inventions that exerted a great impact worldwide. China also kept the world's most detailed and earliest astronomical records. The first people to take note of such astronomical phenomena as comets, sunspots and new stars were all Chinese. It was also the Chinese who produced the most advanced astronomical observatory apparatus of the time. In metallurgy, China long held a leading position. When Europeans still could not turn out a single piece of cast iron in the fourteenth century, Chinese people had already produced cast iron on an industrial scale four centuries earlier.

In the field of thought, Confucius, founder of Confucianism, not only had far-reaching significance for China, but for the whole of East and Southeast Asia. The warfare strategies introduced by the noted military strategist Sun Zi are still studied and referred to today. Taoism was an important school of thought, and is known for

its simple dialectical elements. Its position of "quietude and inaction" has many identical views with the thoughts of modern man. Taoism, based on the Taoist doctrines, is an independent religion established in China.

When commenting on the relationship between China's civilization and that of the rest of the world, the late Joseph Needham, historian of China's science and technology and professor at Cambridge University, once said that people must remember that in early times and into the Middle Ages China was way ahead of the West in almost every discipline of science and technology, from chart making to gunpowder. Western civilization, he went on to say, did not begin until the era of Columbus, and China had left the Europeans far behind in science and technology before that time.

Unfortunately, the country's feudal bureaucratic system held back science and inventions from making further progress, and prevented Chinese society from developing modern science, resulting in China staying long in the experimental stage in science and technology.

Modern China is experiencing a completely new era in which respect for science and inventions and encourage creativity have become the guiding principles of society. Looking back at the contributions China's civilization has made to the world, we have reason to believe that a more prosperous and stronger China will surely make new contributions to the civilization of mankind.

The First Americans, the first known inhabitants of modern-day United States territory, are believed to have arrived in the Americas over a period of several thousand years beginning 14,000–16,000 years ago. Migration to the North American continent was possible by crossing over the Bering Land Bridge (a land bridge which was in existence during extended time periods of the Wisconsin glaciation). It is now widely assumed—and confirmed by both fossil records and genetic research results—that Native American people are descendants of early big game hunters migrating from Siberia to present-day Alaska. Proponents of an alternative 'long chronology' migration model argue that there is substantial evidence for earlier migration waves to the Americas as well.

In the following millennia several Meso-American civilizations evolved such as the Maya and the Aztec civilizations. Several core areas of early Native American cultures existed in what is now the United States. Socially complex, agricultural societies flourished in, for instance, the lower Illinois River valley or in the Southwest 1,000–3,800 years ago. Little has been left of what may have been early indigenous forms of North American civilizations. Native American languages and religions did most often not survive European colonization and if resistant enough were eventually suppressed in nineteenth and twentieth century American society. Surprisingly, some of the indigenous religions and tribal languages have made it into the modern era, such as a widely spoken Navajo Nation language and continued religious practices among the Hopi Indians, the descendants of the ancient Pueblo cultures. In general, though, Native American cultural traits have largely vanished and/or are found only in residual form in the broad spectrum of current American popular culture.

Geographers have tried to identify what are essential or enduring values of American Culture. Cultural geographer Wilbur Zelinsky came up with the following four themes which best characterizes the American World View (Zelinsky 1973; Stoddard et al. 1986):

1. An intense, almost anarchistic individualism which de-emphasizes obligations to other members of a family or social group (rooted in the American frontier experience)
2. Mobility and change: no other society is so characterized by frequent migrations, restless mobility, and a passion for speed and innovation
3. A mechanistic world vision: the belief that technology can solve all problems, even the environmental ones that it causes
4. Messianic perfectionism or an assumed superiority of the American way of life and the desire to project it on the rest of the world

Whereas the terms American Culture and American Popular Culture continue to be widely used in and outside the U.S. the concept of an American Civilization was never firmly established in the literature, with few exceptions. It has been argued that American (popular) culture is rooted in and/or is largely an expression of Western Civilization, a broader concept aptly applied. While the influences of western traditions of thought, from Classical Antiquity to the Renaissance and Enlightenment in Europe, are widely acknowledged for the formation of an early U.S. political culture and legal system, there is also a noticeable and widening rift between contemporary American (popular) culture and traditional European expressions of Western Civilization.

Political scientist Samuel Huntington identified Europe, North America and Australia/New Zealand as core areas of a 'Western Civilization' dominated region of the world—currently facing an ongoing or forthcoming "clash of civilizations" (1993). While most of his attention is given to a highly perceptive cultural fault line between 'Islamic' and 'Western' civilizations, several 'Confucian-Asian' cultures are included in his treatise about future geopolitical battle-lines as well. China, Korea and Vietnam make up the 'Confucian Civilization' distinctly separate from Asian 'Buddhist', 'Hindu' and 'Japanese' civilizations. Political geographers have rejected this simplistic view of the world where 'civilizations' merely replace territorial states as agents which have become more and more closely connected in a world system, last but not least by the current forces of globalization (Agnew 2003).

There is some fascination about the U.S.'s perceived role of sole superpower since WWII—which is a questionable notion considering major setbacks of the U.S. political-military power during the Vietnam War, the 2001, September 11th terrorist attacks as well as the Golf & Afghanistan-Iraq Wars. The processes leading to hegemony or changes in hegemony status have been examined in world system theories (see, for instance, Wallerstein 1974, 1980, 1989, 2003 and 2004). Here, the main explanation of a world power's persisting supremacy or declining hegemony is based on an analysis of three forms of economic dominance (productivity, trade and financial dominance). As we look at the currently more complex, multi-core world economy—propelled increasingly by forces of globalization—it is conducive

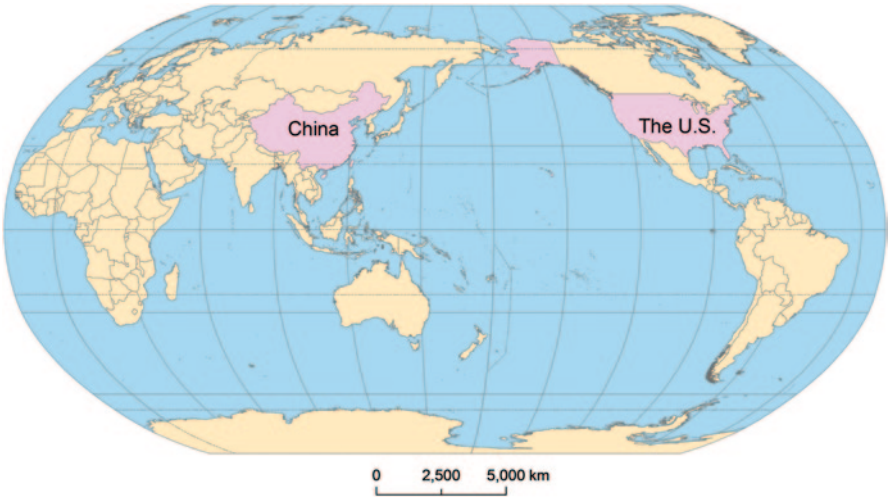

Fig. 1.6 Locations of China and the U.S

to assume that we have been living in a transitional period since the 1970s: from a world with the U.S. as single hegemonic power to a core group of competing countries including the European Union, the Soviet Union/Russia, Japan and China.

1.4 Economic Ranking in the World

China and the United States are both located at the circum-pacific belt which has become a leading trade region of the world (see Fig. 1.6). The economies of both China and the U.S. are part of this 'Pacific Rim' trade region. The Pacific Rim—originally a geographical term denoting the zone of crustal instability or 'ring of fire' around the Pacific Plate—includes most prominently Japan, South Korea, Taiwan, Hong Kong in Pacific Asia and Canada in North America—just to name of few of the leading economies which were part of a rapidly rising 'Pacific Rim' region in world trade during the 1970s and 1980s. Meanwhile the regional concept of Pacific Asia in world trade has been widely accepted. China and the U.S. are both members of the Asia-Pacific Economic Cooperation (APEC) which is a forum for 21 'Pacific Rim' countries. APEC members account for approximately 54 % of world GDP and about 44 % of world trade.

The rise of Pacific Asia in world trade is increasingly marked by the re-emergence of China as a leading economic power in Asia. The national economy of the People's Republic of China has gone through crucial periods of restructuring and modernization since new economic policies and the first special economic zones were established and implemented in the late 1970s and early 1980s.

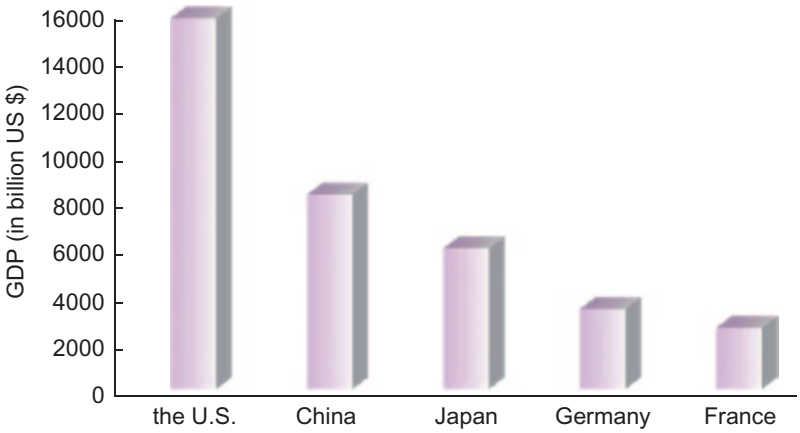

Fig. 1.7 Top five countries by GDP (nominal) in 2012. (International Monetary Fund 2013)

Consequently, the rank of China's GDP among the major economies worldwide improved dramatically: from rankings between numbers 20–30 in the 1950s and numbers 10–20 in the 1980s to currently a number two ranking (2012). Only the United States surpassed—according to statistics published by the IMF and the World Bank—China's GDP (see Fig. 1.7). China has had the fastest growing economy among the major countries for the past quarter of a century, with an average annual GDP growth rate of about 9%, even reaching14.2% in 2007 (Fig. 1.8). In recent years, the growth has slowed. Still, the country's per capita income ranks in the lower middle field by world standards, at about $ 4,940 (nominal, 113th of 213 countries/economies), and $ 8,430 (PPP, 94th of 213 countries/economies) in 2011, according again to statistics published by the IMF. While China's per capita income may lag behind other economic growth figures and rankings, it is worthwhile mentioning that poverty in the People's Republic of China has been significantly reduced. Since 1978 hundreds of millions of Chinese have been lifted out of poverty bringing the country's poverty rate down from 53% in 1981 to 8% in 2001 and 2.5% in 2005.

The economy of the United States is the largest national economy in the world. Its GDP was estimated at $ 15.68 trillion in 2010. The U.S. economy maintains a high level of output per person (GDP per capita (PPP), $ 49,922 in 2012, and ranked number six in the world according to IMF). Until the most recent economic down-turn, the U.S. economy has maintained a stable overall GDP growth rate, a low unemployment rate and high levels of research and capital investment funded by both national and, because of decreasing saving rates, increasingly by foreign investors. In 2008, 72% of the economic activity in the U.S. came from consumers.

Trade relations between the United States of America and the People's Republic of China have seen great improvements and are expressions of a greater connectedness of the economies of both nations. The total trade volume (imports and exports combined) between China and the U.S. has risen from $ 85.4 billion in 1998 to

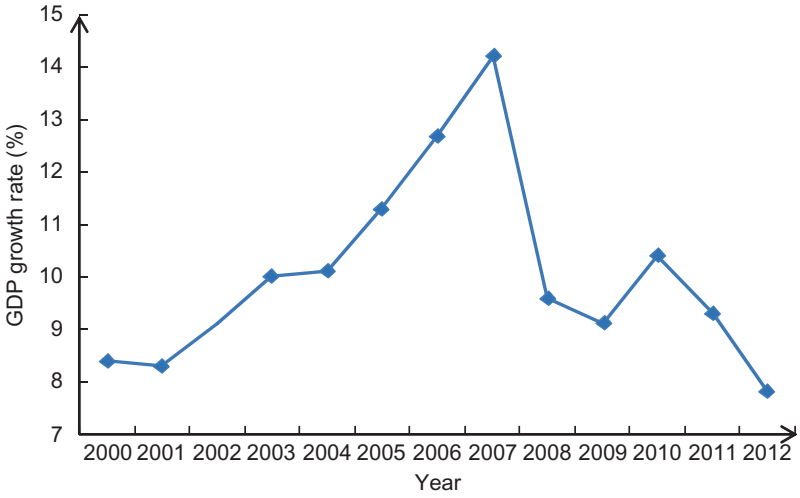

Fig. 1.8 GDP growth rate over the past 12 years in China. (http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG)

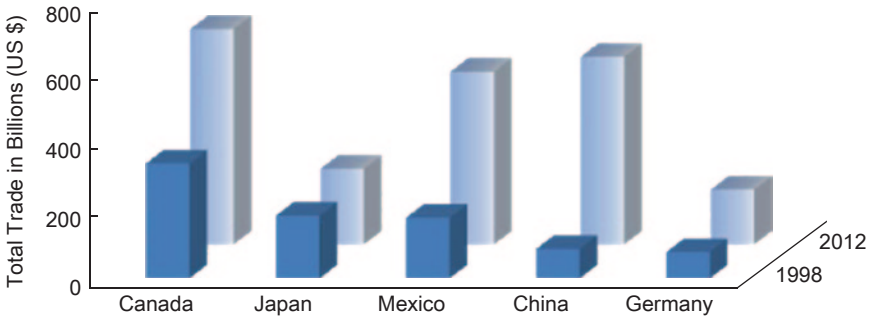

Fig. 1.9 Top five countries with which the U.S. trades. (Country trade report http://countryreport.mofcom.gov.cn/record/view.asp?news_id=23023; U.S. International Trade Data http://www.census.gov/foreign-trade/top/dst/2012/12/balance.html)

$ 536.23 billion in 2012 (see Fig. 1.9). China is now the second most important trade partner of the U.S. after Canada. In 2003, China surpassed Japan as the leading trade nation for the U.S. in Asia. Vice versa, the U.S. has also become more salient in China's trade relations worldwide. The U.S. is now—with the European Union and Japan—among the three leading trade nations of China. The U.S. remains China's biggest importer; Hong Kong, a Special Administrative Zone of the People's Republic of China since 1997 yet separately listed in trade statistics, comes in second. The trade deficit between the U.S. and China—with rapidly rising Chinese exports to the U.S.—has consistently increased over the past 5 years 2003–2008. Worldwide, The People's Republic of China is now ranked either number 3 or 4 in total international trade volume after the European Union, the United States and

Table 1.2 List of countries by carbon dioxide emission (millions of tons). (EDGAR: CO_2 time series 1990–2011 per region/country)

	2009	2010	2011
China	8,270,000	8,900,000	9,700,000
United States	5,330,000	5,530,000	5,420,000
India	1,750,000	1,860,000	1,970,000
Russia	1,740,000	1,780,000	1,830,000
Japan	1,180,000	1,260,000	1,240,000

Japan—with slightly diverging total trade figures for the two leading trade nations in Asia in the past few years.

While the U.S. and China represent the two leading economies of the world with far reaching ramifications for the health of the global economy, there are equally demands on both countries to take a lead on a greater responsibility for the ecological well-being of Planet Earth. One of the main concerns is the high energy consumption of both countries to sustain their economic growth. The consequences include the continued high and/or an increased output of greenhouse gases which is considered one of the main causes for climate change. China and the U.S. are the leading emitters of carbon dioxide and other pollutants that have negatively affected the atmosphere. In terms of carbon footprint both countries rank number one and two (see Table 1.2). China and the U.S. jointly contribute to more than 40 % of the carbon dioxide emissions worldwide.

There are, in particular, two critical trends as to carbon dioxide emissions. First, the U.S. shows a continued high output of greenhouse gases per capita. Very little progress has been made in the reduction of carbon dioxide emissions which has held steady at about 17.3 per capita which is the highest number among the industrialized countries in this respect. While the per capita figure is significantly lower for China, at an estimated 7.2 per capita for 2011, the total output of emissions has seen a dramatic increase from 2001 to 2009/2010/2011, from below 3,000,000 to above 8,000,000 million t of carbon dioxide emissions (estimates for 2010/2011).

Another way to measure a country's overall economic and social achievements beyond the mere use of the GDP per capita indicator is the Human Development Index (HDI)[1]. The annually released HDI index figures are a composite of three indicators: life expectancy at birth, an education index and a standard of living (GNI per capita) index. A HDI of 0.8 or more is considered to represent "high development". The 2013 report based on the 2012 figures saw 16 countries above 0.9 ("very high human development"). The top ten includes the U.S. (Number 3) and Japan (Number 10) with the remaining nations from the top ten list coming mostly from European countries. For several years Norway has had the highest recorded HDI. China and India, the two most populous countries of the world, are found in the mid field of these annual lists. China's current HDI is at 0.6999, which is close

[1] HDI is an index which is calculated and published by the United Nations Development Programme (UNDP); it gives a comparative assessment of the development of 185 nations represented within the UN.

to the "high human development" category. It is an indication that China while having gained enormously ground in recent years can still be considered a "developing country", though it is certainly in a rapid development phase.

1.5 Political Power in the World

Along with its impressive economic growth, China has attracted a lot of attention because of the increasing political power the country exerts in the world. In recent years, China has attained a status in Asia and worldwide that rivals that of the United States. While it is not the purpose of the book to examine the competition for world hegemony and to speculate on the changes that might have occurred in this respect, it is certain to say that U.S. and China are two countries with significant political power in the world that cannot be ignored. Both countries have an important impact on the globe and the world.

The political power of China and the U.S. is of concern in the context of the book as both countries have a rising responsibility for the wellbeing of humanity and its habitat. Our world faces the challenges of traditional risks such as natural disasters, economic recession, regional conflict, resource shortages and environmental degradation but also a bundle of new risks such as climate change, terrorism, genetic modification and other unknowns. Sustainable development, millennium goals and the future earth require close collaboration among the more powerful countries. China and the U.S. have to wisely use their political power to fulfill their joint responsibility for the future of our planet earth.

1.6 The Structure of the Book

The present text consists of 11 chapters which are organized in four parts:

1) General Overview Chapters: Introduction (Chap. 1) and the general presentation of the physical geography and population—ethnic geographies (Chap. 2 and 3) and a discussion of the main themes
2) Thematic Chapters focusing on agriculture and food production, economic geography, international trade, and mega-regions. (Chap. 4, 5, 6 and 7)
3) Regional Comparisons: Regional urban economic clusters, urban growth and sprawl, and main agricultural regions. (Chap. 8, 9 and 10)
4) Conclusions: The concluding chapter examines an increasing collaboration of Chinese and American scholars in international institutions, in particular, on global issues. The chapter stresses a need for continued and joint stewardship for our planet, with a list of issues and questions of sustainability for the future of China and the U.S. (Chap. 11)

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