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ABSTRACT

Afghanistan and its people are not well known or understood by the United States, yet many U.S. people now consider the U.S. and Afghanistan to be at war. How is it possible to know the enemy? This book offers a complete, but not exhaustive source of information about Afghanistan, the land and its people. The book is intended as a guide for anyone wanting to know more about Afghanistan, and as a resource with references to detailed descriptions of the many physical and human sub-disciplines of geography. An approach to doing geography, the regional method is best described as a synthesis of all the pertinent subfields of the discipline applied to a specific region. Following a "Foreword" (Wendell C. King), chapters in the book are: (1) "Introduction" (Eugene J. Palka); (2) "Location" (Wiley C. Thompson); (3) "Geomorpholgy" (Matthew R. Sampson); (4) "Climatology" (Richard P. R. Pannell); (5) "Biogeography" (Peter G. Anderson); (6) "Historical Geography" (James B. Dalton); (7) "Cultural Geography" (Jon C. Malinowski); (8) "Political Geography" (Andrew D. Lohman); (9) "Economic Geography" (Albert A. Lahood); (10) "Urban Geography" (Brandon K. Herl); (11) "Population Geography" (Dennis D. Cowher); (12) "Medical Geography" (Patrick E. Mangin); and (13) "Conclusion" (Eugene J. Palka). (Contains 71 references and 32 figures/maps/tables.) (BT)

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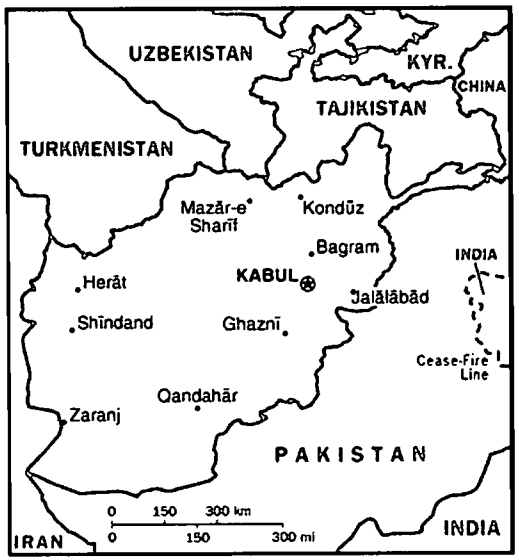
AFGHANISTAN:
A REGIONAL GEOGRAPHY



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AFGHANISTAN:
A Regional Geography

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FOREWORD

September 11, 2001, is a day that will be etched in the memory of this generation of Americans for all time, and may well prove a turning point in history for our Nation. The direction we turn will depend on our resolve to act as a Nation. The aftermath of terror has left America anxious to act, yet looking for answers. Who could have done this horrible act of terror? Why did they do it? And, perhaps most importantly, how do we stop these acts in the future?

Now, only days after this national tragedy, we still have more questions than answers, but one person and one place has been the focus of our national attention, Osama bin Laden and Afghanistan. Bin Laden is a rich, mysterious Arab of Saudi Arabian decent, who has expressed a sworn hatred for America, couched in his dogmatic version of an ultra fundamentalist Islamic religious belief. The world was introduced to bin Laden as he became a notable figure during his involvement with fighting the former Soviet Union in Afghanistan, the place most in the minds of Americans today.

Afghanistan and its people are not well known or understood by America, yet many Americans now consider the US and Afghanistan to be at war. How should we deal with this abjectly poor country nearly half way around the world, a land of barely 28 million people, thousands of whom are fleeing right now, seeking refuge in adjoining countries to escape the harsh rule of the Taliban? Again, more questions arise. Who are the Taliban? What do they represent? And, why are we enemies?

Ultimately we must decide how we, as a Nation, will respond to these assaults on our security and peace. The first rule of conflict was recorded in the very earliest records of war and strategy. "Know the enemy, know yourself; and your victory will never be endangered. Know the ground, know the weather; and your victory will then be total." So stated Sun Tsu in *The Art of War, w*ritten some time before 200 BC. Some find this guidance passé, made obsolete by modern war. Many, however, including B.H. Liddell Hart, one of the most respected military scholars of the twentieth century, find the advice of Sun Tsu to be still valid for military strategists today. Quoting Hart "... in that one short book was embodied almost as much about the fundamentals of strategy and tactics as I had covered in more than twenty books." It is to "know the enemy, and to know the ground," that serves to motivate us to produce this publication.

How do we go about the task of knowing our enemy--- answering all of those questions posed above? Again, I think we can find the answer in the writings of the great military thinkers throughout history. Whether reading Sun Tsu, Liddell Hart, or Clausewitz, the importance of geography in planning military operations is absolutely clear. Further, the tools and methods of analysis of the geographer, which describe a place, its people, and how they interact, systematically yield a basis for the strategic military analysis that is critical to successful military planning.

The authors of this book are uniquely qualified to offer a special perspective on Afghanistan, the land and its people. First, they are trained geographers, academically and experientially qualified to examine the country over the gamut of physical and cultural disciplines. But more, they also are experienced military officers, and in some cases, military geographers who can add focus to unique military concerns of the geography.

Our goal is to offer a complete, but not exhaustive source of information about Afghanistan and its people. In considering this project, an expeditious review of the existing literature was conducted and we found much data, some good, some not very accurate. What was missing was a synthesis of data into a conceptual understanding of the critical issues related to our security concerns with Afghanistan. This publication does not propose a strategy or policy. The latter must necessarily follow "know your enemy...know the ground", and will be the focus of others. This publication provides a view of a place and its people, a perspective that considers the culture, its history, and the physical environment. It is intended as a guide for anyone wanting to know more about Afghanistan, and as resource with references to detailed descriptions of the many physical and human sub disciplines of geography that are summarized here.

-Wendell C. King

1
INTRODUCTION

Geography is one of the broadest academic disciplines that has maintained a constant presence within university curricula in America. The discipline's breadth has been variously characterized as geography's major strength, as well as its "Achilles heel." The breadth of the discipline is a strong point in that it enables practitioners to examine a wide-range of problems, at various scales, at different points in time, and across disciplines, from a unique spatial perspective. On the other hand, geographers are frequently referred to as "fence-straddlers" because they have no subject matter of their own, but rather rely on other disciplines.

Figure 1.1 depicts this unusual relationship between geography and other academic disciplines. Where geography overlaps with other disciplines, distinct subfields of geography emerge. While each of these systematic geographies can be studied individually, they are also routinely examined in a collective fashion within the context of particular places or regions. Thus, by definition, most regional geography is both interdisciplinary and multidisciplinary. Geography is not, however, defined by the overlaps with other disciplines, but by its unique spatial perspective, methodologies, tools, and techniques.

Regional geography is the discipline's most important overarching method. Regional geography has been often referred to as the "highest form of the geographer's art." As an approach to doing geography, the regional method is best described as a synthesis of all of the pertinent subfields of the discipline applied to a specific region. All regions have area, location, and boundaries and are based on whatever criteria geographers choose to define them. As organizing principles, regions refer to areal extents of the earth's surface that enable the geographer to compare and contrast different places so that one can ultimately reach a degree of proficiency in areal differentiation. Simply put, the latter enables one to distinguish one place from all others within a global context so that we can better understand the physical and human world in which we live.

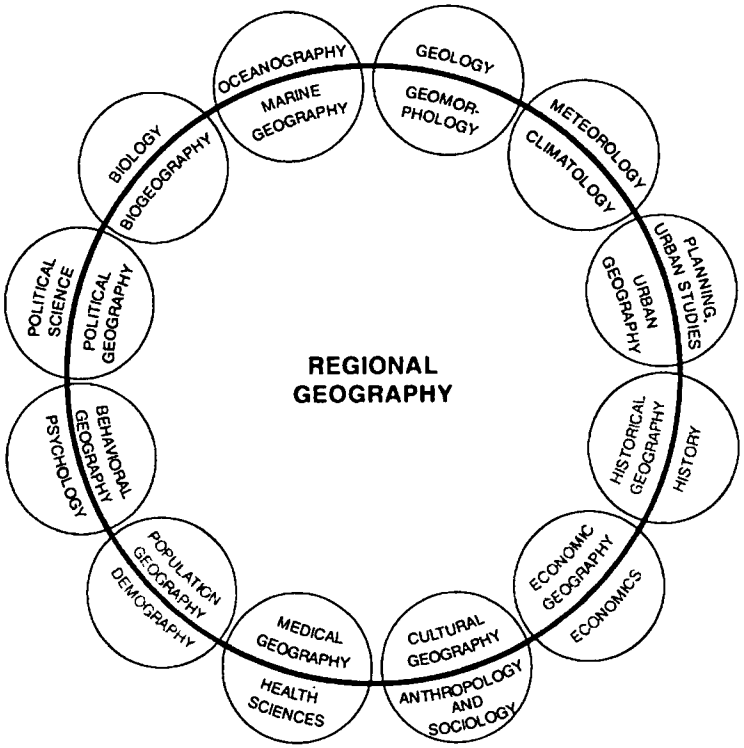

Figure 1.1: Relationship between Regional and Systematic Geography
Source: De Blij and Muller, 2002.

The intent herein is to provide a regional geography of Afghanistan, a state that has not been in the American conscious for at least a decade or so, and even then, our concern was perhaps more related to the Soviet involvement within the country rather than with the country itself. In order to provide academics, military planners and leaders, and government officials with current, accurate, and relevant information on Afghanistan, we have integrated material from the appropriate subfields in geography, and we have further synthesized the material in order to provide an appreciation for the distinguishing characteristics of the country. Of the subfields depicted in figure 1, this regional geography considers the geomorphologic, climatologic, biogeographic, cultural,

historical, political, economic, urban, population, and medical subfields to be most appropriate for this work. We begin with a focus on the natural environment, describing various aspects of physical geography. We subsequently transition to a discussion of the inhabitants and their way of life using a human geographic framework. Ultimately, we focus on the interaction between people and their natural surroundings and identify the unique culture that has emerged within the country.

The desired endstate of our efforts is not the definitive geography of a physically and culturally diverse place that is roughly the size of Texas. Nor is our treatment suitable as a pre-deployment handbook that ought to be carried in the cargo pockets of individual soldiers. Rather, our hope is to provide a point of departure for more detailed studies, and to offer a well-organized, informative, easy-to-use reference that fills an existing void for personnel who have a vested interest in Afghanistan.

-Eugene J. Palka

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2
LOCATION

ABSOLUTE LOCATION

One of the keys to understanding the importance and complexity of Afghanistan and its role in current events lies in its location. As geographers seek to answer the question of "where" in their regional analysis, they examine the concept of location in two ways. The first way to examine a region is in terms of its **absolute location**. The latter is a fundamental geographic concept that refers to the exact position of a place on the surface of the earth. One often sees absolute location expressed in terms of latitude and longitude or some other coordinate system. The geographic center of Afghanistan lies at approximately 33° North latitude and 65° East longitude (Fig 2.1).

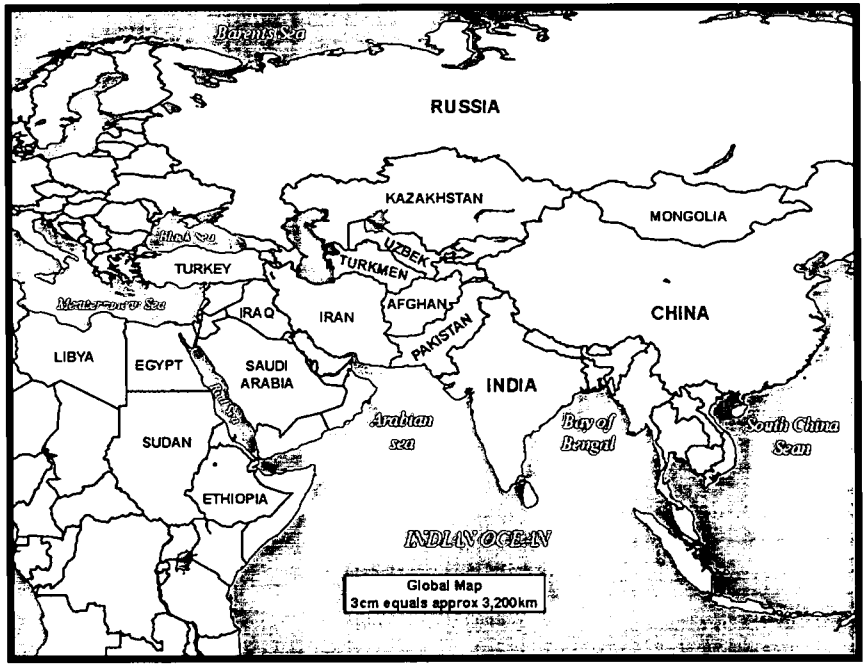

Figure 2.1: Location of Afghanistan, Global Scale (33° N, 65° E).
Source: Author.

The north-south extents of Afghanistan's borders run from 38° 26' N in the northeastern corner to 29° 23' N along it's southern border. A **proruption** into the Hindu Kush Range makes Afghanistan appear to be deceptively wide as its west-east extents run from 60° 34' E to 74° 53' E. This east-west extent of 1300 kilometers is equivalent to the distance from New York City to Ft. Lauderdale, FL. The entire country is located within the + 4:30 time zone.

What does Afghanistan's absolute location mean to the deploying soldier? It means that to reach the capital of Afghanistan, Kabul, a soldier deploying from Ft Bragg, NC must cover 11,594 kilometers. This non-stop flight would take approximately thirteen hours. A soldier deploying non-stop from Ft Lewis, WA to Kabul would cover 10,858 kilometers during his twelve and one-half hour flight.

Figure 2.2: Regional Map of Afghanistan.
Source: Author.

RELATIVE LOCATION

Another method by which geographers answer the question of "where" is through the concept of **relative location**. The latter concept describes the location of a place relative to the position of other places and things. The relative locational perspective is affected by distance and accessibility to other resources and influences within the larger region or realm. The relative location of a region is a key element in the geographer's analysis of the historical, cultural, political and economic geography of a region. As such, only a cursory introduction to Afghanistan's relative location will be given now, saving the critical analysis for later chapters.

Afghanistan is a central Asian, landlocked country that is bordered by Turkmenistan, Uzbekistan and Tajikistan to the north, China to the east, Pakistan to the east and south and Iran to the West (Figure 2.2). The

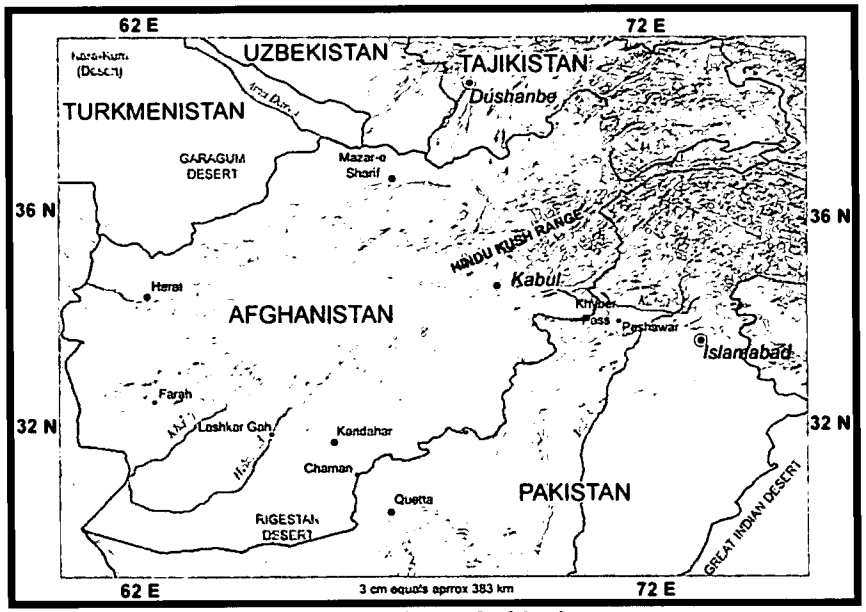

Figure 2.3: Local map of Afghanistan.
Source: Author.

country is only slightly smaller in size than the state of Texas, but finds itself at the crossroads of western Asia. It has played the role of a **buffer state** between the former Soviet and British Empires, and although Afghanistan has been an independent country since 1919, its proximity to the former empires has left a lasting imprint on its landscape and people. The country, with its high, rugged mountains in the east and its arid plains in the north and southwest, has played the role of a religious buffer as the practices of Shia and Sunni Islam, Sikhism, Hinduism, and Buddhism converge in this region. While the ruling Taliban party adheres to a fundamentalist form of Islam, the proximity of other religious groups undoubtedly can be viewed as a **centrifugal** or dividing force within the country. Likewise, Afghanistan's relative location to other distinct and diverse cultures in the region is apparent in the many ethnicities and languages found within its political borders.

The concepts of absolute and relative location are key to geographer's analysis and understanding of a region. These concepts can and will be applied to the various themes or geographic subfields as the authors focus on how the people have interacted with their neighbors and the surrounding environment. It is through this framework that the geographer can better explain the physical and human geography of Afghanistan.

-Wiley C. Thompson

3
GEOMORPHOLOGY

Geomorphology is the study of landforms and the processes that shape them. It entails understanding the terrain, or the lay of the land, and how it got that way. The geomorphic processes that shape the earth's surface include weathering and erosion. The former breaks down surface materials either by physical or chemical means. The latter refers to the movement of weathered surface material by wave action, running water, blowing wind, or glacial ice. The result is a dynamic landscape that is continually being reshaped by the forces of nature. Depending on the dominant geomorphic forces at work, distinct physical landscapes will result. If tectonic forces are dominant for example, they would cause a mountainous landscape. Geographers often categorize these distinct landscapes into geographic regions.

GEOGRAPHIC REGIONS

Afghanistan is dominated by rugged, mountainous terrain. The massive Hindu Kush Mountains form a barrier between the Northern provinces and the rest of the country. This mountain range divides Afghanistan into three distinct geographic regions: the Central Highlands, the Northern Plains, and the Southwestern Plateau ("Land and resources" 2001).

THE CENTRAL HIGHLANDS

The Central Highlands comprise about 70% of Afghanistan. This region consists primarily of the Hindu Kush, which occupies the center of the country. It is a rugged, snowbound highland that is one of the most impenetrable regions in the world (English 1984). The Hindu Kush range extends for about 1,000 kilometers in a southwesterly direction from the Vakhan Corridor in the northeast almost to the border with Iran in the west. From the Hindu Kush, other lower ranges radiate in all directions.

The Hindu Kush forms the western extremity of the Himalaya and consists primarily of granites and schists that were probably uplifted during the Tertiary period (66 – 2 million years ago.) Within the system there are also areas marked by the overthrust of Cretaceous limestones on

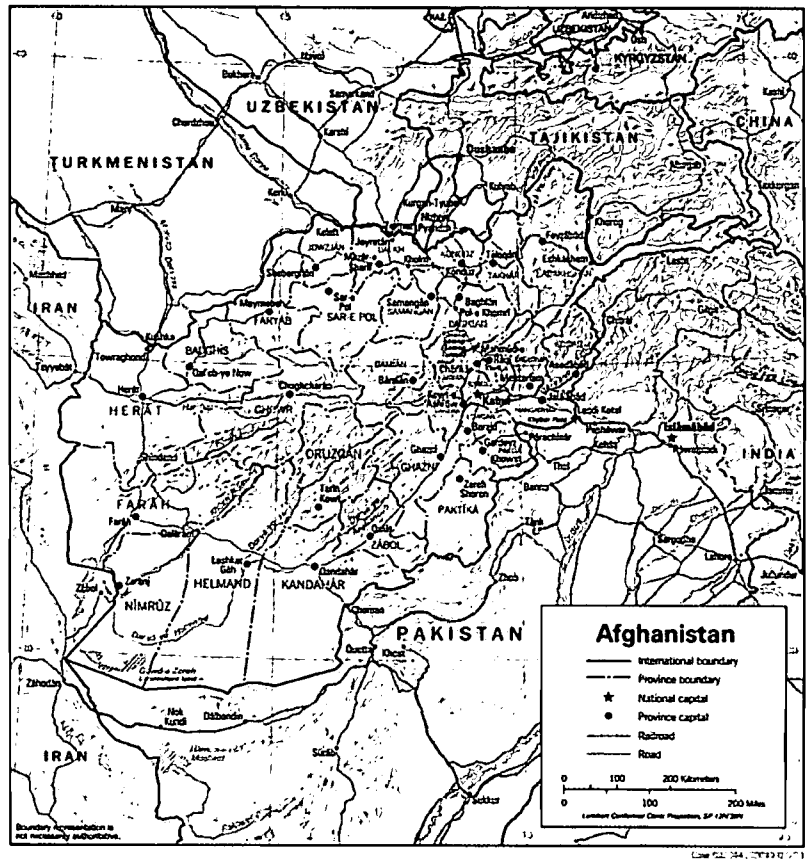

Figure 3.1: Shaded Relief Map of Afghanistan
Source: CIA Worldbook, 2001

Cenezoic shales and clays ("Hindu Kush," Microsoft® Encarta® Online Encyclopedia 2001). The average elevation of this mountainous region is 2,700 meters and the highest peak, Nowshak, reaches 7,485 meters in the northeast. Small glaciers and year-round snowfields are common (Lonely Planet 2001). In the first 160-kilometer section west of the Pamirs, the Hindu Kush extends southward. In this section the system has a comparatively wide, plateau-like summit, dotted with small glacial lakes,

and passes ranging in height from 3,800 to 5,300 meters above sea level. The system then turns southwest and gains in elevation, and the plateau summit breaks into peaks, the highest of which is Tirich Mir, 7,690 meters, in Pakistan. Many other peaks in this section rise more than 6,100 meters ("Hindu Kush," Microsoft® Encarta® Online Encyclopedia 2001).

Other major mountain ranges within Afghanistan include the Pamirs in the upper northeast of the Vakhan Corridor, the Badakhshan Ranges in the northeast, the Parapamisus Range in the north, and the Safed Koh range, which forms part of the frontier between Afghanistan and Pakistan.

THE SOUTHERN PLATEAU

This region of Afghanistan is made up of high plateaus and sandy deserts. It is essentially the lowland area of Afghanistan and includes the Turkistan Plains, the Heart-Ferah Lowlands of the extreme northwest, the Sistan Basin and Helmand River valley of the southwest, and the Rigestan Desert of the south ("Afghanistan," Microsoft® Encarta® Online Encyclopedia 2001). The soil here is very infertile, except along the rivers in the southwest. The average altitude of this area is about 900 meters above sea level. Sand storms are common in the deserts and arid plains of this region ("Land and resources," Microsoft® Encarta® Online Encyclopedia 2001).

THE NORTHERN PLAINS

The most fertile part of Afghanistan, this region comprises about 15% of the country. It consists of foothills and plains through which the Amu Darya flows. The average elevation is about 600 meters above sea level ("Land and resources," Microsoft® Encarta® Online Encyclopedia 2001).

PASSES

Because Afghanistan has so many high mountains, the passes through them have been of profound importance in the history of the country. In the 320s BC, Alexander the Great invaded the country through the Kushan Pass (about 4,370 meters) in the west and exited it to the east through the low Khyber Pass (1,072 m/ 3,517 ft) to invade India. The famous Salang Pass (3,880 meters) and its Soviet-built tunnel in the central Hindu Kush was one of the main routes the Soviets used to invade

Afghanistan in 1979 ("Afghanistan," Microsoft® Encarta® Online Encyclopedia 2001).

Khyber Pass is the most important pass connecting Afghanistan and Pakistan. It is controlled by Pakistan and winds northwest through the Safed Koh near Peshawar, Pakistan, for about 48 kilometers to Kabul, Afghanistan, varying in width from 5 to 137 meters. The mountains on either side can be climbed only in a few places. Steep cliffs that surround the pass vary in height from about 180 to 300 meters ("Khyber Pass," Microsoft® Encarta® Online Encyclopedia 2001).

EARTHQUAKES

The northeast portion of Afghanistan is one of the most seismically active areas in the world. In terms of **plate tectonics**, this is an area where a **transform boundary** exists between the Eurasian plate and the Indo-Australian plate. For the past 65 million years, the Indo-Australian plate has been moving in a northeasterly direction converging with the Eurasain plate, resulting in the Himalayas. These two plates slide past one another in the area of Afghanistan and Pakistan, which produces frequent earthquakes (Hudson and Espenshade 2000). Recent earthquakes include one in Takhar province on 4 February 1998, about 50 kilometers from the border with Tajikistan. The earthquake (magnitude 6.1 on the Richter scale) affected 28 villages, killed about 4,000 people, and left another 20,000 without shelter ("Thousands reported killed in Afghanistan quake" 1998). On 20 February 1998 another strong earthquake occurred in northeastern Afghanistan with a magnitude of 6.4 on the Richter scale. No injuries or deaths were reported (OCHA 1998). Just three months later, on 30 May, a magnitude 6.9 earthquake occurred along the boundary of Badakshan and Takhar provinces, again in northeastern Afghanistan (Figure 3.2). Approximately 4,000 people were killed, and as many as 70,000 people in 70 villages were affected ("Impact of the earthquake" 1998).

In the mountainous areas of Afghanistan, earthquakes can trigger devastating landslides. Landslides of mud, made worse by heavy rain in the days preceding the 30 May earthquake, caused immense destruction, making road access impossible in many areas. Simple rural dwellings perched on the mountainsides were simply swept away. The landslides also destroyed water sources with the collapse of wells and springs ("Impact of the earthquake" 1998).

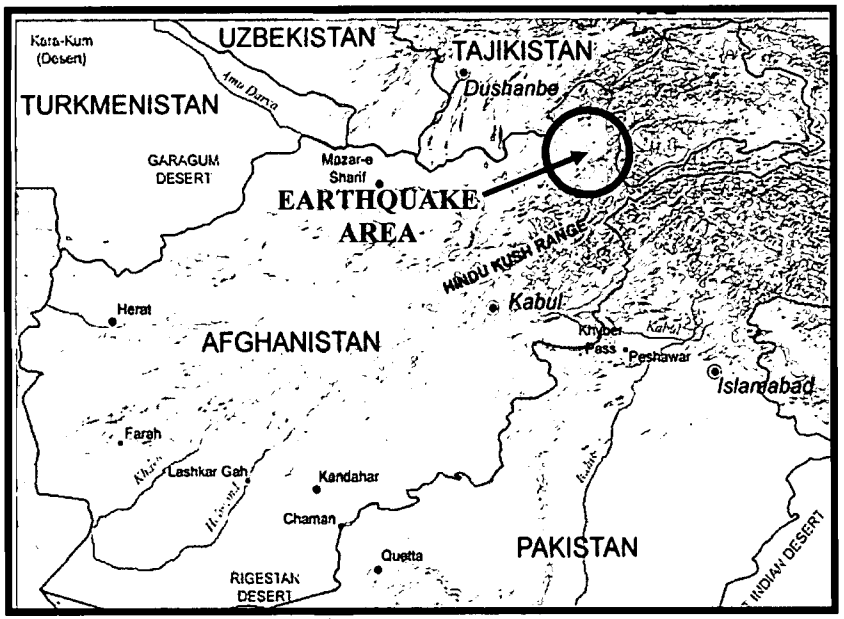

Figure 3.2: Magnitude 6.9 Earthquake on 30 May 1998
Source: "Impact of the earthquake," 1998

RIVERS

Many of Afghanistan's major rivers are fed by mountain streams. Consequently, the greatest stream flow occurs in the late spring and early summer with the arrival of snowmelt from the mountains, bringing with it the danger of flooding. The Amu Darya is the largest river of Central Asia and measures 2,540 kilometers in length. The Amu Darya's main tributaries are the Panj and Vakhsh rivers, which both rise in the Pamirs. The Panj forms part of the boundary between Tajikistan and Afghanistan, and the Vakhsh flows through southwest Tajikistan to join the Amu Darya at the Afghan border. The Amu Darya follows a northwest course between Tajikistan and Afghanistan, continues northwest between Turkmenistan and Uzbekistan, and then flows north through Uzbekistan into the Aral Sea. Over the centuries the river has shifted its course several times. In the 3rd and 4th millennia BC the Amu Darya flowed westward from the Khorezm Oasis into Lake Sarykamysh, and from there to the Caspian Sea. From the 17th century until the 1980s the Amu Darya emptied exclusively into the Aral Sea, except during periods of intense

flooding, when overflows went into Lake Sarykamysh ("Amu Darya," Microsoft® Encarta® Online Encyclopedia 2001).

During the 1980s several years passed in which little or no water reached the Aral Sea from the Amu Darya. The largest single cause of the decline in the river's water level is the Garagum Canal, the longest canal in the former Soviet Union and one of the longest in the world. Near the town of Oba the canal diverts water from the river at the rate of about 12 cu km per year—about one-ninth of all the water diverted in the Aral Sea basin. Reduced water flow has restricted water transportation on the Amu Darya, which was once navigable for light draft vessels over nearly half its length ("Amu Darya," Microsoft® Encarta® Online Encyclopedia 2001). Still, it is the only navigable river in Afghanistan, although ferryboats can cross the deeper areas of other rivers. The Harirud River rises in central Afghanistan and flows to the west and northwest to form part of the border with Iran. The long Helmand River rises in the central Hindu Kush, crosses the southwest of the country, and ends in Iran. It is used extensively for irrigation and agriculture, although in recent years its water has experienced a progressive build up of mineral salts, which has decreased its usefulness. Most of the rivers end in inland seas, swamps, or salt flats; the Kabul River is an exception. It flows east into Pakistan to join the Indus River, which empties into the Indian Ocean ("Afghanistan," Microsoft® Encarta® Online Encyclopedia 2001).

SUMMARY

Afghanistan is best described as a rugged landscape with significant vertical relief covering an extensive portion of the country. Underlying processes continue to shape the earth's surface in the region and produce unpredictable, if not catastrophic changes to the physical landscape. These internal and external processes continue to contribute to regional isolation among the country's inhabitants and pose a formidable barrier to anyone who attempts long distance travel within the country.

-Matthew R. Sampson

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4
CLIMATOLOGY

INTRODUCTION

Climatology is the subfield of geography that examines the long-term conditions of the atmosphere and the interactions between the atmosphere and the Earth's surface. Climate profoundly influences a host of environmental processes such as vegetative growth, soil formation, watershed hydrology, and geomorphic denudation. Climate also influences human activities in a number of ways ranging from the development of agriculture practices to the conduct of military operations. The term climate is often referred to as the "average weather" of a location, but this is overly simplistic and misleading. Climatology can be used to examine the spatial distribution of atmospheric extremes, atmospheric teleconnections, and atmospheric variability in addition to organizing the patterns of average conditions. Depending on the spatial scale considered or the timeframe used, a variety of different patterns emerge in the analysis of any region. As the spatial scope narrows and as the timeframe shortens, a host of factors internal to the climate system begin to play an increasingly important role in developing a clear analysis of "average" atmospheric conditions. Factors such as topography, vegetation, regional pressure variability and even El Niño phases may play an important part in determining the climate for a particular season or particular year. This is especially important in our analysis of Afghanistan.

While the average conditions of Afghanistan at first glance appear to be associated with an arid desert or semiarid steppe climate, the reality is much different due to macro scale pressure oscillations associated with the Asian monsoon, the massive Hindu Kush mountain range that bisects the country, and ongoing drought (since 1999) that has lasted for almost three years. In order to develop a working climatology of Afghanistan, it is useful to first examine the mean climate conditions based on the data available. After an examination of the regional climatology, climate controls will be assessed and the influence of other factors, such as local topography, altitude, and wind patterns will be addressed to develop a clearer picture of the local climate in several areas of the country. Finally,

an examination of climate variability is made, particularly in light of the factors influencing the potential for continued drought.

GENERAL

Afghanistan sits astride the 35th parallel, making it similar in latitude to the states of New Mexico and Arizona. In some respects the climate of Afghanistan is similar as well, exhibiting subtropical to mid latitude steppe in most areas while other areas are drier subtropical deserts. For the purposes of our climate analysis, Köppen's climate classification system as modified by Trewartha is used to describe climate types (GWA 2000). Figure 4.1 shows the regional Köppen climate classification. Like the desert Southwest, Afghanistan has hot summers and cool winters, although winters in the Afghani highlands are more extreme. Summertime high temperatures frequently exceed 38°C particularly in the

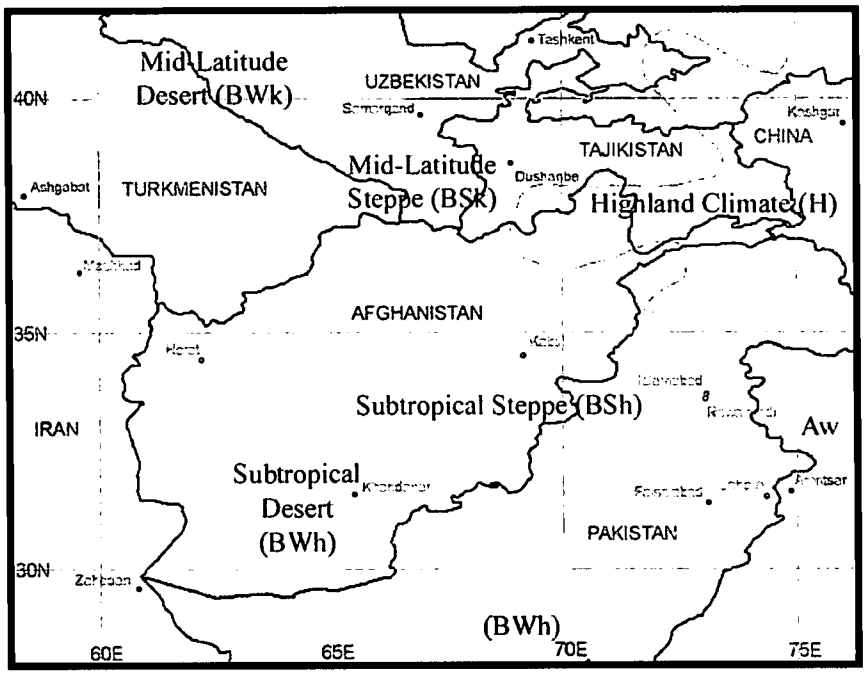

Figure 4.1: Regional Köppen climate classification applied to Afghanistan.
Source: Modified from Air Force Combat Climatology Center, 2001.

Southwest regions, while wintertime lows can reach below -25°C (AFCCC 1995). The presence of high mountains influences local climates by decreasing temperatures at high altitudes and affecting the precipitation regimes. The climates, however, are very different. Unlike the Southwest U.S., the majority of precipitation occurs in the winter and early spring in Afghanistan where conditions in many areas such as Kabul are cloudy, foggy, and snowy. Periods of increased precipitation often result in flash flooding as ephemeral stream channels are quickly filled by thunderstorm activity or monsoon-like rains (AFCCC 2001). These differences in climate can be attributed to a host of climate controls that operate differently in Afghanistan than in the Southwest.

CLIMATE CONTROLS

Climate controls influence a variety of climatic variables such as temperature, temperature range, precipitation, and wind. Theses controls provide an insight to the critical factors that determine the climate and weather regimes of Afghanistan. Some climatic factors such as ocean currents play very little role in determining Afghanistan's climate due to its location in the interior of the Asian continent. Other controls such as latitude, **continentality,** and topography are central to explaining the climate of the country. In examining these climate controls, **climographs** such as those of Khandahar and Faizabad in Figure 4.2 are used.

The amount of incoming solar radiation or **insolation** that Afghanistan receives is primarily a function of its latitude. Between 29° and 38° north latitude, Afghanistan lies just north of the subtropics. As a result, the country receives relatively high amounts of insolation, particularly in summer when the northern hemisphere is tilted towards the sun and periods of daylight are longer. This results in warm temperatures with daily maximum temperatures across the country often exceeding 38°C. Additionally, this high level of insolation creates high potential **evapotranspiration** rates affecting the availability of soil moisture. Winter insolation is considerably less as the sun is lower on the horizon and day lengths are shorter, resulting in cooler temperatures.

In addition to the variability of insolation in Afghanistan, the location of the country within the Asian landmass results in broad annual and daily temperature ranges. The rapid heating and cooling of the land surface due to its relatively low specific heat result in a controlling factor

known as continentality (McKnight 2002). As a result, periods of heating such as summer or the middle of the day can result in rapid temperature increases, while periods of reduced insolation such as winter or nighttime result in rapid cooling. This situation creates climates of extreme temperatures from summer to winter or even from day to night. Figure 4.2 shows broad annual temperature ranges over 20°C for both stations.

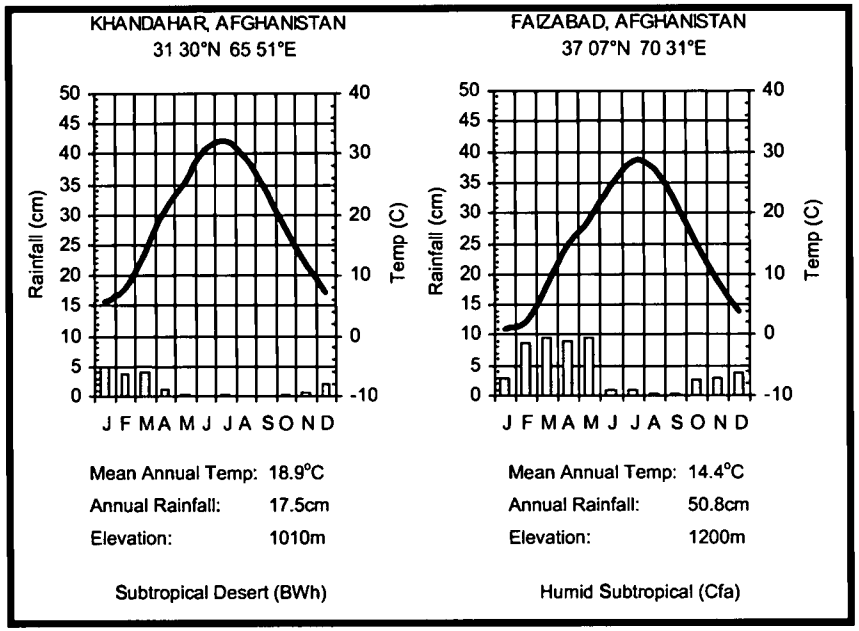

Figure 4.2: Köppen climographs for Khandahar and Faizabad.
Source: Data from Air Force Combat Climatology Center, OCDS, 1995

The temperatures in Afghanistan vary widely due to the variability in topography. Altitude has a dramatic effect on temperatures. Air temperatures decrease as elevation increases as a function of the environmental lapse rate, which averages about 6.5°C per 1000 meters of elevation. With much of Afghanistan dominated by the Hindu Kush Mountains, altitude must be considered carefully. With peaks exceeding 5000 meters, these mountains have temperatures that may vary by 10 to 20 degrees Celsius over relatively short horizontal distances. Such variability

in temperatures makes it very difficult to characterize broad regions as having uniform climate types. As a result, within the Köppen climate classification, the use of undifferentiated highlands climate (type H) is used to designate these areas.

Precipitation regimes in Afghanistan are largely controlled by surface pressure changes and the effect of **orographic** precipitation. Winters are influenced by the Siberian high pressure system which spreads cold, dry continental air outward in all directions and pushes the subtropical jet stream south of the Himalayas. During this period prevailing winds are typically from the northwest or north. This results in the potential for storms from the western Mediterranean to track across Afghanistan every few days. As a result, the potential for precipitation is greatest in the winter and early spring and is often in the form of snow. As the Asian landmass heats up in summer, the subtropical jet shifts North of the Himalayas and the area of Afghanistan receives warm dry air from the north and northeast resulting in little to no precipitation. Typically blocked by mountains, the southwest monsoon that affects India and Pakistan can on occasion cause thunderstorms in eastern Afghanistan for three or four days at time (AFCCC 1995).

The influence of topographic barriers has a dramatic effect on precipitation regimes throughout the country. Orographic precipitation on the windward side of mountain ranges is common as moist air is forced upwards and cooled adiabatically. In the winter this is common, particularly as low-pressure systems track from the northwest over the Hindu Kush. For example, the Salang Tunnel region amidst the highest peaks of Afghanistan averages almost 130cm of precipitation a year (figure 4.3). By contrast, on the leeward side of mountain ranges air descends and warms adiabatically resulting in a "rainshadow" effect where the air is warmer and much drier. The city of Chakhcharan in central Afghanistan is on the leeward side of the Paropamisus Range and receives less than 25cm of precipitation (AFCCC 1995).

By examining the climate in Afghanistan in terms of controlling factors, it becomes apparent that the generalizations of climate types in Figure 4.1 are inadequate. By considering these climate controls and by examining climate data from existing stations in Afghanistan a better understanding of climatic regions can be established.

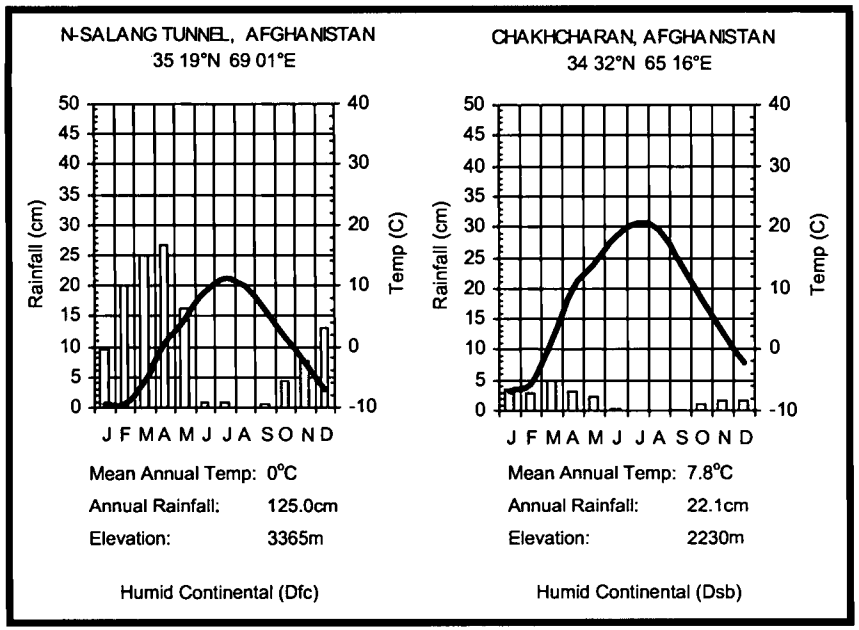

Figure 4.3: Köppen climographs for Salang Tunnel and Chakhcharan.
Source: Data from Air Force Combat Climatology Center, OCDS, 1995.

CLIMATE REGIONS

Analysis of climate data from multiple stations creates a much different picture of the regional climate. By examining the local climate classifications of the thirteen climate stations in figure 4.4 and considering the climate controls that influence the country, a better climate picture emerges. Figure 4.4 illustrates a more appropriate pattern of climates supported by the available data from the Air Force Combat Climatology Center.

Clearly the Hindu Kush Mountain Range plays a dominant role in determining local climate. The analysis of climate stations at Chakhcharan, Salang Tunnel and Faizabad demonstrate the variety of climates that can be found within these highland areas. Both Chackcharan and the Salang Tunnel are humid continental (Type D) climates while Faizabad is actually a humid subtropical (Type C) climate. The increased

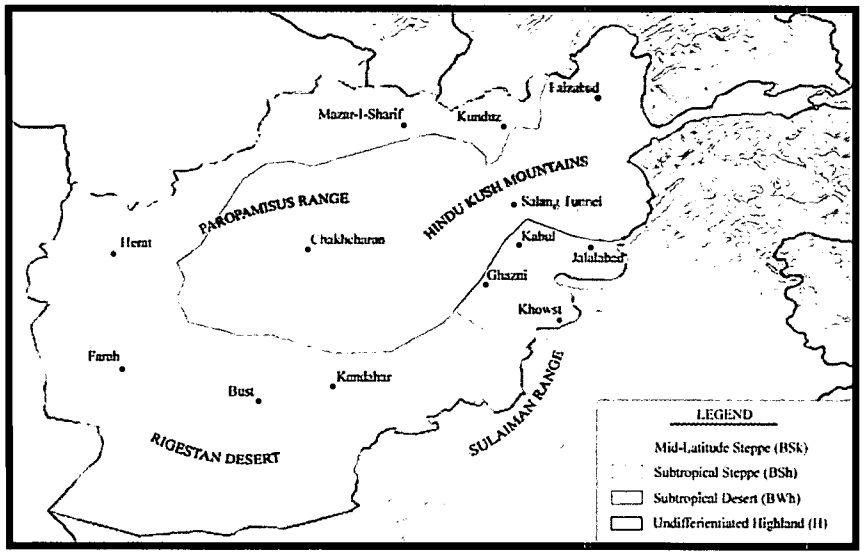

Figure 4.4: Regional climate patterns based on station data.
Source: Data from Air Force Combat Climatology Center, OCDS, 1995.

precipitation due to orographic lifting and the cooler temperatures result in very unexpected climates for the region. Variability in altitude, slope aspect, and prevailing winds make the central highlands of Afghanistan difficult to characterize. As such, the latter are labeled as Undifferentiated Highlands (H). Extreme conditions are the norm here and severe events such as heavy snowfall ensure that the roads and trails are impassable for periods of weeks or months. It is common for the high passes to be closed from November through late March and snow pack is permanent for elevations above 3,655 meters (AFCCC 1995).

The northern region around Mazar-I-Sharif is classified as a subtropical desert (BWh) climate based on average temperatures above freezing and little precipitation. The precipitation that does occur peaks in the early spring and is highly variable. Again, this is dependent on the strength of the Siberian high. Surrounding the region are areas of variable rainfall and may be classified as subtropical steppes (BSh) in some cases. Kunduz to the east is one of these areas that receives more rainfall. However, with the drought of 1999-2001, the current climate is likely to be more desert-like. To the southwest conditions are wetter due to the increased frequency of low-pressure disturbances. The area around Herat

is a subtropical steppe (BSh) climate, but here again, precipitation may be highly variable.

The southern region of the Rigestan desert is the largest expanse of desert in the country. The area around Khandahar, Bust, and Farah is dominated by the subtropical high throughout the year and is extremely dry. The mountain ranges north of this region protect it in the winter from the effects of the northeast monsoon resulting in dry winters, although temperatures may fall below freezing. Summers are extremely hot with temperatures exceeding 45°C in July (AFCCC 1995).

Finally, in the eastern steppe areas around Kabul and Jalalabad, conditions are cooler and moister, particularly in winter. Near the Pakastani border data indicate that both Jalalabad and Khowst are subtropical steppe (BSh) climates. However, there is a climate gradient indicated westward as elevations increase. Both Kabul and Ghazni are at considerably higher elevations and average monthly temperatures in winter are below freezing resulting in the classification of mid-latitude steppes (BSk) in these areas. All of these areas are subject to migratory low-pressure systems in winter and are occasionally cloudy and rainy during these periods.

CLIMATIC ANOMALIES

Up to this point, the spatial patterns of climate types in Afghanistan have been examined using climate data, climate controls, and narrative climatologies from the Air Force Combat Control Center. However, none of these resources can completely account for the presence of long-term drought that has gripped the country since January of 1999. Such a severe drought represents a significant anomalous pattern from the expected climate norm. The cause of these droughts is closely related to the lack of precipitation in the winter and spring, which in turn is linked to the strength of the Siberian high pressure. The stronger the Siberian high, the more likely westerly low-pressure systems will be blocked from reaching Afghanistan. In addition to the blocking of low-pressure systems, surface temperatures have been anomalously high in Afghanistan over the last year. This leads to increased potential evapotranspiration, thereby exacerbating drought conditions. Typical evapotranspiration rates exceed available moisture by an order of magnitude. The ultimate cause of these drought conditions remains indeterminate. Linkages to known teleconnections such as El Niño cannot be statistically correlated. To date the effects of these droughts have been severe. The FAO has issued

multiple famine alerts over the last two years on Afghanistan and estimate that about 6 million people are vulnerable to the effects of crop failure and famine as a result of the prolonged drought (FAO 2001).

SUMMARY

The climate of Afghanistan is complex and is not fully understood. Attempting to characterize it regionally is difficult due to the absence of data and the high altitude mountains that cover much of the country. Climate controls such as altitude and continentality significantly affect the temperature regimes while pressure systems and topographic barriers influence precipitation patterns. The overall result is a climate of extremes: hot summers and bitter winters, arid deserts and snow-packed highlands. Additionally, the potential for severe anomalous conditions such as drought are being felt today. A careful analysis of climate will be important in the planning and conduct of military operations in this challenging environment.

-Richard P. R. Pannell

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5
BIOGEOGRAPHY

INTRODUCTION

Biogeography is the study of the distribution of plants and animals, where these biotic entities occur, and why they occur at these locations. This field of study utilizes information derived from many other disciplines and subfields, such as meteorology, climatology, geomorphology, physiography, botany, zoology, ecology, and land use and resource management. The biogeographic scale of study normally is regional to continental and global. The biogeographic study of Afghanistan is a regional scale study, consisting of southern deserts, northern grasslands, and a central highlands area.

Studies related to Afghanistan's plant and animal mosaic are few. Saba (2001) states that there is a lack of vegetation and other environmental information pertaining to Afghanistan. Without a database from which to draw conclusions, only general inferences may be made about the country's biogeography. As such, this chapter will characterize the biogeography of Afghanistan based on general vegetation characteristics. This description refers to a natural vegetation cover, although the natural vegetation for much of the world has been altered during the past thousand years due to natural processes and human activity. Afghanistan is no exception.

VEGETATION TYPES OF AFGHANISTAN

Afghanistan is a country of three primary climatic, physiographic, and vegetation regions: the central highlands, the southern plateau and desert, and the northern plains and grasslands. It is a country of approximately 652,500 square kilometers (251,825 sq mi) (Microsoft 2001), of which 12% is arable land, 3% is forestland, 46% is pastures, and the remaining 39% is termed "other" (CIA 2001). Saba (2001) states that two thirds of Afghanistan is mountainous and supports little or no vegetation; one sixth of the country is desert land; and one sixth of the land is pasture and farmland. Essentially, these land characterizations relate to the central highlands, the desert south, and the northern grasslands, the arable lands. Figure 5.1 portrays the vegetation patterns of Afghanistan.

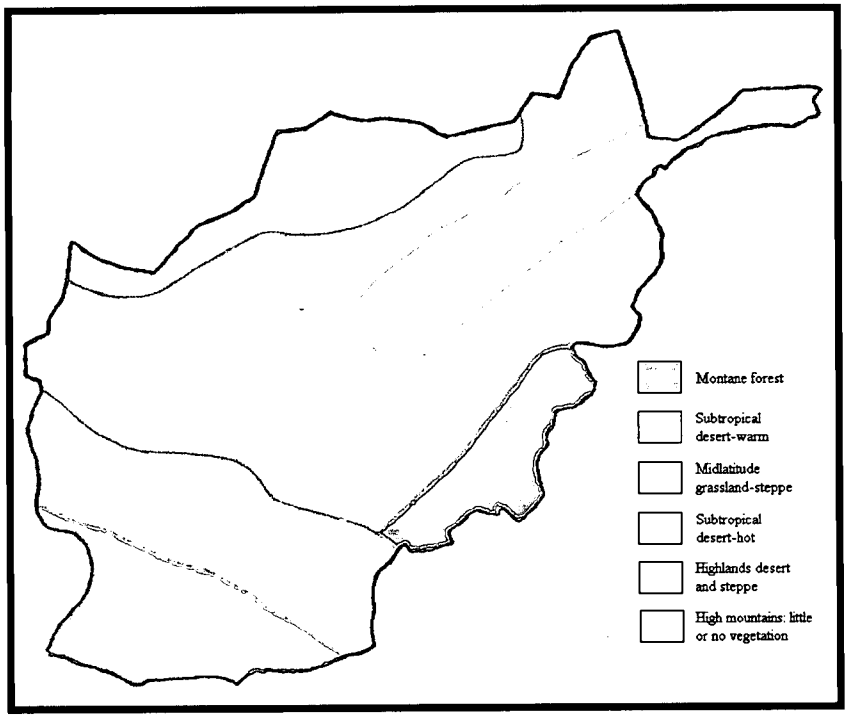

Figure 5.1. Vegetation patterns in Afghanistan.

Central Highlands

The Central Highlands region of approximately 160,000 square miles (Saba 2001) consists of high mountains and deep valleys. The elevation of about one half of Afghanistan is greater than 2,000 m (6,600 ft) (Microsoft 2001). The climate of this mountainous region may be classified as highlands, since the weather and climate change with increasing elevation. The normal characteristics are warm, dry summers and cold winters.

These conditions, characterized by high elevation that is warm and dry with cold winters, are not conducive to plant growth. Most of the highland region is classified as subtropical desert and midlatitude grassland-steppe vegetation. Grasses and small, herbaceous forbs that are present tend to be widely spaced. In sheltered sites, along waterways and other moist locations, the vegetation may be more dense and continuous.

However, the primary condition of the highland desert and steppe region is sparse vegetation.

Forests characterize three percent of Afghanistan's land and are concentrated in the eastern portion of the central highlands. The location of Afghanistan's forests coincides with western edge of summer monsoon rains, however the amount of rain that falls is minimal compared with the eastern Himalaya. Trees that may be found in Afghanistan's forests (Table 5.1) include: pine, spruce, fir, hemlock, larch, juniper, alder, birch, willow, oak, poplar, ash, rhododendron, wild hazelnut, almond, and pistachio (Bandyopadhyay 1992, Microsoft 2001). Common shrubs are rose, honeysuckle, hawthorn, current, and gooseberry (Arianae 2001).

Lower treeline or forest development in Afghanistan occurs at an altitude between 5,500 and 7,200 feet, whereas the upper treeline occurs higher than 10,000 feet (Arianae 2001). Cedar, juniper, and oak are common tree species of the lower treeline and woodlands (open forest of arid environments) and fir is a common species of the upper treeline.

Southern Deserts

Within the Southern Deserts region, the average elevation of the southern plateau area is about 3,000 feet (Saba 2001). This 50,000 square mile region is an area of poor soils, with **Aridisols** being most common. It is classified as a subtropical desert and it is hot during summer and mild during winter (Microsoft 2001). Desert conditions are characterized by minimal precipitation and soil moisture deficits.

Afghanistan's southern desert is an area of sparse vegetation and human settlement. Plants common to this area are: camel thorn, locoweed, spiny restharrow, mimosa, and wormwood, a variety of sage (Microsoft 2001). Many of the plants found in desert environments are xerophytes or ephemerals. Xerophytic plants have adaptations that allow the plant to survive during times of little or no soil moisture. These adaptations include the loss of leaves, leathery leaves, stems that store moisture, small size, and deep root systems. Ephemerals survive from year to year as dormant root mass or as a seed. When sufficient soil moisture exists, rapid plant growth and reproduction occurs. These events occur in the southern deserts of Afghanistan following the rainy season of early spring (Arianae 2001). During this time period, the desert is alive with grasses and small herbaceous forbs in bloom.

Table 5.1. Major forest types, dominant species, and their elevational distribution in Afghanistan.

Forest type	Dominant species	Occurrence
Temperate Forest Group		
1) Montane Moist Forest	Pinus, Quercus, Acer, Betula, Alnus, Abies, Picea, Tsuga, Taxus, Machilus, Rhododendron	1800-3600 m
2) Montane Dry Forest	Pinus, Quercus, Betula, Picea, Tsuga, Cedrus, Rhododendron, Larix, Juniperus, Acacia, Zizyphus, Caragana, Populus, Salix, Fraxinus	2100-3600 m
Alpine Forest Group		
1) Sub-alpine Forest	Picea, Tsuga, Betula, Juniperus, Rhododendron	2200-3600 m
2) Alpine Forest	Tsuga, Betula, Juniperus, Berberis, Rhododendron Caragana, Hippophae, Salix	2400-3600 m

Source: Bandyopadhyay (1992).

In the hottest environments of the southern desert, the landscape is barren and few plants are present. Ephemeral plants are common in this landscape. In the cooler, highland desert landscape, xerophytes are present, as are ephemerals. In both environments, plants tend to be widely spaced, in relation to plant diameter, with bare ground between individuals.

The Northern Grasslands

The vegetation of the northern plains is classified as midlatitude grassland-steppe. This 40,000 square mile region includes Afghanistan's

most fertile soils and favorable climate (Saba 2001). Normally, temperature and precipitation regimes of this climate favor a positive soil moisture balance. Where soil moisture and plant growth are favorable, **Mollisols** (soils characteristic of prairies and grasslands) are found. Where these conditions are not met, Aridisols are present. Plants that are common in a midlatitude steppe are short grasses and herbaceous forbs on moist sites (Mollisols) and bunch grasses and dry shrubs on drier sites (Aridisols).

It is in this region that much of Afghanistan's agriculture occurs. However, only about one half of Afghanistan's agricultural lands are currently used as farmland (Saba 2001). Environmental problems such as desertification, salinization, and chemical contamination have degraded some of the arable lands. Recent warfare has also damaged prime agricultural lands (Saba 2001, Microsoft 2001), and Afghani's have abandoned some farmlands due to war. Irrigation is needed to grow crops on the drier sites, however most Afghani's are too poor to afford modern irrigation technology.

AFGHANISTAN'S WILDLIFE

Beniston (2000) indicates that 123 animal and 460 bird species are known to exist in Afghanistan. Some of the animal species are: bears, wolves, foxes, hyenas, jackals, mongoose, wild boar, Marco Polo sheep, urials, ibex, hedgehogs, hares, shrews, bats, and numerous rodents (Microsoft 2001). Among the 123 different animal species are some that are nearing extinction, such as the: leopard, snow leopard, goitered gazelle, markor goat, and Bactrian deer (Microsoft 2001). Birds species include partridge, pheasant, quail, vultures, ducks, pelicans, cranes, flamingos, and eagles (Arianae 2001). Birds that are widely hunted are diminishing in numbers (Microsoft 2001).

ENVIRONMENTAL ISSUES

Afghanistan is characterized by a harsh, inhospitable landscape. Very little of this country is conducive to abundant life, and during recent decades, warfare has degraded life in Afghanistan. Forests have been cut and burned. Agricultural lands are being degraded. Water sources have become polluted. However, the presence of more than 10 million land mines is considered to be the worst environmental hazard (Saba 2001). The number of deaths due to land mines is estimated to be between 20 and 30 'non-combatants' per day (Saba 2001).

Arianae (2001) suggests that we remember that no serious ecological studies have been conducted in Afghanistan during the past 20 years and we don't know the impact that recent warfare has had on the fauna and flora. We do know, however, that the forests of Afghanistan are being used for fuel and building material. They have been negatively influenced during recent warfare. Where the forests have been degraded, erosion has increased. These trends may be expected to continue.

Pasture and agricultural lands have also been burned and these lands have experienced increased overgrazing, salinization, and erosion. Continued destruction of forests, pastures, and agricultural lands will perpetuate soil degradation in Afghanistan. Wildlife populations continue to diminish. Water and air pollution are increasing. These environmental trends contribute to a declining quality of life for Afghanistan's population.

-Peter G. Anderson

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6
HISTORICAL GEOGRAPHY

INTRODUCTION

Historical geography is the study of the human geography of the past, and so this chapter will specifically examine Afghanistan's history as it relates to people who have controlled the space now occupied by the state of Afghanistan. The history of this region provides valuable insights into the present conditions and the current geopolitical reality. To acquire these insights we begin by reviewing the historical events before the current era. These early events helped to shape the environment for major actions in the 18th and 19th centuries, which subsequently led to the establishment of Afghanistan. The interactions of colonial powers, Russia and Britain, will be examined as those confrontations impacted and resulted in conflicts within the region. The influence of colonial powers continued throughout the 20th Century. An inspection of these 20th Century events will contribute to a deeper understanding and context for the current political geography of the region and Afghanistan (Chapter 8).

Afghanistan's close proximity to "greater India" (India prior to partition in 1947) has contributed to its closely intertwined history. Over the past three thousand years, different Indian emperors have ruled various parts of Afghanistan. The physical geography (Chapters 2-5) describes this land as the gateway to and from India. Consequently, Indian armies have conquered this area and armies from outside the region have traversed this land enroute to India. The list of peoples traveling through the area range from Alexander the Great, the Scythians, White Huns and the Turks, who over the centuries followed the natural routes from central and west Asia through the region to India. When not being ruled or conquered by peoples from outside the region, different Indian rulers controlled portions of present-day Afghanistan. This country was also an important center of early Buddhism (Jackson et al. 2001)

PRE-18TH CENTURY

The first major incursion into the region during the current era was conducted by the Arabs under the leadership of the Syrian Umayyads, reaching the area around 642 C.E. and taking Kabul 664 C.E. (Polk 1991). This invasion and occupation introduced the region to Islam, which

eventually it became the predominant religion. The Persians (Iranians) replaced Arab rule and the Persians were subsequently replaced by the Turkic Ghaznavids' conquest in 998 C.E. The conquest lead by Mahmud of Ghazni consolidated the Afghan Kingdom and produced a great culture center and a base for operations into India in search of riches. His rule and those of various princes after his death lasted until the Mongol Invasions of 1219 C.E. After Genghis Khan's death in 1227, a succession of chieftains and princes controlled parts of present-day Afghanistan until the area fell under the relatively peaceful and prosperous rule of the Uzbek ruler Timur (Tamerlane) in the late 14th century. Under his successors, the Timurids, Afghanistan witnessed a transition period during the 15th century. In the early 15th century, Babur rose to power in Kabul and forcefully expanded to the east, establishing the Mughal Empire in greater India, which lasted well into the 19th century in some form. On the edge of the Mughal Empire, Afghanistan found itself caught, and sometimes divided, between the Mughals and the Safavid Empire in Persia (Iran).

18TH AND 19TH CENTURIES

In the 18th Century, the passing of the Moghul Dynasty was followed by the rule of Ahmad Shah Durrani who was able to consolidate the fragmented elements of region into what would become modern Afghanistan. He was from the Pushtun tribal confederation and first in a long line of Afghan rulers from this tribal federation that lasted until the Marxist coup d'etat in 1978 (Jackson et al. 2001). The ability of one tribal group to dominate other tribal groups enabled the federation to exist. This form of organization depended on "highly personalized and charismatic power, and on precarious, fleeting agreements between tribes and tribal subgroups"(Tarock 1999). The events of the 18th Century established the conditions that the colonial powers of England and Russia would encounter as their respective empires expanded toward each other in the 19th Century. Those conditions included tribes of people from Mongol, Persian, and Turkic ethnic backgrounds that shared a common religion and a closely related language who were conditioned to living in a harsh environment.

By the 19th Century, the British Empire was expanding out of India toward the North and West looking to offset what they saw as the expansion of Russia into central Asia. Russia was also concerned with British expansion into areas that they saw as their sphere of influence. The British would be involved in three Anglo-Afghan wars, the first from

1832 until 1842 and the second from 1878 until 1880. These two wars were extremely ferocious, with the Afghan Afridi (a Pathan Tribe) earning a reputation as "among the bravest, and certainly the cruelest, of the notoriously cruel Pathan Tribes" (Margolis 2000). At the conclusion of the second Anglo-Afghan War, Britain and Russia agreed to the establishment of borders that would become the present day Afghanistan, and Britain retained effective control over Kabul's foreign policy. The latter served as a catalyst that would spark the third Anglo-Afghan war (Jackson et al. 2001).

20TH CENTURY

From the end of the second Anglo-Afghan War until the end of WWI, Afghanistan remained neutral despite German encouragement. After the World War, anti-British sentiment and the British control over Kabul's foreign policy lead to a short third war (1919) with an attack into India. The British quickly gave up control of Afghanistan's foreign policy ending the war in the same year it started. From 1919 through 1933, there were a series of assassinations and an abdication caused by attempts at reform and modernization, which alienated some conservative members of the clergy. In 1933, King Zahir Shad succeeded to the throne and reigned until 1973. He introduced a democratic constitution that allowed the formation of political parties. One of these parties was the People's Democratic Party of Afghanistan (PDPA) (Jackson et al. 2001).

At the end of his reign, King Zahir Shad was accused of corruption and combined with poor economic conditions, a military coup led to his demise in the summer of 1973. A former prime minister declared himself president and abolished the monarchy. Despite numerous attempts at economic and social reforms, another bloody coup followed in 1978. It was this coup that brought the PDPA to power with the support of the Soviet Union. This government was fractured from within and was greatly resisted by a large number of Afghanis. It became apparent that the PDPA would be unable to survive without increased assistance from the Soviet Union. The assistance came in the form of ground troops in December 1979 that in essence replaced the PDPA leadership with those more willing to listen to the experts from the Soviet Union. This began the Soviet Union's long bloody conflict that would not end until 1989 (Jackson et al. 2001, Tarock 1999). As a result of a common enemy, seven different groups in Afghanistan formed a loose alliance to fight against the PDPA and Soviet Forces. When peace negotiations were

eventually conducted, these groups were left out. As a result, the fighting did not end with the Soviet Union's withdrawal in February 1989. The Soviet exodus removed the common enemy (the country's key centripetal or unifying force), thus returning Afghanistan to old tribal and factional rivalries (Jackson et al. 2001, Tarock 1999).

CONCLUSION

This brief discussion helps to understand four key areas of the present situation in Afghanistan. First, the cultural diversity (See Chapter 7) can be explained in part by the pre-18th Century movements of armies to and from India imparting language, religion and political influence. Second, the current ties with Pakistan are as much a result of the historical periods where Afghanistan was a part of and/or controlled by a "greater India", than as a result of current geopolitical concerns of Pakistan. Third, the introduction and adoption of the Islamic faith during the Arab conquest produced a legacy of a shared faith with countries of North Africa and Western Asia. Lastly, the colonial period had a lasting impact on Afghanistan, specifically reinforcing the latter's desire to remain outside of the dominance of colonial powers. It was the fierce determination of the Afghan tribes to remain free from the British that established the strong tradition of resistance to foreign rule. This tradition continued through the Soviet occupation. This diverse country remains divided, perhaps until a common enemy threatens the political entity and promotes a loose sense of unity among its diverse peoples.

-James B. Dalton

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7
CULTURAL GEOGRAPHY

Afghanistan's cultural landscape is a mottled pattern painted by history and geography. Wedged between major culture hearths and repeatedly crossed over by invaders, the cultural landscape of this area is as dramatic and varied as its forbidding terrain. Cultural geographers study both the patterns of cultural traits, such as religion and language, and also the way culture modifies the natural and built environment. This chapter addresses the distribution of major cultural patterns such as ethnolinguistic groupings and religion, but it must be remembered that these basic traits affect much more than communication and spiritual beliefs. Religion alone affects dietary habits, clothing, architecture, holidays, the workweek, schooling, and criminal justice among other aspects of daily life. So, an understanding of Afghanistan's basic cultural patterns is the first step to an awareness and appreciation of the very fabric of Afghani lives, landscapes, and longings.

RELIGION

It is commonly known that Afghanistan is primarily a Muslim country. In fact, followers of Muhammad's teachings make up over 99 percent of the population (Britannica.com Inc. 2001). Islam likely entered Afghanistan over 1200 years ago, but the current religious landscape has been affected by many events over the centuries. Invaders brought new forms of religion and the rise and fall of dynasties changed the nature of spiritual life in the region. The destruction of 2000 year-old Buddhist statues by the Taliban government in early 2001 remind us that early religious ideas flourished before Islam, as do isolated Hindu and Jewish communities in the country (Economist 2001). A small number of Sikhs, from a religion that arose in the 16th and 17th centuries, shows that later ideas and belief systems also penetrated the mountainous country. But by and large, Afghanistan is a Muslim country.

The vast majority of Muslims in Afghanistan are followers of the Sunni branch of Islam, which accounts for about 90 percent of all Muslims worldwide (see Figure 7.1). Unlike most Sunnites, some of Afghanistan's Sunni Muslims, including members of the ruling Taliban, are quite

Figure 7.1: Islam in Afghanistan and Surrounding Countries
Source: Central Intelligence Agency, 1995

fundamental and conservative in their practice. The fundamentalist ideas of Wahabism from Saudi Arabia and Deobandism from Pakistan have become increasingly important among some Afghani clerics and rulers (Kaplan 2000). Wahabism has its origins in the 18th century teachings of the Saudi cleric Muhammad ibn 'Abd al-Wahhab and is the officially accepted form of the religion in Saudi Arabia. Deobandism arose during British rule in South Asia as a reaction to colonial ideas. Refugees fleeing to Pakistan during the Soviet invasion of the 1980s were often taught these more extremist views of Islam in refugee camp schools and colleges (Kaplan 2000).

The balance of Muslims in Afghanistan comes from two sects of the other major branch of the religion, the Shi'ites (see Figure 7.1). The Shi'ite/Sunnite split in Islam resulted over political differences within the religion in the years following the death of Muhammad in 632 C.E.. Shi'ites were followers of Ali, Muhammad's son-in-law, and after his death argued that the leader of the religion, the *caliph*, should come from his lineage. Sunnites felt more pragmatically and accepted caliphs drawn from leaders within the community (Awn 1984).

Most of the Shi'ites in the country are from the sect commonly referred to as *Twelvers*. Within the early Shi'ite community, the heir to Muhammad's authority was known as the *imam* (not to be confused with the modern usage of this word by Sunnites to refer to the leaders of prayer at a mosque). Twelvers accept a line of twelve imams, beginning with Ali, and ending with the disappearance of a child around 874 C.E. (Awn 1984). Some Shi'ites, however, disputed the authority of the seventh imam, Musa, during the eighth century. This faction backed the legitimacy of Musa's brother Isma'il. Today, followers of this splinter group are known as *Isma'ilis* or *Seveners*. While a discussion of the particulars of early Muslim history may seem academic, it reminds that all Afghani Muslims should not be considered to have the same beliefs, practices, or attitudes.

Most Muslims do, however, share a core of beliefs based on the five "pillars" of Islam. The first pillar is a profession of faith that Allah is God and Muhammad His prophet ("There is no god but God, Muhammad is the messenger of God"). Through Muhammad, Allah gave the world his word, recorded word-for-word in Arabic on the pages of the Qur'an (Koran). For this reason, Muslims worldwide study Arabic in order to understand the teachings of God in its original, and thus pure, form.

The remaining pillars of Islam outline basic practices of daily and religious life. A Muslim must pray five times a day in the direction of the Ka'ba, the sacred cube known as the Holy House of God in Mecca, Saudi Arabia. Mecca is the birthplace of Muhammad and the holiest city in the faith. Prayer, preceded by ritual washing, takes place at daybreak, noon, mid afternoon, sunset, and during the evening. Prayer does not have to take place at a mosque, but many Muslims do attend a prayer service at a mosque at noon on Friday. Because of this practice, many banks, stores, and government offices will close on Friday. The third pillar requires a Muslim to give alms to the religious community and to the needy. Ten percent of one's annual income is a number sometimes quoted, but the actual number varies greatly. The fourth pillar mandates fasting during the daylight hours of the 28-day month of *Ramadan*, which changes yearly because it is based on a lunar calendar, but generally falls during the summer. The fifth and final pillar mandates that every Muslim who is able must make a pilgrimage, the *Hajj*, once during his or her life to the holy city of Mecca in Saudi Arabia. There, with Muslims from all over the world, adherents complete a multi-day sequence of physical and spiritual feats.

Another aspect of Islam that should be understood is the importance of Islamic law, or *shari'a*. Drawn from the Qur'an, the customs of Muhammad (*sunna*), tradition (*hadith*), academic and theological reasoning, and community consensus, shari'a rules govern both religious life and the common, everyday lives of Muslims (Mayer 1984). In largely secular Muslim countries, such as Indonesia or Turkey, shari'a has been replaced by more universal legal systems, but under Taliban rule in Afghanistan it is the primary legal structure. Conservative forms of Islamic law dictate dress codes, such as the wearing of veils for women (the *burqa*) and beards for men. Alcohol is prohibited, as is the eating of pork. All meat must be slaughtered in a specific way; properly prepared food is known as *halal*.

Under Taliban rule, Islamic law has been strictly enforced and, some would argue, distorted to a barbaric degree. Stories of executions and other forms of corporal punishment have been widely reported in the media. As an example, thieves commonly have a hand lopped off for their crime. Kite flying, western music, and television are illegal under Taliban control. People have been beaten or chased with dogs for improper dress or a beard that is too short (Shah 2001). Crimes such as homosexuality might be dealt with by throwing the guilty off a high building or having a wall collapsed on them (Shah 2001). Converts to other religions can be executed.

Islam also affects the built environment. Mosques are common in almost every neighborhood. Ranging from elaborate to simple, a common feature is the ubiquitous *minaret*, or tower, that enables spiritual leaders to call worshippers to prayer. Mosques serve not only as a place of religious gathering, but also as a community center, personal retreat, and after-school center. Many large towns have bigger, more elaborate mosques at the center of the city. *Madrasas*, Islamic schools or colleges that have been educating young Muslims for centuries, are often located near the larger mosques.

ETHNOLINGUISTIC GROUPS

There is no single Afghani people. The country's location between the former empire states of Central Asia, Persia (Iran), and South Asia ensured that invading groups settled in the area as they moved through or temporarily controlled territory. In addition, the rugged terrain of the country enabled groups to remain isolated from each other, thus slowing the process of acculturation and the sharing of cultural traits. *Ethnologue*, a catalog of world languages, identifies forty-five languages within the country (Ethnologue 2001). Because certain languages or families of languages are generally associated with particular ethnic groups, this discussion will look at the most important **ethnolinguistic** groups of Afghanistan. As an aside, it is worthy to note that none of Afghanistan's ethnic groups are Arab, and the language Arabic is only spoken by a few thousand people outside of religious services.

The largest ethnolinguistic group in the country is the Pashtuns,

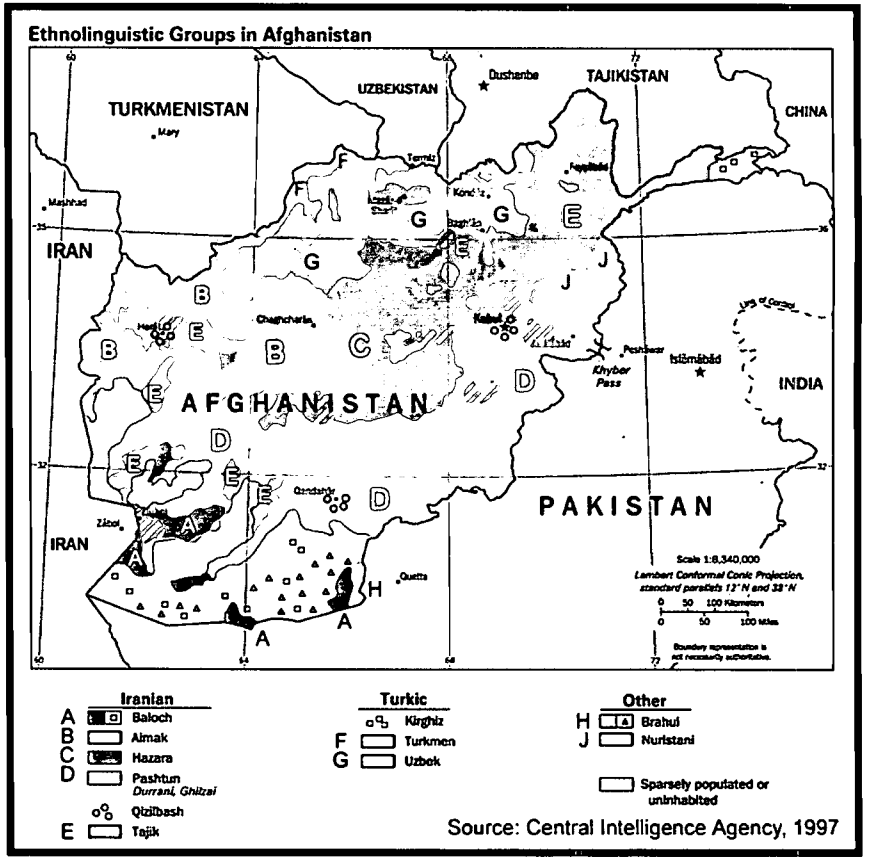

Figure 7.2: Ethnoliguistic Groups in Afghanistan
Source: Central Intelligence Agency, 1997

also known as Pushtuns, Pakhtuns, or Pathans, which make up 38% of the population (Central Intelligence Agency 2001). Before history created a country of Afghanistan, the Pashtuns were known as Afghanis. They speak an Indo-European language called Pashto, one of two official languages in the country and spoken by about 35% of all citizens (CIA 2001). While there are nearly 8,000,000 million Pashtuns in eastern and southern Afghanistan (Figure 7.2), there are twice as many in neighboring Pakistan, linking these two countries (Figure 7.3). The Taliban are predominantly Pashtun, which explains, in part, the support from many Pakistanis across the border.

Figure 7.3: Ethnoliguistic Groups in Pakistan and Surrounding Areas
Source: Central Intelligence Agency, 1980

Within Pashtun areas, communities are organized into clans known as *khels*, which are then organized into tribes known as *kaum* or *qabili* (Lierberman 1980). Scores of different tribes occupied separate areas, and historically tribal conflicts have been common. Tribes are also linked together through confederations that also are sometimes at odds with each other. Most notably is the periodic struggle between the large Durrani confederation of mostly sedentary tribes in the south and the more nomadic Ghilzais group in the east (Lierberman 1980). In terms of religion, most Pashtuns are Sunnite Muslims, but it should not be assumed

that all Pashtuns are as fundamental as the Taliban in their views of Islam. There is also an ethical code among some Pushtuns, especially in rural areas, known as Pashtoonwai, or the "way of the Pashtuns". This code of conduct both encourages hospitality and chivalry while also calling for vengeance or strict penalties for crimes committed against a fellow member of a clan or tribe (Kaplan 2000).

The second largest ethnic group in the country is the Tajiks, accounting for about 25% of the population (CIA 2001). Like the Pashtuns, they speak an Indo-European language, Dari, an eastern dialect of Farsi (Persian or Iranian). Overall, about half of all Afghans speak Dari according to the Central Intelligence Agency (2001). Tajiks share millions of ethnic brethren in neighboring Tajikistan, Uzbekistan, and China. Within Afghanistan, Tajiks are concentrated in the northeastern part of the country with pockets in the west (see Figure 7.2). They are reported to comprise an important part of groups challenging Taliban rule. Although Tajiks are Sunnite Muslims, they generally are considered to be less fundamental and conservative than the Taliban government.

A third, important group in the country is the Hazara, who inhabit much of the central part of the country (Figure 7.2). Numbering in the millions and accounting for just fewer than 20% of the population (CIA 2001), Hazaras speak Dari like the Tajiks and other groups. Many Hazara are Shi'ite Muslims, which along with other cultural differences have put them at odds with the Taliban. Persecutions of Hazara within Afghanistan have caused a great deal of concern within Iran. A 1998 massacre in the city of Mazari-i-Sharif of hundreds of Shi'ites pushed Iran and Afghanistan to the brink of war (Tarock 1999).

Major remaining ethnic groups in Afghanistan include Nuristani, Turkmen, Uzbek, Kirghiz, Chahar Aimak, Brahui, and Baloch groups. The Nuristani inhabit a region of eastern Afghanistan and western Pakistan known as Nuristan. Formerly known as the Kafir (the Arabic word for infidel), this group was forced to convert to Islam during the late 19th century and given the name Nuristani, meaning "enlightened" (Britannica 2001). Due to their isolation and historical differences, Nuristan remains culturally different than the rest of Afghanistan, and despite their conversion to Islam, polytheism and animal sacrifice are still practiced. Like others in the region, their language, Nuristani or Kafiri, is also an Indo-European language.

The Turkmen, Uzbek, and Kirghiz (Kyrgyz) groups share cultural areas with majority groups in neighboring Turkmenistan, Uzbekistan, and China. In general, they are later settlers than other groups in the country and possess distinct cultural differences. As an example, they all speak Turkic languages that are different than the Indo-European tongues spoken by Pashtuns, Tajiks, Hazara, and the like. Islam is a unifying feature to some degree, but these Central Asian minorities often have considerable disagreements with Pashtun fundamentalism. Uzbeks alone account for about six percent of the population (CIA 2001).

The Aimak of western Afghanistan are notable because they probably are of Mongolian origin, a reminder of past invasions. They have Mongoloid features and live in yurts similar to those found among groups in Mongolia and Western China (Britannica 2001). Despite their eastern Asian origins, however, they speak the Farsi dialect of Dari.

Finally, the Baloch (Baluchi) and Brahui groups live in a large area that includes parts of southern Afghanistan, Iran, and Pakistan (see Figures 7.2 and 7.3). Known as Balochistan (or Baluchistan), this dry, isolated region prompts many to live as nomadic sheepherders. This isolation also has spawned a distrust of central, outside authority, and the Baloch have periodically made attempts to gain greater autonomy from the governments of Pakistan, Afghanistan, and Iran. Most Baloch are Sunni Muslims and speak an Indo-European language that is somewhat related to Kurdish. They number about 250,000 in Afghanistan alone and nearly eight million across the region. The Brahui are a smaller group of about two million in all countries that live among the Baloch (Ethnologue 2000). They speak a language that is Dravidian in origin, a language family that dominates in southern India and which includes Tamil and Telugu. Because of its isolation from languages in the same family, and owing to the fact that it is not a written language, Brahuis have borrowed many words from other languages and bilingualism is common (Ethnologue 2000).

CONCLUSION

Afghanistan is a diverse country. Although most are Muslims, different sects and degrees of fundamentalism shatter any notion of religious uniformity. Although ethnic Pashtuns have generally dominated the country, they remain less than 40 percent of the population. Two languages are each spoken by over 35 percent of the country and several major world language families are represented. Ethnicity ties Afghanistan

to the western states of Iran and the Middle East, to the newly independent Central Asia republics, and to the demographic powerhouses of Pakistan and India. Afghanistan is truly wedged between cultural boundaries, creating puzzle-like cultural patterns that defy simple definitions.

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8
POLITICAL GEOGRAPHY

Political geography is the spatial analysis of political phenomena and processes. Essentially, this field studies the interaction of political processes across geographic areas and may occur at every scale of analysis, from the local to the global level. Within political geography, the most basic and common unit of analysis is the state, which is the dominant form of political organization in the world (Glassner 1996). This chapter will discuss Afghanistan's internal political arrangements as well as its geopolitical position in the Central Asia region.

AFGHANISTAN: THE STATE

As the fundamental unit of analysis in political geography, the state is defined as a politically organized territory administered by a sovereign government and recognized by a significant portion of the international community (de Blij and Muller 2001). Originally created to serve as a buffer zone between Russian and British colonial spheres in Central Asia, Afghanistan's current boundaries were delimited when the Afghan rulers signed agreements with the Russian government in 1885, defining the Oxus River (now known as the Amu Darya) as Afghanistan's northern boundary. Subsequent agreements were made with the British Raj in India in 1893 (Margolis 2000).

With over 5529 km (3317 miles) of land boundaries, Afghanistan shares borders with six other states (China 76 km, Iran 936 km, Pakistan 2,430 km, Tajikistan 1,206 km, Turkmenistan 744 km, and Uzbekistan 137 km) (CIA World Factbook). Although virtually compact in shape, Afghanistan is actually a prorupt state, with an extension of territory known as the Wakhan Corridor that separates Pakistan from Tajikistan and provides Afghanistan with a narrow border with China in the rugged Hindu Kush Mountains. (See Figure 8.1)

Although drawn by British and Russian representatives in the nineteenth century, the boundaries have proved fairly stable and undisputed. These boundaries, however, essentially divided several nations of people and have created a country out of a heterogeneous mixture of ethno-linguistic groups. This complex cultural geography, together with the difficult physical landscape has led Kenneth Weisbrode to describe Afghanistan's internal political situation as one of

"ungovernability" (Weisbrode 2001). Although Afghanistan has been embroiled in civil war since the late 1970s, the current political turmoil essentially began with the overthrow of the Soviet sponsored government of Ahmedzai Najibullah.

Figure 8.1: Political map of Afghanistan

Following the collapse of the Soviet Union and facing a multitude of internal challenges, Russia ended its financial, moral, and material support for the communist government in Kabul in January 1992. Without this foreign aid, the Najibullah government could not withstand the pressure from the various ethnic rebel forces vying for control of the state, and in April 1992, Najibullah was forced to cede control of the country (Margolis 2000). In the ensuing power vacuum, three of the main resistance factions united to form the Northern Alliance, which consisted of a Tajik faction led by Ahmed Shah Massoud, an Uzbek faction led by Abdul Rashid Dostum, and the Hazara group Hizb-i-Wahdat (Weisbrode 2001). Together, these groups established a new government under the leadership of Buhanuddin Rabbani, but the Alliance excluded Ghilzai

Pushtuns from the newly formed government, prompting renewed fighting between the various ethnic groups (Weisbrode 2001).

In the ensuing civil war, each ethnic group struggled to consolidate and maintain control over its regional base areas with Dostam in Mazar-i-Sharif, Ismail Khan in Herat, and Massoud in the Panjshir Valley region (northeast of Kabul in the region where Parvan, Kapisa, and Laghman provinces meet and extends northeast into Badakhshan) (Weisbrode 2001). Meanwhile, the Taliban emerged onto the political scene from Qandahar in southern Afghanistan and from the refugee camps in Pakistan (See Figure 8.1).

The Taliban (the plural form of Talib or student) is an Islamic Fundamentalist group, composed predominately of Pushtuns. Drawn from Islamic *madrassas* (religious schools) in Qandahar and the refugee camps along and inside the Pakistani border, the Taliban formed with the expressed aim of ridding the country of lawlessness, banditry, and atheism (Margolis 2000). Margolis (2000) further contends that the Taliban was initially the product of Pakistan's Inter-Service Intelligence, created to rid Afghanistan of anarchy and banditry, but also to prevent such behavior from spilling over the border into Pakistan. Weisbrode (2001) doesn't specifically state that Pakistan created the Taliban, but he does describe how the Pakistani government supported the Taliban and intended to use the fundamentalists to help Pakistan open a road from Islamabad through Herat and into Turkmenistan, thus opening a highway for trade between Pakistan and Central Asia. Along with this highway, the Pakistanis also had visions of a pipeline from Central Asia through Pakistan to the Arabian Sea, but such ventures would only occur if the violence and civil war in Afghanistan ended (Margolis 2000).

By March 1995, the Taliban had effectively seized control of Qandahar and the twelve surrounding provinces, and these successes were in large part due to Pakistani assistance (Margolis 2000). Armed with such support, the Taliban has over the past six years expanded their control to the point where various government and news agencies estimate that the Taliban now controls approximately ninety percent of the country.

Meanwhile, the United States and the United Nations continue to recognize Buhanuddin Rabbani as the legitimate leader and government of Afghanistan. Under Rabbani's leadership, the country's official name is the Islamic State of Afghanistan, is ruled by an Islamic Council, and the government is comprised of elements of the Northern Alliance.

Since their ascent to power, the Taliban has effectively enforced a strict adherence to their narrow interpretation of the tenets of the Koran and advocate a return to the traditional ways of the Islamic Faith. Intent on creating a true Islamic society in Afghanistan, the Taliban renamed the country as the Islamic Emirate of Afghanistan (Stump 2000). Currently, Pakistan is the only country that recognizes the Taliban regime as the legitimate government in Afghanistan (Saudi Arabia and the United Arab Emirates had also recognized the Taliban leadership in Afghanistan but have revoked recognition in the wake of the terrorist attacks in the US).

Led by Mullah Mohammed Omar, the Taliban indirectly rules the country, which is divided into thirty provinces (see Figures 8.2 and 8.3), through local councils that administer the country according to traditional Islamic law, or *sharia*. Under the *sharia*, traditional punishments for crimes include amputations for theft, stoning for adultery, and execution for a number of other crimes. To enforce the laws, the Taliban has created a form of religious police (known as the Department for the Propagation of Virtue and the Prohibition of Vice), which is also charged with enforcing the restrictions on western influences within the country (Stump 2000). Dancing, movies, television, and popular music are but a few of the recreation restrictions imposed by the Taliban in an effort to eliminate the western influences from their society (Stump 2000).

In striving to create their version of a pure Islamic society, the Taliban has been reported to be ruthless in their enforcement of their ideals. Margolis (2000) considers the Taliban's harshness to be a reaction to the Communist era. Under the Soviet/Russian sponsored communist regime of the 1980s and early 1990s, social modernization, education, and equality for women were imperatives for creating a true communist state in Afghanistan, yet each of these initiatives were considered by many Afghans as oppositions against the tenets of Islam. In order to prevent these forces from irreparably changing the nature of Afghan society, the Taliban has used every means necessary to ensure that the people follow their strict interpretation of Islamic law. Not all Afghans, however, embraced the beliefs and ideals of the Taliban. Although the Taliban initially found support in their drive to create a true Islamic society, mostly from the Pushtun sectors of the population, Stump (2000) described how the Taliban's strict enforcement of traditional beliefs "alienated Afghans who didn't follow the strict interpretation of Sunni Islam."

Province	Area (mi^2)	Provincial Capital
Badakhshan	18,298	Feyzabad
Badghis	8,437	Qal'eh-ye Now
Baghlan	6,604	Baghlan
Balkh	4,861	Sharif
Bamian	6,722	Bamian
Farah	18,446	Farah
Faryab	8,600	Meymaneh
Ghazni	9,024	Ghazni
Ghowr	14,925	Chaghcharan
Helmand	23,866	Lashkar Gah
Herat	23,668	Herat
Jowzjan		Sherberghan
Kabul	1,770	Kabul
Kandahar	18,403	Qandahar
Kapisa	722	Raqi
Konar	4,045	Asadabad
Kunduz	3,021	Konduz
Laghman	2,783	Mehtarlam
Logar	1,796	Baraki
Nangarhar	2,940	Jalalabad
Nimruz	15,963	Zaranj
Paktia	3,698	Gardeyz
Paktika	7,464	Zareh Sharan
Parwan	3,628	Charikar
Samangan	5,969	Samangan
Sare Pol	9,856	Sare -Pol
Takhar	4,777	Taloqan
Uruzgan	11,308	Tarin Kowt
Wardak	3,483	Kowt-e Ashrow
Zabul	6,675	Qalat

Figure 8.2: Provinces in Afghanistan
Source: World Geographical Encyclopedia, Vol III, Asia, 1995.

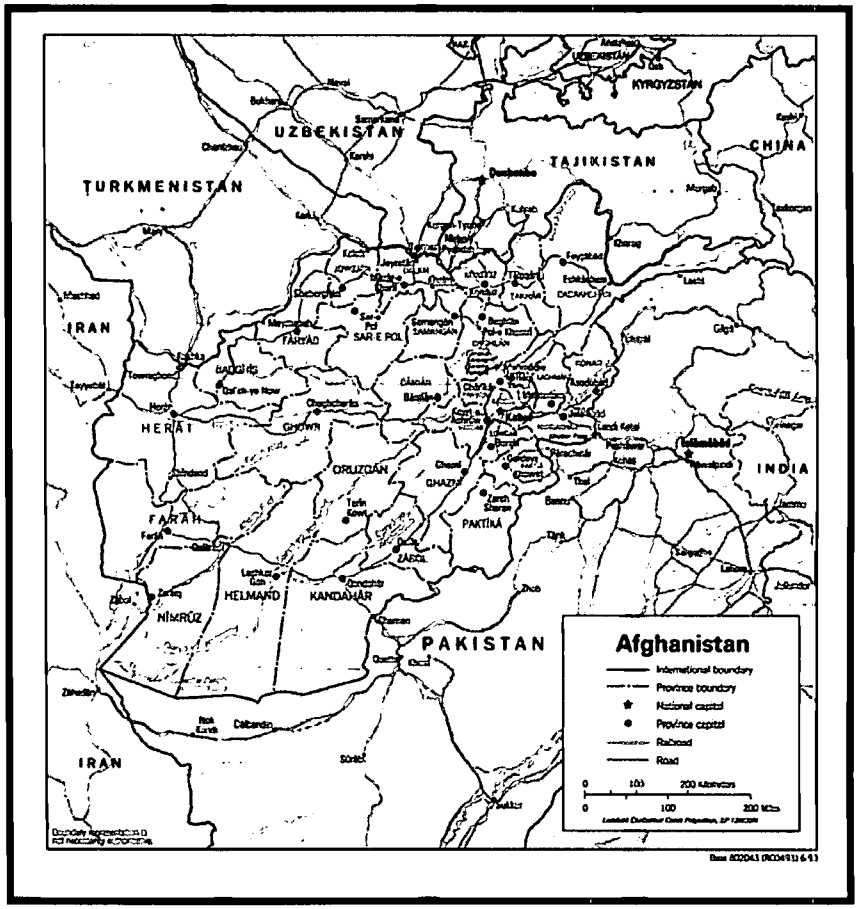

Figure 8.3: Political Map of Afghanistan
Source: Central Intelligence Agency

A GEOPOLITICAL ANALYSIS

Besides imposing their own ideals and interpretation of the Koran on the Afghan people, the Taliban has at various times, "espoused expansionist philosophy," and their policies and beliefs have "antagonized neighboring countries" (Stump 2000). Although, the Taliban's leadership has since revoked such claims, neighboring countries continue to fear that

the Taliban may wish to push their fundamentalist agenda at a later date, once they are able to defeat the Northern Alliance and gain total control of the country.

Although landlocked and seemingly remote and isolated, Afghanistan has always occupied a position of geopolitical significance in Central Asia, since the country lies at the crossroads of three great geopolitical regions, the Indian subcontinent, Iran, and Central Asia. (Parker 1995) In the region today, Weisbrode (2001) argues, "nearly every transitional problem in Central Eurasia is linked to the Afghan civil war." Although each neighboring country has generally tried to stay out of the turmoil within Afghanistan, in many cases neighboring states have felt obligated to support or assist one side or another in order to protect their own internal stability.

Pakistan is known to have assisted the Taliban in their early stages of development in order to help control the lawlessness within the country and prevent it from spreading political dissent into Pakistan. Meanwhile, Russia, India, China, and the former Soviet republics of Turkmenistan, Tajikistan, and Uzbekistan have supported or assisted one or all of the many factions of the Northern Alliance in order to contain the fighting and prevent the Taliban from exporting their religious fundamentalism.

Although Turkmenistan, Tajikistan, and Uzbekistan are now independent states, these countries are still reliant on Moscow to a certain degree based on previous economic ties and cooperatives established under the Soviet system. Moreover, Russia still considers its "strategic borders" to coincide with the boundaries of the former Soviet Union (Margolis 2000). And, with these strategic borders adjacent to Afghanistan and the Taliban regime, Russia fears the expansion of the Islamic fundamentalist ideals, which if they take root in the former Soviet republics, could threaten Russia's relations with the former republics and jeopardize Russia's position in Central Asia. The Taliban is also believed to harbor, train, and support Chechen fighters in their conflict against Russia.

India and China also supported the forces arrayed against the Taliban in order to protect their own interests. In addition to the geopolitical stances and alliances, China and India have aided the forces of the Northern Alliance because the Taliban has been alleged to supply fighters, assistance, and funding to rebels and terrorists of Xinjiang province in China, the Philippines, Yemen, and Indonesia (Weisbrode 2001). Additionally, the Taliban has been charged with supplying a great

number of fighters and assistance to the Muslim insurgents in Kashmir, who are fighting against Indian control of that region.

Iran has also assisted the Northern Alliance forces as the latter continue to resist Taliban advances. Besides the conflict between Shiite Iran and the Taliban's fundamentalist Sunni Muslim ideals, Iran hopes that any natural resource pipelines from Central Asia will travel through Iran (and not Pakistan) to ocean ports and the world market.

CONCLUSION

Politically, Afghanistan faces a significant number of internal and external challenges today. The country is wracked by civil war that pits ethnic groups against each other (although many have cooperated to a certain degree under the Northern Alliance). It has no Constitution or operating legislative body, and the Islamic Courts under the *Sharia* are the expressed governing principles, although the latter are not fully embraced by all sectors of society (CIA World Factbook). Any attempts at resolving the conflict and achieving a peaceful, cooperative diplomatic solution between the various factions have proved futile. The Taliban has refused to compromise on its ideals of creating the true and pure Islamic State.

In addition to hosting the longest running civil war in the world today, Afghanistan is currently the society with the greatest number of refugees (over five million), the leading producer of opium in the world, and has the greatest number of land mines within its borders (estimated at over 10 million – from the Soviet occupation as well as the on-going civil war) (Weisbrode 2001). Singularly, each of these issues presents a number of obstacles to political, social and economic development in Afghanistan in the near future. Collectively, they paint a dismal picture for the country's future prospects.

-Andrew D. Lohman

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9
ECONOMIC GEOGRAPHY

Over two decades of conflict have reduced landlocked Afghanistan to one of the world's most impoverished nations. Rebellion against the Soviet occupation throughout the 1980s decimated a large segment of Afghanistan's institutional and physical infrastructure. Most of the more than six million Afghan refugees who departed for Iran and Pakistan during this period have now returned. Continued civil strife during the last 12 years has further eroded the economy to the point of consisting of little more than subsistence farming... (CounrtyWatch 2001, 31).

Economic Geography is essentially about people and their struggle to make a living (Johnston et. al. 1994). This endeavor, however, is enhanced or constrained by ecological factors such as soil type, climate, vegetation and the availability of technologically exploitable natural resources. Additionally, structural factors such as transportation networks, financial institutions, governmental intervention and interstate relations affect internal and external economic relations across space. Economic Geography can be thought of as the study of human production and reproduction of socio-economic relationships with nature at various scales, and is aimed at understanding patterns and variation across space and time.

This chapter will first consider the current economic conditions of the Afghan state and its economic potential by reviewing the agricultural, industrial and transportation sectors, as well as its primary resource base. Secondly, the current economic conditions will be explored in terms of how they affect the Afghani people and their every day lives. Finally, there will be an overview of the development of illicit opium production and trade that is now the primary economic enterprise of many Afghan households.

AGRICULTURE

Today agriculture is the largest segment of the Afghan economy. Estimates indicate that from 67-85% of Afghanis are engaged in

subsistence and commercial farming (Afghanistan Online 2001, CIA 2001, CountryWatch 2001). The primary regions of agricultural production are the irrigated lands centered along the Kabul, Helmand, Harut and Darya-ye Rivers, as evidenced by the increase in poppy production in the Kabul, Nangarhar, Helmand, Herat and Badakhshan provinces (see Figures 9.1 and 9.2) (United Nations 2001). Of Afghanistan's 647,500 sq km, only 12% or 77,700 sq km are arable. This equates to a physiological density of roughly 250 people per sq km who are attempting to eek out a living. This statistic does not, however, account for the pastoral alpine lands used for summer grazing of sheep and goats.

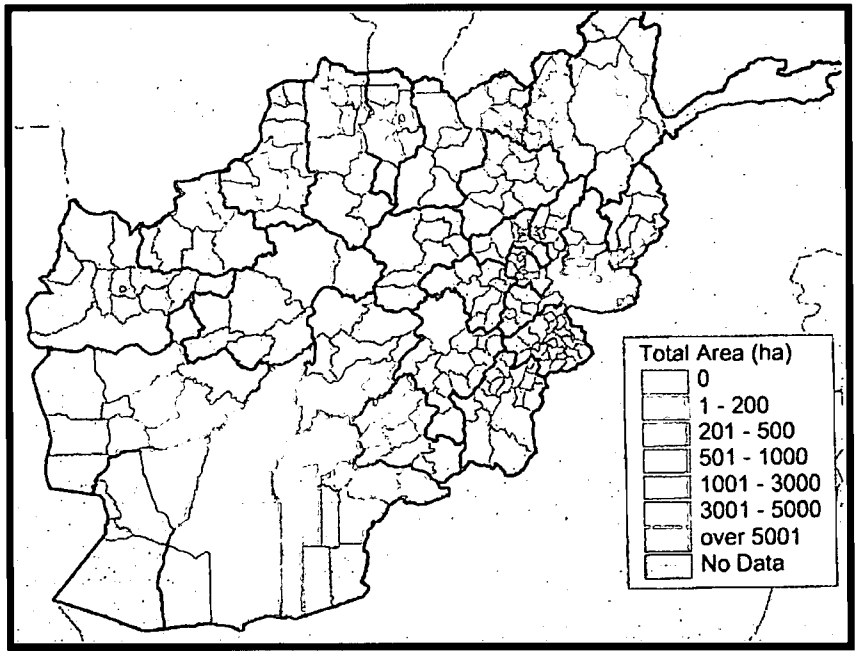

Figure 9.1: Afghanistan's Poppy Cultivation
Source: United Nations 2001

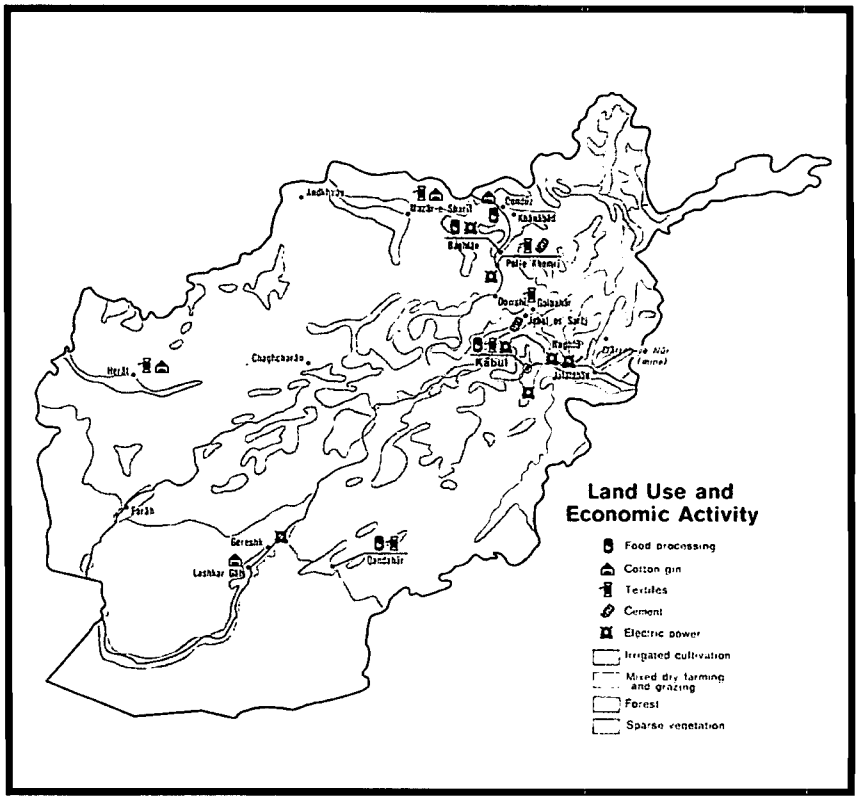

Figure 9.2: Economic Land use
Source: CIA, 1972

Although Afghanistan has a high **physiologic density**, the state has the capacity to meet its population's food requirements and has done so historically. The country, however, experienced a large decline in crop production between 1998 and 2000 (see Table 9.1). This is attributed to a decrease in annual precipitation that resulted in a 60% shortfall of Afghanistan's annual food requirements and prompted the United Nations to begin emergency food drops in June of 2000 in an effort to mitigate the impact of the drought (CountryWatch 2000, CIA 2001).

Product	1996	1997	1998	1999	2000
BANANAS	0	0	0	0	0
BARLEY	220,000	250,000	240,000	216,000	74,000
COCOA BEANS	0	0	0	0	0
COCONUTS	0	0	0	0	0
COFFEE	0	0	0	0	0
MAIZE	360,000	300,000	330,000	240,000	115,000
POTATOES	235,000	235,000	235,000	235,000	235,000
RICE, PADDY	350,000	400,000	450,000	420,000	232,800
SOYBEANS	0	0	0	0	0
SUGAR BEETS	1,000	1,000	1,000	1,000	1,000
SUGAR CANE	38,000	38,000	38,000	38,000	38,000
WHEAT	1,700,000	2,711,000	2,834,000	2,499,000	1,469,000
Total Production	2,904,000	3,935,000	4,128,000	3,649,000	2,164,800
Growth Rate (%)	-	35.50	4.90	-11.60	-40.67

Sources: UN Food and Agricultural Organization

Table 9.1: Afghanistan's production of Primary Crops
Source: CounrtyWatch 2001

Sheep and goat herding is another important part of the Afghani agricultural economy, producing 356.8 metric tons of meat per annum. Until the recent increase in poppy cultivation, herding was the primary source of household income (CountryWatch 2001). This portion of the Afghani's agricultural sector is concentrated in the Hindu Kush region and is the predominant activity of the seasonally nomadic Pashtuns. There are also a significant number of cattle and swine raised; however, this production remains at a local scale and all of the products from livestock production are consumed locally.

Although agriculture comprises the largest sector of the economy, it is confined to the local and regional scale because of the lack of overland transportation infrastructure, such as roads, railways, and navigable rivers, which is necessary to transport goods to other markets. Additionally, the recent droughts in Afghanistan have had a devastating effect on the country's 2000 food crop, hindering its ability to meet the domestic consumption requirements of its people. The lack of

transportation infrastructure, coupled with the drought of 1999, has forced Afghanistan to rely upon humanitarian assistance to feed its people.

INDUSTRY

In the 1970s, the industrial sector consisted primarily of natural gas exports to the former Soviet Union. Afghanistan at one point provided 70-90% of its output to Russia, approximately 275 million cubic feet per day (Energy Information Administration 2001). There are two existing natural gas pipelines connecting the towns of Bagram and Shindand to Uzbekistan and Turkmenistan, respectively. Thus, a viable transportation infrastructure exists to move Afghani natural gas to the Black Sea and Western markets. Since the Soviet invasion in 1979, however, fossil fuel production has dropped to nearly zero and what little is produced in the Jowzjan province is consumed domestically.

In an attempt to revitalize the gas and oil industry, the Taliban assumed control of the Afghan Gas Enterprise and the Afghan National Oil Company, and in 1999 started repairing the distribution pipeline near Mazar-i-Sharif (Energy Information Administration 2001). However, United Nations Security Council Resolution 1267 froze funds and financial resources derived from property owned or controlled by the Taliban, removing Afghanistan's ability to export fossil fuel (United Nations 1999). Consequently, the industrial sector with the greatest potential has been limited by the international community due to the Taliban's refusal to abide by the Chapter VII ruling of the United Nations, which ordered the surrender of Osama bin Laden (United Nations 1999, United Nations 2000).

At the household scale there is a small but important cottage industry in hand woven carpets that are traded across borders. This small-scale international trade provides needed income to the most vulnerable portion of Afghani society.

TRANSPORTATION

The transportation network in Afghanistan is inadequate to support little more than local movement. There are 21,000 km of roadway within the country, most of which is characterized as unimproved surfaces and trails, while only 2,793 km are paved and capable of supporting limited commercial wheeled vehicles (CIA 2001, review Figure 8.3). The railroad consists of 24.6 km of track: 9.6 km from Gushgy, Turkmrnistan to Towraghhondi and 15 km from Terniz, Uzbekistan to Kheyrabad. There

are ten airports with paved runways; however, only three are over 3,000 meters and capable of accommodating large commercial and military aircraft. Additionally, the United Nations banned commercial air traffic into and out of Afghanistan in 1999, and this prohibition remains in effect. Moreover, humanitarian flights are only authorized with the expressed permission of the UN Security Council (United Nations 1999, United Nations 2000). These economic sanctions have effectively prevented Afghanistan from engaging in any legitimate international trade.

PRIMARY RESOURCES

As mentioned previously, Afghanistan possesses both natural gas and crude oil. Natural gas, however, is the only fossil fuel that has been successfully exploited for export markets. Russia estimated Afghanistan's reserves to be as much as 5 trillion cubic feet of natural gas, and "proven and probable oil and condensate reserves at 95 million barrels" (Energy Information Administration 2001). In addition to the gas and oil reserves, Afghanistan is believed to hold 73 million tons of coal in the northern extent between Herat and Badashkan. With these three reserves, Afghanistan not only has export potential, but it could be a significant player in the global fossil fuel market (Energy Information Administration 2001).

Aghanistan also produces its own hydroelectric power. There are three dams (Kajaki, Mahipar and Breshna-Kot Dams) that are operational and produce a combined total of 94 megawatts (Energy Information Administration 2001). This is not sufficient, however, to meet local and regional needs, prompting Herat and Andkhoy to rely upon electricity imports from Turkmenistan. These renewable and fossil fuel sources provide an economic base, which if exploited and managed successfully, could propel Afghanistan into the developed world.

EVERY DAY LIVES

The result of the 20 years of war and the imposition of economic sanctions has affected the lives of individual families in profound ways. First, the international conflict with the Russians during the 1980s essentially destroyed the physical infrastructure of Afghanistan and significantly retarded industrialization in the northern border region. The conflict with Russia also caused 6 million people to flee Afghanistan, effectively reducing the most affluent and skilled portion of the labor pool. These conditions, coupled with the internal regional power struggles

spanning the 1990s have seriously reduced employment opportunities. As a result, most Afghanis resort to subsistence farming. This trend will likely continue for the foreseeable future because without skilled labor for industry and transportation improvements, families will be unable to get surplus agricultural products to market before spoilage occurs (United Nations 2001). Thus, any surpluses are simply bartered between nomadic herders and sedentary farmers. This limitation, however, may have encouraged the pursuit of an alternative economic opportunity, namely the production of opium.

ILLICIT OPIUM

The rapid growth of the opium economy in Afghanistan can be attributed to two macro and several micro factors. First, the decisions of Turkey, Iran and Pakistan to eliminate poppy production because drugs are against the teachings of Islam, created a global deficit in heroin supply (United Nations 2001). Secondly, the economic sanctions placed on the Taliban government that prevented Afghanistan from participating in legal international trade and denied access to external financial institutions.

The lack of employment outside the agricultural sector within Afghanistan, and the new global demand on the black market, a market that functions independently from and is impervious to international economic sanctions, provided the economic impetus and market niche at the local scale in Afghanistan. Afghani farmers needed cash, but could not transport perishable goods to market and, even if they could, the international community denied access to licit markets. Thus, opium became a suitable cash crop because it is traded on the black market and is insulated from international sanctions. Moreover, opium has a long shelf life and can endure extended overland transportation without a loss in value. Opium also has a large value to volume ratio such that a few kilos can provide an extended family with a very comfortable annual income. To some it is not surprising that Afghanistan has evolved as the world's leading exporter of opium, providing 70-79% of the global supply (United Nations 2001).

SUMMARY

Despite its harsh natural environment, Afghanistan has the agricultural potential to meet the needs of its rather sparse population. Warfare, drought, earthquakes, and the lack of transportation infrastructure, however, have hindered economic development in recent

years and have contributed to widespread famine. Although a number of industrial minerals are present in significant quantities, the lack of investment capital, a rudimentary transportation network, and political instability have prevented their exploitation. Moreover, political and economic sanctions have hindered relief efforts from other countries or global agencies. Based on the conditions mentioned above, Afghanistan's economic future looks bleak.

-Albert A. Lahood

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10
URBAN GEOGRAPHY

INTRODUCTION

Urban geography, as a subfield of human geography, focuses on the location, functions and growth of urban areas. Generally, the goals of urban geographic analysis are to understand the spatial structure and organization of population centers, to examine the spatial interactions and connectivity between cities, and to explain the processes that created the observed patterns (Palka 2001). Cities are centers of power and nodes of concentrated political and economic activity. As such, urban areas are just as vitally important to a rural, underdeveloped country like Afghanistan, as they are to a highly urbanized, developed country of the Western world.

As stated in previous chapters, Afghanistan has historically been a "crossroads" country. Despite the rugged aspect of the country's physical environment, the nature of its rivers and valleys and its centrality to Russia, India, China, and Iran have made it a natural meeting place and passage way for caravan traders moving to and from the Near East and Far East, as well as a conduit to funnel conquering armies. As such, the nature, structure, and location of both Afghanistan's major cities and its numerous small rural villages share a common-but-unique heritage. This heritage has played a key role in the site and situational factors that determine any city development (Getis et al. 2001).

This chapter focuses initially on the commonalities between Afghanistan's population centers and the physical aspects of their sites. We subsequently examine the situational attributes that influence each city's general layout and growth. We conclude this chapter with a general description of the country's local villages (that accommodate nearly two-third's of the country's population) and a brief focus on its major cities, five of which (Kabul, Kandahar, Herat, Mazar-e Sharif, and Jalalabad) will be discussed in detail.

COMMON POPULATION CENTER CHARACTERISTICS

Spawned by early land-based trade route economics, tempered by the need to support life in a harsh, unforgiving land, and forged by the necessity to protect themselves from numerous invading armies and constantly marauding parties of bandits, Afghan population centers often appear to be an unusual cross between a desert fortress stronghold and a

pre-industrial age merchant's bazaar. While each city and village is generally self-sufficient, most are roughly interconnected in a linear fashion that reveals some of the earliest land trade routes (Edwards 2001). This connectivity is *not* an accidental occurrence.

The initial selection of a village or town is usually related to aspects of its **site**. As a geographic concept, site refers to the internal aspects of a place, especially the physical characteristics. In Afghanistan, most of its cities and villages have always relied heavily upon agriculture and trade since their initial founding. These areas became central places where farmers and herders could gather together for protection, as well as congregate to buy or sell goods or acquire special services industries. In this respect, Afghanistan villages, towns, and cities are not any different from urban places of the developed world. The former provide goods and services to its residents and people of the surrounding hinterland. Much of rural Afghanistan today still is reliant upon this ancient arrangement and all its major cities still have a heavy agricultural link (Edwards 2001, *Afghanistan Country Review* 2001).

In this arid part of the world, water is key to survival. No village, farmer's field, or herder's flocks could exist without a reliable, easily accessible water source. As a result, all major Afghan cities and villages are located on relatively flat ground on or near perennial rivers. As a general rule, the size of the population center is limited by the baseflow of the river unless machinery is available to drill for groundwater. Locales sporting high volumes of open or flowing water and positioned on flat, fertile ground support larger populations. In other places where the river's flow is not as great and the land is irregular, or not as well suited to agriculture, town growth is extremely limited (Edwards 2001). The general locations where abundant water and gentle relief exist are often where channelized rivers converge and exit rugged mountain areas into valleys that merge into flatlands. It is no coincidence that Afghanistan's largest cities are positioned at these key locations (see Figure 10.1).

Smaller cities and villages tend to be spaced roughly 100 kilometers apart from each other in the flatter, less rugged areas of the country. These locations are points where historically, caravans would have had to acquire additional water during their long treks between the Far East and Near East.

A typical caravan would travel at walking speeds of about three to five kilometers per hour (2-3 miles per hour) for up to ten hours a day. This rate of movement enabled a caravan to travel roughly thirty to fifty

kilometers per day in open country. A caravan's money-making cargo included spices, silks, and other "exotic" items, but not water. Precious space and weight was devoted to high-payoff cargo and was rarely sacrificed for hauling water. Rather than traveling further between rest and water supply stops, caravan merchants sought to maximize profits. As a result, caravans would often carry only a two or three day supply of water for the entire group of pack animals, merchants, and armed escort guards (Polo as edited by Marsden and Wright 1948).

Figure 10.1: Transportation Map of Afghanistan
Source: CIA Worldbook, 2001

Considering caravan travel rates of thirty kilometers daily, caravan sought a water supply point every three days, or ninety kilometers. When traveling at the faster rates of fifty kilometers per day, heavily burdened

animals consume more water and deplete supplies quicker, forcing a caravan leader to either make more frequent water stops or carry more water. Based upon this economic decision, taking-on more water every two days yields a planned stop every 100 kilometers – the same distance between most Afghan cities. In rougher terrain, these optimum daily travel distances were much less, so caravans interacted with more (but smaller) villages, such as in the mountain region of Afghanistan's interior.

Although villages and towns are initially located based on aspects of their site, they tend to grow over time based on aspects of their **situation**. The latter concept refers to the external aspects of a place, and emphasizes the connection of the place relative to other places or events. Stemming from the caravan scenario is a second characteristic that generally defines the layout and structure of many Afghan cities and villages. Caravans needed more than a place to rest and resupply animals and people with water; they also needed a place to conduct business and protect their wares. These requirements helped to shape the layout of many of Afghanistan's past and present-day villages and towns, as well as providing the central core structure for the country's larger cities.

Approaching a village in the manner of a traveling merchant is a good way to visualize how the layout of a typical Afghan town may have evolved. Imagine that after two or three hard days of sweating and wiping the ever-present dust out of his stinging eyes, the merchant sees that his hard-packed road leads into a fairly flat, open area. He begins to smell the lush, green field crops near the river's edge. He sees numerous watering areas on the outskirts of town and looks to find a large open area near water, but not next to, the cool green fields. He camps in these open areas and takes a small part of his caravan into the main city.

As he follows a road leading into a large, open, central area easily accessible from the main route of trade travel, he observes that this road passes through irrigated fields and trees, until he is confronted with large, flat-roofed, mud-brick buildings with exterior walls devoid of windows. Some buildings are larger than others, but most are only one to two stories high. These buildings serve the dual purpose of protecting the inner city, as well as providing needed shelter from mid-day sun or wind-driven sandstorms.

As the merchant continues towards the small but rectangular city, he is funneled towards the central trading bazaar, passing by dwellings occupied by workers until he reaches the main city square, which doubles as a large, open air trading market. He notes many temporary stores

fashioned in tents or on carts set-up by other traveling merchants or locals who live in the city's outskirts. The best shops are along the boundaries of the central market square, where the permanent shops also double as living quarters for the more established traders and service providers.

This area also is near a larger, more permanent structure resembling the outer city buildings, but made of thicker walls and often of stone. Here is the central governmental center that houses the town's leadership and police. He also recognizes another more permanent building near this central area, the mosque.

While the previous scenario may appear to be a scene straight out of Marco Polo's fifteenth century travels, many of Afghanistan's smaller villages still resemble this layout today, especially in the country's rugged interior and more isolated northern areas. While the major Afghan cities are at times quite large and sprawling as compared to their more humble ancestral roots, they still tend to follow this romanticized structural pattern (Polo 1948, Edwards 2001).

MODERN URBAN CENTERS

Despite their resemblances to traditional layouts, modern developments in transportation, communication, construction practices, and economic activities have changed the complexion of Afghanistan's largest cities. In an effort to modernize, many old city districts have been razed to make way for more modern buildings, wider truck-capable roads, and other general infrastructure improvements, although some cities have preserved many of the older monuments celebrating Afghanistan's history (*Britannica Online* 2001). The ages, locations, layouts, and experiences of each major city contribute to unique and distinguishing characteristics that are clearly visible in the cultural landscape (Palka 2001). A general examination of five major Afghan cities (Kabul, Kandahar, Herat, Mazir-e Sharif, and Jalalabad) scattered throughout the country demonstrates this point.

It is noteworthy that despite many governmental modernization programs (initially started in the 1970s and continuing throughout the Soviet-occupation in the 1980s), most cities have fallen victim to the ravages of war. Moreover, infighting has continued during the occupation period and throughout the country's civil war over the past two decades. Consequently, virtually all of the major cities have experienced significant damage to their infrastructure and many of the urban landscapes exhibit various types of visual blight and decay.

Kabul is Afghanistan's capital and its largest city with a population of around 1,500,000 people (*Afghanistan Country Review* 2001, *Britannica Online* 2001, *CIA World Factbook* 2001). It is recognized as the country's **primate city** and serves as the economic, governmental, and cultural center. Figure 10.2 is extracted from a Russian topographic military map and serves to illustrate its location in a flat, triangular-shaped valley near a river and along a major road. Also note the interconnected irrigation canals located in the lesser-developed eastern outskirts of the city.

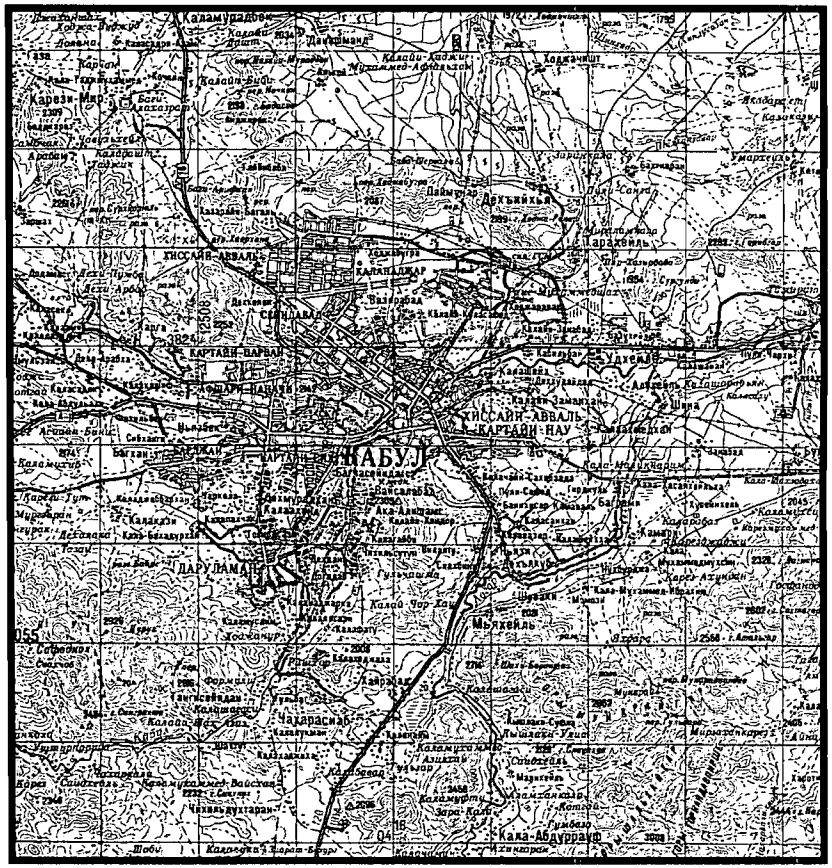

Figure 10.2: Russian Topographic Line Map Extract of Kabul
Source: Soviet General Staff Map I-42-XVI, 1985

To gain an appreciation of Kabul's relative importance to the nation, look closely at the road infrastructure leading to and from the city. The road to the north leads into the Hindu Kush Mountains and towards Uzbekistan and Tajikstan, both former Soviet republics. The southern road leads toward the crossroad city of Kandahar, which provides passage further south through Pakistan and towards the Indian Ocean or westward towards Iran. The road heading east goes towards Jalalabad and the Khyber Pass, which accesses Peshawar and Islamabad in Pakistan. In addition to being the country's central economic, governmental, and cultural center of gravity, it is also a critical focal point that maintains links and ties with nearly all areas of the country.

Kabul has been in existence for over 3,500 years, mainly due to its location on the ancient travel routes. As a consequence, Kabul has changed hands many times during its existence. As such, the complex cityscape reveals cultural imprints fashioned by conquering armies and rulers, although current inhabitants, mostly Dari- (Persian-) speakers with a large minority of Pashtuns, continue to modify the cultural landscape to suit their own needs (*Britannica Online* 2001).

Kandahar (Qandahar) is Afghanistan's second largest city with a population of over 225,000 people, mainly of Pashtun descent. While not a major industrial manufacturing center like Kabul, Kandahar is a major commercial and trade center due mainly to its location between Herat and Kabul, as well as its roads that lead westward into Iran and southward into Pakistan. This strategic trade location has been a bane to Kandahar. This city has changed hands nearly every time a new conquering army has moved through Afghanistan. As such, it exhibits ruins and influences of nearly every conquering army to travel through this part Central Asia, to include Alexander the Great (*Afghanistan Country Review* 2001, *Britannica Online* 2001, *CIA World Factbook* 2001).

While a modern city in many respects, Kandahar still clings to its old traditional founding and structure, and in many respects seems much more like an oversized Afghan village rather than the country's second largest city. Despite the creation of a more modern city on the outskirts of the traditional "old-city" area, the land surrounding Kandahar is irrigated and farmed and is dotted with orchards and vineyards, as illustrated in Figure 10.3. Industry in the city still revolves around agriculture (especially food processing), as well as natural textile manufacturing (most notably wool).

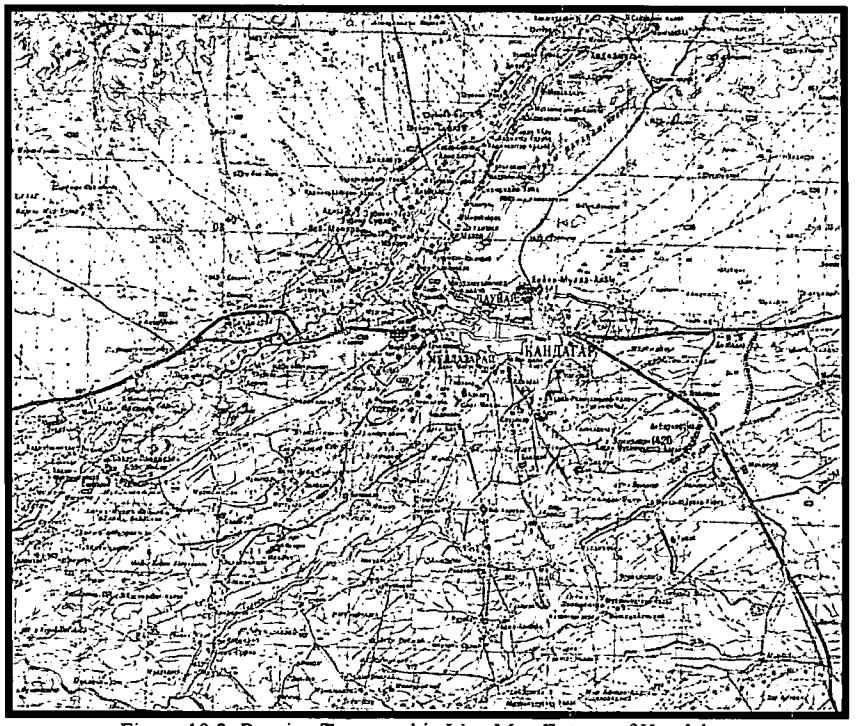

Figure 10.3: Russian Topographic Line Map Extract of Kandahar
Source: Soviet General Staff Map H-41-VI, 1985

Herat is the country's third largest city at over 180,000 people and is western Afghanistan's economic center (see Figure 10.4). This region has extremely fertile lands and is home to the country's most densely populated agricultural regions. Like many other Afghan cities, Herat, too, has a history of multiple conquests and is surrounded by the ruins of many other old cities. Herat also incorporates a moderate fur trade, although it would be stretching the point to consider it to be one of the city's major industries. Of special note is Herat's population, which is mainly Tajik, Turkmen, and Uzbek, much different than the Dari- (Persian-) speaking groups in Kabul (*Afghanistan Country Review* 2001, *Britannica Online* 2001, *CIA World Factbook* 2001).

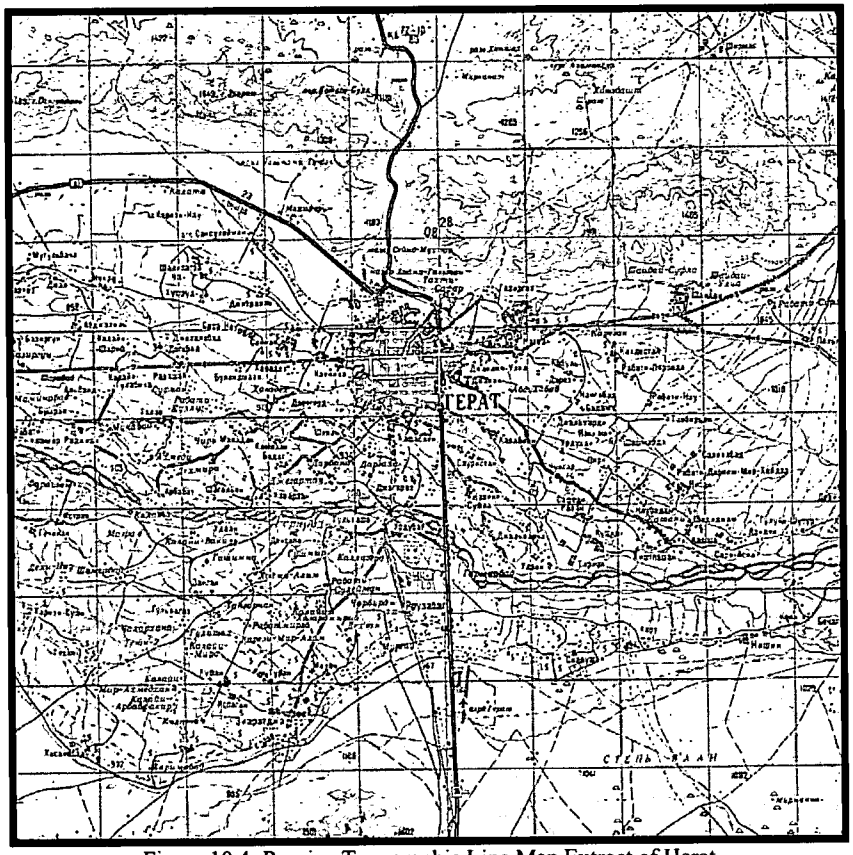

Figure 10.4: Russian Topographic Line Map Extract of Herat
Source: Soviet General Staff Map I-41-XV, 1985

Mazar-e Sharif (see Figure 10.5) is another traditionally arranged agricultural city that primarily produces cotton, grains, and fruits. Mazar-e Sharif's population is generally considered to be over 130,000 and is mainly inhabited by Uzbeks, Tajiks, and Turkmens due mainly to its proximity to Uzbekistan, which is 35km further north. The town's name literally means "tomb of the saint" since the caliph 'Ali, the son-in-law of the Prophet Muhammad, reportedly lies in the blue-tiled mosque that marks his tomb. This city northern city is highly regarded as a special holy place by all believers of Islam, with the distinct exception of Shi'ite Muslims.

Figure 10.5: Russian Topographic Line Map Extract of Mazar-e Sharif
Source: Soviet General Staff Map J-42-XXVI, 1985

***Jalalabad* (a.k.a. Jalakot)** (see Figure 10.6) is a smaller city that is located roughly 170km east of Kabul. The city supports a population of nearly 60,000 people, mainly of Pashtun descent. Jalalabad conforms to the typical Afghan city layout, surrounded by large irrigated plains, and boasting an industrial base that is mainly related to agriculture or food processing. Jalalabad is roughly midway between Kabul and Peshawar in Pakistan. Most importantly from a military perspective, Jalalabad is the largest Afghan city near the critical Khyber Pass and also dominates the entrances to the Laghman and Kunar valleys (*Afghanistan Country Review* 2001, *Britannica Online* 2001, *CIA World Factbook* 2001).

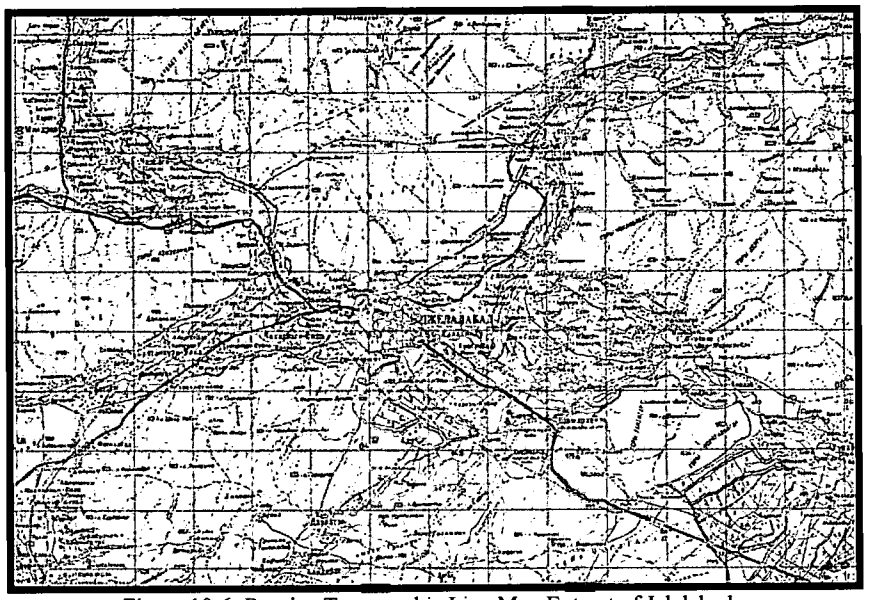

Figure 10-6: Russian Topographic Line Map Extract of Jalalabad
Source: Soviet General Staff Map I-42-XVII 1985

SUMMARY

Afghanistan's major cities have been heavily influenced by their physical location, as well as by their long, often complicated histories. Repetitive conquests have contributed to a mixed urban landscape for many major cities, with aspects of the cultural imprint reflecting the city's former role as a key point along an ancient caravan trade route. While there are vast differences between the size and lifestyles of small rural villages and major cities such as Kabul and Mazar-e Sharif, it is interesting to note that even modern influences have failed to radically change city structure and function.

-Brandon K. Herl

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11
POPULATION GEOGRAPHY

INTRODUCTION

Demography, or the study of characteristics of human populations, is an interdisciplinary undertaking. Geographers approach the study of population with a unique perspective. They study population to understand the spatial distribution of Earth's people. Geographers are also interested in the reasons for, and consequences of, the distribution of population from the local to global scales. While historians study the evolution of demographic patterns and sociologists address the social dynamics of human populations, geographers focus special attention on the spatial patterns of human populations, the implications of such patterns, and the reasons for them. Using many of the same tools and methods of analysis as other population analysts, geographers think of population within the context of the places that populations inhabit.

Demography, or the systematic analysis of the numbers and distribution of people, enables the analyst to explore the interrelationships and interdependencies between humans and places. Given geography's emphasis on different people and places, the discipline offers unique opportunities to examine the population distribution and characteristics of the state of Afghanistan. This chapter examines the population geography of Afghanistan and answers three important questions. First, what are the spatial patterns of human population in Afghanistan? Second, what are the causes and consequences of such a population distribution? And third, what are the composition and growth characteristics of the Afghan population?

POPULATION DISTRIBUTION

Afghanistan has many ethnic groups and these groups have a distinct spatial organization within the country. The Pushtun, the largest group, comprise an estimated 38 percent of the total population and live predominantly in the east and south. Tajiks, who account for a quarter of the population, are the second largest ethnic group and live mostly in the northern region of the country. Other groups include the Uzbeks and Turkmen, who live in the north central region, and the Hazara, who live in the central region. There are smaller numbers of Baluchi, Brahui, Nuristani, Aimaq, Qizilbash, and Kyrgyz (CIA World Factbook, 2001).

According to the U.S. Census Bureau, there were approximately 26 million people living in the country in 2000. It is important to note that Afghanistan has one of the lowest rates of urbanization in the world. About 80 percent of the people in the country are considered rural (CIA World Fact Book 2001). This is not surprising, given that approximately 70 percent of the population earn their living from agriculture. There are many environmental and physical factors that are important influences on population distributions and concentrations. Some of these factors are degree of accessibility, topography, soil fertility, climate and weather, water availability and quality, and type and availability of other natural resources. Other factors are also crucial – first and foremost is the country's political, cultural and economic experiences and characteristics. For example, Afghanistan's capital city, Kabul, is the country's largest, with a population of about 1.5 million. Afghanistan's second largest city is Kandahar. Located in southern Afghanistan on a fertile, irrigated plain, Kandahar is the chief commercial center of the country. The leading products of the province are fruit, grain, tobacco, silk, cotton, and wool. The city itself has fruit processing and canning plants and textile mills. The nation's third largest city, Mazar-e Sharif, is a commercial center for the northern region of the country and is an important pilgrimage destination. The 15th century mosque in the city is said to contain the tomb of the caliph Ali, son-in-law of Muhammad.

There is an uneven spatial distribution of people in Afghanistan. Some provinces have agglomerations of people while others are sparsely populated. Table 11.1 provides data on area, population, and population density for 29 of Afghanistan's 30 provinces. The provinces in the table are ranked by population.

Afghanistan's rural population is approximately 20 million. With the current political turmoil and food shortage in the countryside, city populations could grow rapidly, causing even more health and nutritional problems. Cities have important administrative and military command functions and provide a refuge for impoverished rural groups. Additionally, many Afghans are attempting to leave the country, emigrating to Iran or Pakistan. Afghanistan's rural population also includes an estimated 2 million nomads, most of whom are Pushtuns, who move from winter grazing sites in the valleys and plains to the west, northwest, and southwest of the Hindu Kush to summer pastures in the Hazarajat and in Badakhshan to the northeast (Lieberman 1980).

Rank	Province	Area (sq. km)	Center of Province	Population	Pop Dens
1	Kabul	4,585	Kabul	1,518,000	331
2	Herat	61,315	Herat	808,000	13
3	Nangarhar	7,616	Jalalabad	782,000	103
4	Ghazni	23,378	Ghazni	676,000	29
5	Jozjan	25,553	Shiberghan	616,000	24
6	Balkh	12,593	Mazar-I-Sharif	610,000	48
7	Faryab	22,279	Meymanah	610,000	27
8	Qandahar	47,676	Qandahar	598,000	13
9	Qunduz	7,827	Qunduz	583,000	74
10	Takhar	12,376	Taloqan	544,000	44
11	Helmand	61,829	Lashkargah	542,000	9
12	Parwan	9,399	Charikar	528,000	56
13	Badakhshan	47,403	Feyzabad	521,000	11
14	Baghlan	17,107	Baghlan	517,000	30
15	Paktia	9,581	Gardez	506,000	53
16	Uruzgan	29,295	Tarin-kot	465,000	16
17	Ghour	38,666	Chaghcharan	354,000	9
18	Laghman	7,210	Metharlam	325,000	45
19	Wardak	9,023	Meydan Shahr	301,000	33
20	Bamian	17,414	Bamian	281,000	16
21	Samangan	15,465	Aibak	274,000	18
22	Kapisa	1,871	Mahmud-I-Eraqi	262,000	140
23	Kunar	10,479	Asadabad	262,000	25
24	Paktika	19,336	Sharanah	256,000	13
25	Farah	47,788	Farah	245,000	5
26	Badghis	21,858	Qala-I-Now	244,000	11
27	Logar	4,652	Barakibarak	226,000	49
28	Zabul	17,293	Qalat-I-Ghilzai	188,000	11
29	Nimruz	41,356	Zaranj	108,000	3
Total		652,223		13,750,000	21

Table 11.1. Afghanistan Population by Province
Source: http://www.afghan-reality.de/prov.html

Note: Certain regions were impacted by massive emigration during the war with the Soviet Union in the 1980s. In the 1990s, many refugees returned home but millions remain in Pakistan and Iran.

For the non-nomadic, largely agricultural segment of the rural population, density of settlement is greatest in eastern Afghanistan in the intensively cultivated plains and valleys formed by the Kabul River and its tributaries (Lieberman 1980). A second region of significant rural settlement includes the lower valleys of the Kunduz and Khanabad Rivers (provinces of Takhar and Kunduz), which drain into the Amu Darya (Lieberman 1980). There are few inhabitants living in the provinces located in the deserts and mountainous wastelands of western and central Afghanistan.

POPULATION DENSITY

Another way to examine the population is in terms of density, a numerical measure of the relationship between the number of people and some other unit of interest expressed as a ratio. For example, crude density (sometimes referred to as arithmetic density) is probably the most common measurement of population density. Crude density is the total number of people divided by the total land area.

Afghanistan has a population of 25,889,000 within a total land area of 251,825 square miles (652,225 square kilometers). Therefore, the country's population density is equal to 106 persons per square mile (or 41 persons per square kilometer) (U.S. Census Bureau, 2001). For the sake of comparison, Afghanistan is slightly smaller than the state of Texas. Texas has a population of 20,044,141 living on 267,277 square miles (692,244 square kilometers). Thus, Texas has a population density of 77 persons per square mile (or 30 persons per square kilometer). We can conclude from this data that Afghanistan is 37% more densely populated than the state of Texas. Another important concern is that this density does not take into account the limited amount of arable land in Afghanistan. According to the CIA, only 12 percent of the land in Afghanistan is considered arable (CIA World Factbook 2001). An additional 46 percent is considered permanent pastures (CIA World Factbook 2001). This means there is even greater competition among the varied ethnic groups for the land that is capable of producing food.

POPULATION COMPOSITION

In addition to exploring patterns of distribution and density, population geographers also examine population in terms of its composition, that is, in terms of the subgroups that constitute it. Understanding population composition enables analysts to gather important information about population dynamics. For example, knowing the composition of a population in terms of the total number of males and females, number of proportions of old people and children, and number and proportion of people active in the workforce, provides valuable insights into the ways in which the population behaves.

The most common way for geographers to represent graphically the composition of the population is to construct an **age-sex pyramid** (or more properly referred to as a population profile), which is a representation of the population based on its composition according to age and sex cohorts. Usually, males are portrayed on the left side of the vertical axis and females to the right. Age categories are ordered sequentially from the youngest, at the bottom of the pyramid, to the oldest, at the top. By moving up or down the pyramid, one can compare the opposing horizontal bars to assess differences in frequencies for each age group. A cohort is a group of individuals who share a common temporal demographic experience. A cohort is not necessarily based on age, however, and may be defined according to criteria such as time of marriage or time of graduation.

Age-sex pyramids can reveal the important demographic implications of war or other significant events. Moreover, age-sex pyramids can provide information necessary to assess the potential impacts that growing or declining populations might have. Now, let us take a look at the age-sex pyramid for Afghanistan for the year 2000 (see Figure 11.1).

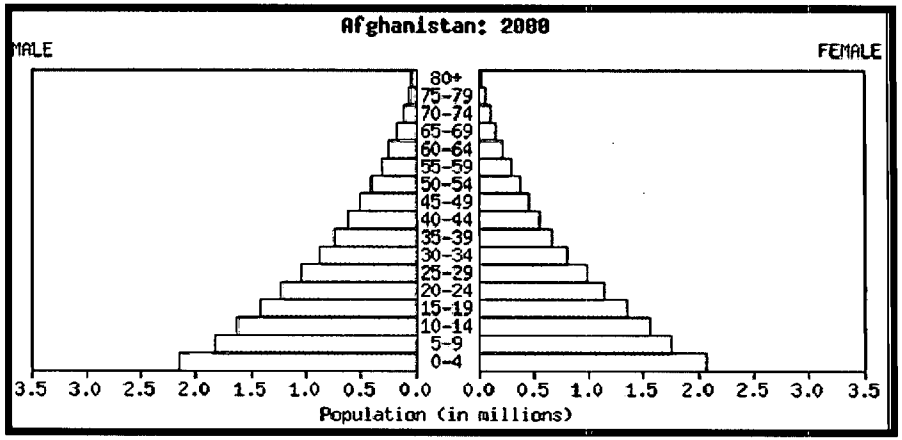

Figure 11.1. Age-Sex Pyramid for Afghanistan, 2000
Source: US Census Bureau, International Data Base

Afghanistan's population profile reveals that many dependent children, ages 0 to 14, exist relative to the rest of the population. The considerable narrowing of the profile toward the top indicates that the population has been growing very rapidly in recent years. The pyramidal shape of Afghanistan's profile is typical of countries with high birthrates and relatively low death rates. Serious implications, however, are associated with this type of profile. First, in the absence of high productivity and wealth, resources are increasingly stretched to their limit to accommodate even elemental schooling, nutrition, and health care for the growing number of dependent children. Furthermore, when these children reach working age, a large number of jobs will need to be created to enable them to support themselves and their families. Additionally, as they form their own families, the sheer number of women of childbearing age will almost guarantee that the population explosion will continue. This scenario will become a reality unless the country's government takes strong measures. The range of initiatives include, intensive birth control campaigns, improved education and employment opportunities outside the home for women, and awareness campaigns to modify cultural norms that place a high value on large family size. Given the cultural and political information that have already been discussed in previous chapters, it is

very unlikely that the current government in Afghanistan will take these necessary measures to reduce the natural growth rate of its population. Therefore, we can expect the population of Afghanistan to continue growing rapidly, unless war or famines occur in the future. Based on current trends, the Census Bureau can project the country's age-sex pyramid for 2025 (see Figure 11.2).

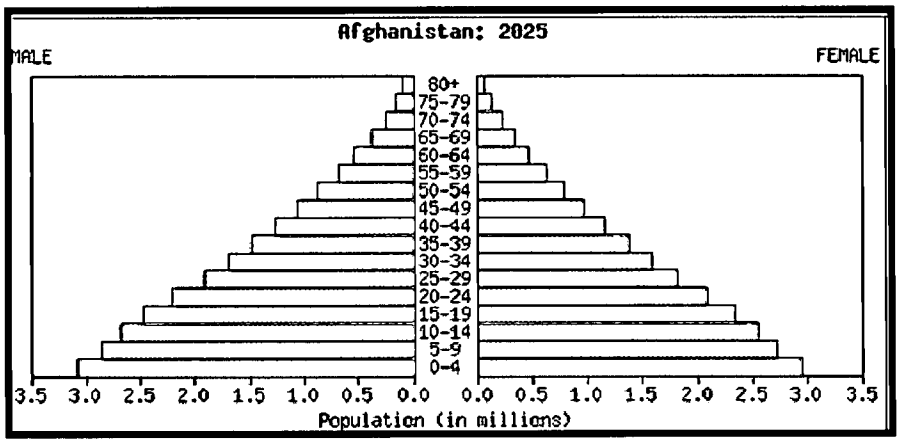

Figure 11.2. Projected Age-Sex Pyramid for Afghanistan, 2025.
Source: US Census Bureau, International Data Base

A critical aspect of the population pyramid is the **dependency ratio**, which is a measure of the economic impact of the young and old on the more economically productive members of the population. In order to assess this relation of dependency in a particular population, geographers will typically divide the total population into three age cohorts. The youth cohort consists of those members of the population who are less than 15 years of age and generally considered to be too young to be fully active in the labor force. The middle cohort consists of those members of the population aged 15 to 64 who are considered economically active and productive. Finally, the old-age cohort consists of those members of the population aged 65 and older who are considered beyond their economically active and productive years. By dividing the population into these three groups it is possible to obtain a measure of the dependence of

the young and old upon the economically active and the impact of the dependent population upon the independent.

Afghanistan has a very large dependency ratio. Forty-four percent of the population is under age 15 or over age 65. From Figure 11.1, it is clear that the main reason for this high dependency ratio is the large number of children in Afghanistan's population. There are nearly 11 million children in Afghanistan under the age of 15. This is 42 percent of the population. In contrast, children under age 15 in the U.S. only account for 21 percent of the total population.

BIRTH AND DEATH RATES

The demographic statistics of Afghanistan presented in this section are consistent with the patterns in other predominantly rural and economically developing Islamic countries. The **crude birthrate** (CBR) is the total number of live births in a year for every thousand people in the population. The crude birthrate for Afghanistan in the year 2000 was 42 (U.S. Census Bureau 2001). To put this number into perspective, consider that it is three times the corresponding figure in the United States, which is 14. Although the level of economic development is a very important factor shaping the CBR, other, often equally important influences also affect CBR. Afghanistan, in particular, is influenced by women's educational achievement, religion, social customs, diet and health, as well as war and political unrest.

The crude birthrate is only one of the indicators of fertility. Another indicator used by population experts is **total fertility rate** (TFR), which is a measure of the average number of children a woman will have throughout her childbearing years, generally considered to be ages 15 through 49. Whereas the CBR indicates the number of births in a given year, the TFR is a more predictive measure that attempts to portray what birthrates will be among a particular cohort of women over time. A population with of TFR of slightly higher than 2.0 has achieved replacement level fertility. This means that birthrates and death rates are approximately balanced and there is stability in the population. The TFR for Afghanistan is 5.9, whereas in the United States and many other developed countries it is 2.1. (U.S. Census Bureau).

Closely related to the TFR is the doubling time of the population. The **doubling time**, as the name suggests, is a measure of how long it will take the population of an area to grow to twice its current size. To compute a country's doubling time, we simply divide the number 70 by

the rate of natural increase. In the case of Afghanistan, the rate of natural increase is 2.4. If we divide 70 by 2.4, we get a period of 29 years. The idea that Afghanistan's population will double to 52 million in the next three decades is troubling, given the region's political instability and inability to feed its current population.

Countering birthrates and also shaping overall population numbers and composition is the **crude death rate** (CDR), the ratio between the total number of deaths in one year for every thousand people in the population. Crude death rates often reflect levels of economic development. Mortality is high in Afghanistan for infants, children, and adults alike. The CDR is 18, which is twice as high as the United States' CDR of 9.

Death rates can be measured for both sex and age cohorts and one of the most common measures is the **infant mortality rate**. This figure is the annual number of deaths of infants less than one year of age compared to the total number of live births for that same year. The figure is usually expressed as number of deaths during the first year of life per 1,000 live births. The infant mortality rate has been used by researchers as an important indicator both of a country's health care system and the general population's access to health care. Afghanistan's infant mortality rate is a staggering 147 deaths per 1,000 live births (CIA World Factbook). To put this figure into perspective, compare it to Europe's average infant mortality rate of just 7.

Related to infant mortality and the crude death rate is **life expectancy**, the average number of years an infant newborn can expect to live. Infants born in Afghanistan in the year 2000 can expect to live an average of 46 years, while U.S. infants born in the same year can expect to live 77 years.

High infant mortality rates and low life expectancy levels exist even in the capital city of Kabul, which has the highest educational levels and best medical facilities in the country. These statistics testify to the inadequacy of the public health effort. Analyses of the causes of death in Afghanistan emphasize the effects of malnutrition (as a direct and contributing factor) and infectious diseases such as diphtheria, tetanus, and pneumonia on the health of children; adult mortality has been attributed to many of the respiratory and gastrointestinal diseases that affect children. In addition, tuberculosis and malaria, important as a debilitating disease, continue to have a high incidence among adults in Afghanistan (Lieberman 1980).

MOBILITY AND MIGRATION

In addition to the population dynamics of death and reproduction, the movement of people from place to place is a critical aspect of examining population geography. Mobility is the ability to move from one place to another, either permanently or temporarily. We have already discussed the nomadic characteristics of the Afghan population. Millions of rural Afghans, mostly Pushtuns, move with the seasons for better grazing opportunities for their sheep and goat herds. The second way to describe population movement is in terms of **migration,** which is a move to a new location with the intention of being permanent. Migrants intend to permanently change their place of residence – where they sleep, store their possessions, and receive legal documents for the foreseeable future.

Migration has two forms, emigration and immigration. Emigration is migration out from a location; immigration is migration into a location. A decision to migrate stems from a perception that somewhere else is a more desirable place to live. People may hold very negative perceptions of their current place of residence or very positive perceptions about the attractiveness of somewhere else. Negative perceptions about their place of residence that induce people to move away are **push factors**, whereas **pull factors** attract people to a particular new location.

Migration from Afghanistan is basically resulting from three push factors- political, economic, and environmental. Refugees are people forced to migrate from a particular country for political reasons. The United Nations defines political refugees as people who have fled their home country and cannot return for fear of persecution because of their race, religion, nationality, and membership in a social group, or political opinion (Rubenstein 1996).

As a result of the former Soviet Union's invasion of Afghanistan in 1979, more than five million Afghans fled to refugee camps set up in neighboring Iran and Pakistan. Because of a very high natural increase rate – an average of 2.6 percent since 1979 – the population in the refugee camps has swelled to more than 6 million (Rubenstein 1996). By the mid 1990s, more than 3 million Afghans lived in tents or mud huts set up in 250 camps in Pakistan. The largest number live near the town of Peshawar, in northern Pakistan. Peshawar is situated near the eastern end of the Khyber Pass, the major land route through the mountains between Afghanistan and Pakistan. Other Afghan refugees settled in camps in

Pakistan's Baluchistan and Punjab provinces. More than two million Afghan refugees migrated westward to Ian, primarily to the border cities of Mashhad, Birjand, and Zahedan, as well as the capital of Tehran.

The Soviet Union withdrew its troops from Afghanistan in 1989, and the Soviet-installed government collapsed in 1992. Since then, several thousand refugees have returned home, trading the security of the camps for the possibility of reclaiming their farms. The United Nations, which had issued ration books to the refugees so that they could obtain food while living in the camps, provided each returning family with about 300 kilograms (650 pounds) of wheat and the equivalent of $150 to pay for transportation (Rubenstein 1996).

Throughout most of the 1990s, rival ethnic groups fought for control of the government. This prevented many of the refugees from returning home. When the predominantly Pushtun Taliban gained control of Kabul and most of the country, many ethnic minorities have emigrated. In addition to the political push factors, economic and environmental push factors continue to provide reasons for Afghans to emigrate to the camps in Iran and Pakistan. The lack of job opportunities and severe drought in recent years has forced many rural Afghans to flee their homeland to pursue opportunities outside the country. Moreover, the current crisis between the United State and the Taliban may prove to be an additional push factor for Afghans to emigrate.

SUMMARY

The discipline of geography brings a unique spatial perspective to the scientific study of population. This chapter has employed this perspective to examine the population distribution and characteristics of Afghanistan. Humans are not distributed uniformly across Afghanistan. The physical geography of the country and the region's harsh climate influence the current distribution of human habitation. Although eighty percent of the population is rural, there are major population concentrations in the country's primary cities. The main concentration is around the capital of Kabul. Afghanistan's demographic statistics paint a bleak picture of current and future prospects for the country. If natural growth rates are not lowered by aggressive policies, Afghanistan will continue to suffer from famines and human misery on a massive scale. The segment of population that will suffer the most is the children of Afghanistan, who make up over 40 percent of the current population. The current crisis between Taliban government and the United States and its

allies will provide another push factor that changes the population geography of the country. Many Afghans are already attempting to leave the country in advance of likely U.S. attacks. Others are being forced to serve in the Taliban's military force. The population geography of Afghanistan presents the United States with some very difficult challenges. Stabilizing the political situation might be a first priority, but a second priority has to be rebuilding the national economy of the country and providing assistance to the millions of refugees in the region.

-Dennis D. Cowher

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12
MEDICAL GEOGRAPHY

An important area for commanders, staffs and subordinate leaders to consider during military planning is the **medical geography** of the area of operations. Medical geography is "the application of geographical perspectives and methods to the study of health, disease and health care (Johnson 1996)." Medical geography incorporates two broad areas of study. The first concerns the spatial **ecology of disease** and geographical aspects of the health of populations. The second emphasizes the geographical organization of health care. Medical geography retains associations with other disciplines outside of geography, reflecting the complexity of most health-related problems and the need to examine them from a multidisciplinary perspective.

Since officers are responsible for **force protection**, an integral part of any decision-making process involves addressing the specific environmental health hazards that may be encountered in a specific place. An important consideration in assessing a region's environmental health hazards is the health status of the indigenous population. This chapter will analyze the overall health of the Afghan people, focusing on the distribution of **disease and nutrition**. By knowing the distribution of health and disease in Afghanistan, leaders can take appropriate measures depending on the mission and area of operations.

THE SOVIET EXPERIENCE IN THE 1980s

The Soviet experience in Afghanistan provides lessons that can be applied to future military operations. The following excerpt from a paper published by the Foreign Military Studies Office provides a dramatic account of the force protection challenge in Afghanistan.

> Of the 620,000 Soviets who served in Afghanistan, 14,453 were killed or died from wounds, [whereas] accidents or disease [were] a modest 2.33 percent of the total who served. However, the rate of hospitalization during Afghanistan service was remarkable. The 469,685 personnel hospitalized represented almost 76 percent of those who served. Of these, 53,753 (11.44 percent) were wounded or injured. Fully 415,932 (88.56 percent) were hospitalized for serious diseases. In other words, 67 percent of those who served in Afghanistan required hospitalization for a serious illness. These illnesses included 115,308 cases of infectious [Type A] hepatitis and 31,080 cases of typhoid fever. The remaining 269,544 cases were split between plague, malaria, cholera, diphtheria, meningitis, heart disease, shigellosis (infectious dysentery), amoebic dysentery, rheumatism, heat stroke, pneumonia, typhus and paratyphus (Grau 97)."

THE TRIANGLE OF HUMAN ECOLOGY

A useful framework for analyzing the impact of health related issues in a place is provided by the **Triangle of Human Ecology** (Figure 12.1). Three vertices form the triangle: population, behavior, and habitat. These vertices enclose the state of health (Meade et al. 1988).

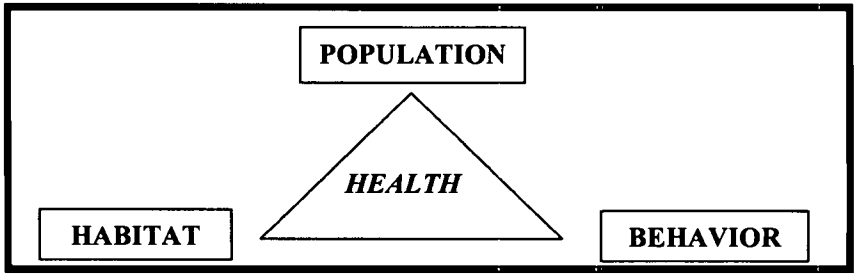

Figure 12.1: The Triangle of Human Ecology
Source: Adapted from Meade et al., 1988.

"**Habitat** is that part of the environment within which people live. It includes houses, workplaces, settlement patterns, recreation areas, and transportation systems. **Population** considers humans as the potential hosts of various diseases. Factors affecting and yet characterizing the population include nutritional status, genetic resistance, immunological status, age structure, and psychological and social concerns. **Behavior** includes the observable aspects of the population and springs from cultural norms. It also impacts on those who come into contact with disease hazards and whether or not the population elects other alternatives. **Health** is a state of complete physical, mental, and social well-being, and not merely the absence of disease. Health is a continuing property that can be measured by an individual's ability to rally from a wide range and considerable amplitude of **insults** (Palka 2001)."

Physical insults could refer to air quality, temperature, humidity, light, sound, atmospheric pressure, and trauma. Physical insults unique to Afghanistan include the stress of extreme annual and diurnal temperatures and high altitudes. **Chemical insults** include pollen, asbestos, various pollutants, smoke, or even food (Palka 2001). Afghanistan's urban air pollution and use of US-banned pesticides and fertilizers are examples of chemical insults (DIA-AFMIC 2001). Infectious insults include virus, bacteria, fungi, and protozoa. Infectious insults cause debilitating **endemic** and **epidemic diseases** in Afghanistan.

WATER-BORNE DISEASES

Sanitation is extremely poor throughout the country, including major urban areas. Local food and water sources (including ice) are heavily contaminated with pathogenic bacteria, parasites, and viruses to which most US service members have little or no natural immunity. "Diarrheal diseases (cholera and dysentery) can be expected to temporarily incapacitate a very high percentage of personnel within days if local food, water, or ice is consumed. Hepatitis A, typhoid fever, and hepatitis E can cause prolonged illness in a smaller percentage (DIA-AFMIC 2001)."

Hepatitis is not normally endemic to Afghanistan; however, it took a severe toll on the Soviets. Ninety-five percent of all Soviet hepatitis patients had Hepatitis A, but there are now vaccines against it. The remaining five percent contracted Hepatitis E (Grau 97). Immuno-globulin has been used for over 40 years to protect against hepatitis A infection (DIA-AFMIC 2001). "It is safe and highly effective if given before or within 14 days of exposure. The protection provided is immediate but relatively short-lived (approximately one month per ml)," so prolonged periods of deployment require repeated injections (DIA-AFMCIC 2001)." Hepatitis E, formerly called non-A, non-B hepatitis, is a waterborne infection, and is found in epidemics and sporadic cases. "The disease primarily affects young adults, is clinically similar to hepatitis A, and does not lead to chronic disease (DIA-AFMIC 2001)." There is no vaccine against hepatitis E, and immunoglobulin prepared in Europe or the USA does not give protection (Benenson 1995). As for many other enteric infections, avoidance of contaminated food and water is the only effective protective measure.

As of March 2000, the World Health Organization (WHO) considered several provinces cholera endemic. From May through July of

1999 there were 14,402 cases of severe diarrhea, including cholera cases. The most affected areas were Kabul province and the central region. Also reported in September of 2000 was an outbreak of cholera in the southern, western and northern regions (in the provinces of Kandahar, Badghis, and Jawzjan). To date, 1,604 cases and 19 deaths have been reported (WHO 2001).

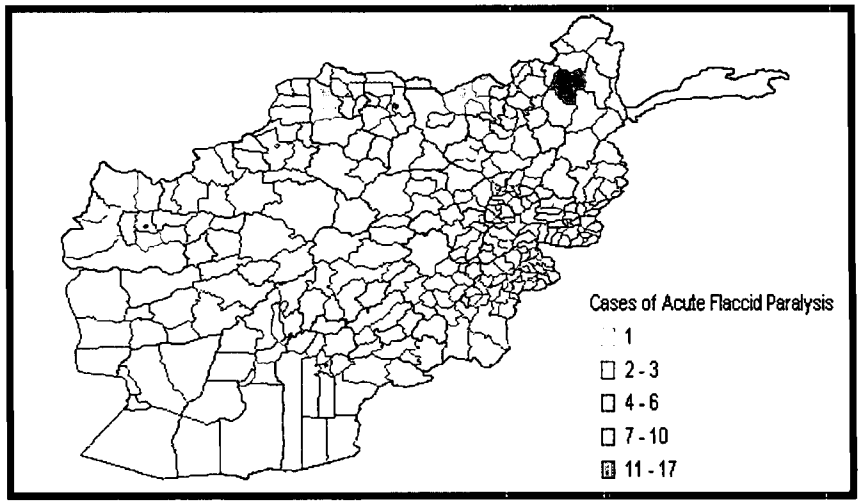

Figure 12.2: Distribution of Poliomyelitis (Acute Paralysis)
Source: United Nations 2001

Poliomyelitis (Figure 12.2) is a viral infection occurring in areas where sanitation is poor. It is endemic to Afghanistan. Current immunizations and vaccinations can protect soldiers from this disease. Outbreaks occur frequently and the WHO has made eradicating this disease from Afghanistan a high priority because the country is one of the last remaining source regions of polio (WHO 2001). Unfortunately, the lack of polio immunization can be attributed in part to the rural and isolated character of Afghanistan's settlement patterns. The disease causes paralysis, most often in the lower extremities. The larger urban areas of Afghanistan have the most concentrated cases of poliomyelitis because it is a disease that can be contracted by proximity to hosts of the virus. It should be noted, however, that the overall ratios of hosts per population is higher in rural areas owing to the decreased availability of medical care.

VECTOR-BORNE DISEASES

During the warmer months of May to November, the climate and ecological habitat support large populations of arthropod vectors, including mosquitoes, ticks, and sand flies (DIA-AFMIC 2001). Significant disease transmission is sustained countrywide, including urban areas. Serious diseases may not be recognized or reported due to the lack of surveillance and diagnostic capability.

"Malaria is the major vector-borne risk in Afghanistan, capable of debilitating a high percentage of personnel for up to a week or more (Benenson 1995)." Two forms of malaria exist in Afghanistan. **Malaria Vivax** is generally not life-threatening, except in the very young, the very old, and in patients with concurrent disease or immunodeficiency (DIA-AFMIC 2001). **Malaria Falciparum** is the most serious form of malaria. It causes death in ten percent of children who contract the disease and in adults who are not immune. The distribution of both forms of malaria is consistent with areas under 2000 meters in elevation, as mosquitoes are not adapted for cool temperatures. Therefore, soldiers in the region operating in high altitudes would have little concern for mosquito protection. There will be concern, however, for cold weather injuries, addressed later in this chapter. The distributions shown in Figure 12.3 and 12.4 are explained through climate and settlement patterns in Afghanistan (United Nations 2001). Malarial infection exists where there is sufficient water, mild to warm temperatures, and where there is human settlement. Since a large percentage of people live in the valleys of Afghanistan near sources of water, the prime locations for malarial infection include the cities of Jalalabad, Kabol, Khowst, Bamian, Gizab, Mazar-e-Sharif, Faryab, Badghis, Heart, Farah, Lashkar Gah, and Qandahar. Military personnel operating in these regions should be supplied with prophylactic drugs such as chloroquine and mefloquine.

RESPIRATORY DISEASES

The primary respiratory diseases that jeopardize the Afghan population are meningococcal meningitis and tuberculosis. Data for meningitis are scarce, but the WHO describes the risk distribution as countrywide. As of 1997, the estimated percentage of Afghans having tuberculosis was 35 percent (WHO 2001).

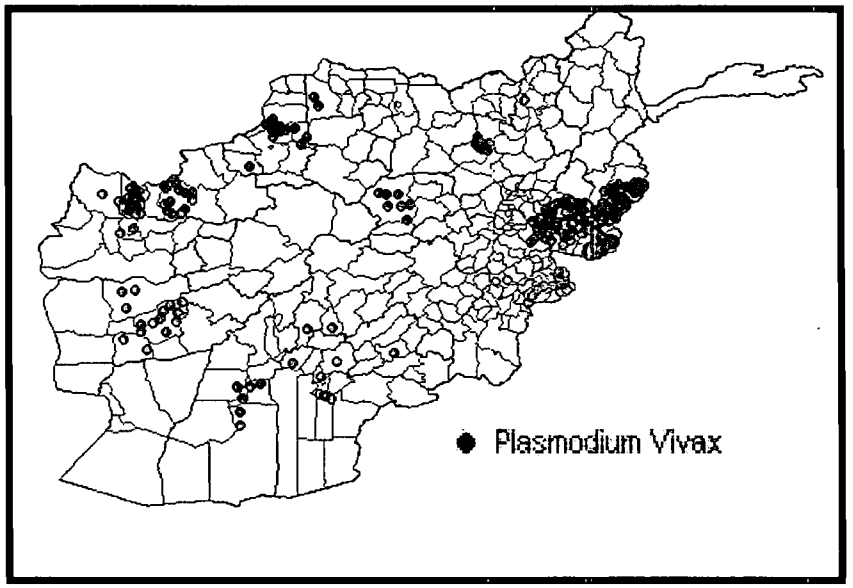

Figure 12.3: Distribution of Malaria Vivax
Source: United Nations 2001

NUTRITION

The relationship between food and its availability to an individual for actual consumption depends on a range of intervening factors. Among these factors are family income, gender, age, season of the year, government regulations, transportation technology, and cultural factors such as dietary restrictions, taboos, and preferences. Most Afghan people are poor, and even if significant supplies of foodstuffs were available, they could not afford to buy them. Afghanistan also has a very high **dependency ratio**, further reducing the **purchasing power** of the working population. Afghanistan depends on a surplus of grain at harvest time to carry it through the winter months. The current drought (Figure 12.5) has crippled the government's ability to feed its population and requires international food assistance and aid (USAID 2001). When grain is received, the topography and poor transportation infrastructure make it difficult to adequately distribute it. Ultimately, the grain sometimes rots and is destroyed. It is even sometimes eaten leading to even more

sickness. There is also cultural prejudice employed by the current government and sometimes shipments to not make it past ethnic Pashtun-controlled grain distribution centers (USAID 2001).

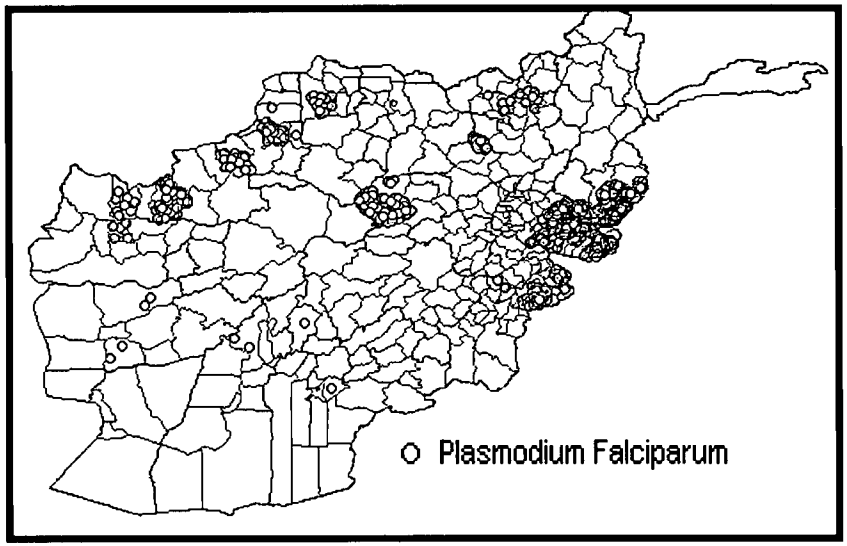

Figure 12.4: Distribution of Malaria Falciparum
Source: United Nations 2001

A staple food product that a large majority of the population survives on is bread made of wheat grain. A unique example of the Triangle of Human Ecology on Afghanistan's health is liver toxicity caused by contaminated wheat. Recently, over 400 cases of liver toxicity have been reported in Heart Province (WHO 2001). During drought conditions, seeds from a toxic wild plant (charmac) compete equally with wheat seeds and both the wheat and charmac are unintentionally harvested leading to toxic contamination of wheat products. Some wheat is given to milk producing animals, which are also infected and the toxicity is passed on as humans consume the milk of the animal.

The impact of **malnutrition** is not easily measured, but recent studies have shown significant impacts on the people of Afghanistan. For example, Iron Deficiency Anemia may affect over 75 percent of the population (WHO 2001). Iron deficiency in Afghanistan is another great example of the Triangle of Human Ecology at work. Afghanistan's

habitat is not conducive to large-scale beef production, and given the current drought, there is little beef to go around. For Islamic faith reasons, pork is not a main source of iron, either. The dietary intake of iron is mainly through eating wheat bread. Whereas beef contains between 4 and 8 milligrams of iron per serving, Afghan wheat contains only 1.7 grams. Compared to contemporary European diets, Afghans have very low levels of iron. Also, Afghans have a cultural practice of drinking tea with meals. The caffeine in tea reduces the human body's ability to absorb iron by as much as 87 percent (McKinley Health Center 2001). Therefore, Afghans are not only receiving small amounts of iron because of their habitat, but their cultural customs unsuspectingly reduce their ability to absorb the little they take in.

Sharp decreases in snowfall in Afghanistan's Hindu Kush mountains has led to decreased productivity in staple food production, which requires irrigation. The intermontane valleys and rivers of the Hindu Kush provide the majority of irrigated arable land in Afghanistan as Figure 12.5 illustrates. Almost half of the country's inhabitants are underweight, a result of **undernutrion** stemming from the severe droughts over the past two years. A lack of adequate dietary vitamins and minerals contributes to susceptibility to the various maladies mentioned earlier (USAID 2001).

The United Nations has estimated that 3.8 million people inside Afghanistan are at risk from famine and that the food deficit is over 2 million tons of wheat (United Nations 2001). This has significantly impacted **human migration patterns and refugee settlement** inside Afghanistan. There are an estimated 500,000 rural people who have left their homes for urban centers and an additional 200,000 people who have fled for Pakistan and Iran (United Nations 2001). The **urban geography** of Afghanistan's cities affects local officials who must plan for feeding and sheltering the migrants.

CIVILIAN HEALTH CARE

Cultural differences among the different ethnic groups of Afghanistan contribute to changes in its medical geography. "The civil war has disrupted health care, resulting in international and nongovernmental organizations (IOs and NGOs) supplanting the Ministry of Public Health in providing basic medical and surgical services throughout Afghanistan (UN-FAO 2001)." The quality of emergency medical care is good but limited. Medical personnel are not trained to US

standards. Prior to the Taliban period, women comprised 60 to 80 percent of the medical work force. Today the number is negligible. Under the current regime, women have been forced to work in more traditional roles at home.

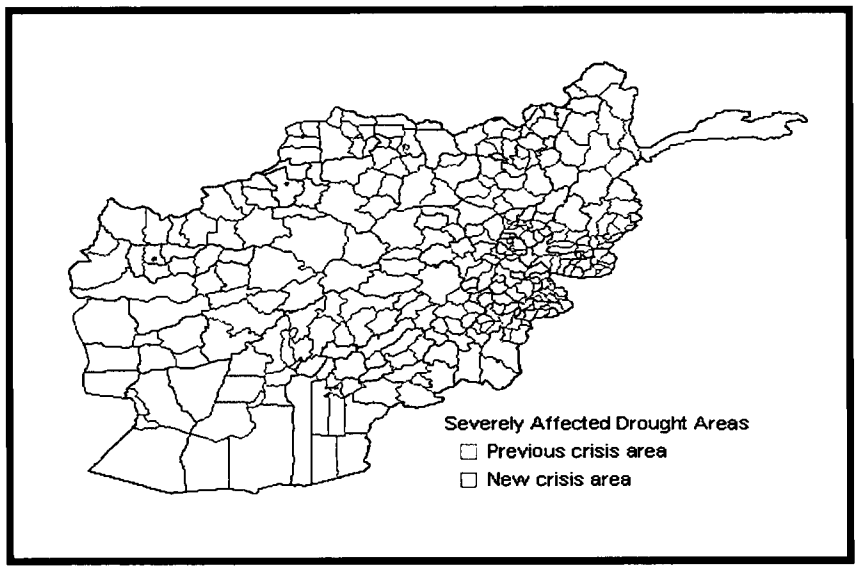

Figure 12.5: Drought Areas
Source: United Nations 2001

Owing to fundamentalist Islamic policies of the Taliban, women are unlikely to return to medical schools as students or instructors, or fill administrative and technical positions in hospitals. The country's medical schools are incapable of graduating enough males to operate public hospitals (UN-FAO 2001). Medical school graduates will not be as well trained as their predecessors because of the lack of qualified male instructors. The quality of the work force will further deteriorate as older physicians and technicians retire.

Medical facilities are operated exclusively by humanitarian organizations or receive some degree of personnel and/or materiel support from these organizations. There are no medical facilities in the country that offer comprehensive medical and surgical services. In Kabul and Jalalabad, sufficient numbers of public and private medical facilities exist

to provide citizens with basic health care. However, facility damage through looting, inadequate staffing, and lack of funds severely limit the operational capacity and capabilities of most other hospitals (UN-FAO 2001).

Pharmaceuticals and medical supplies are imported by NGOs from Europe. The Ministry of Public Health provides only token quantities. The International Committee of the Red Cross (ICRC) transports medical materiel between combatants, only canceling convoys when fighting closes roads or airports. The ICRC maintains an 8-month supply of surgical supplies and *Medecins Sans Frontieres* maintains a 6-month supply of emergency medical materiel for contingencies. The blood provided by IOs and NGOs is safe for use. Blood collected locally is not safe (UN-FAO 2001).

CLIMATE AND TOPOGRAPHIC CONSIDERATIONS

Two concepts that will surely impact on military operations in Afghanistan stem from the country's climate. First, extreme **diurnal and annual temperatures** will require logisticians to adequately plan for equipping and maintaining the force. Second, the **diurnal temperature** ranges are most extreme in the high elevations of the Hindu Kush and in the arid southwest. Tactical level operations in these locations require that units have training and equipment commensurate with Afghanistan's climate and also its mountainous topography. Afghanistan presents combat forces with conditions ripe for challenging injury prevention (heat exhaustion and frostbite) and also challenging medevac procedures given high slopes and high elevations (Figure 12.6).

The **annual temperature** ranges will impact climate specific supply cycles because of Afghanistan's very warm summers and cold winters (Figures 12.7 and 12.8, respectively). Strategic logistic analysis will require consideration of the annual temperature ranges to properly equip and maintain the force as the seasons change in Afghanistan.

CONCLUSION

Medical Geography plays a key role in understanding Afghanistan's culture and necessary force protection measures. Any medical geographic analysis requires a synthesis of information taken from nearly every subfield of geography. The health of the Afghan people can be attributed, but not limited to, the subject matter contained in every

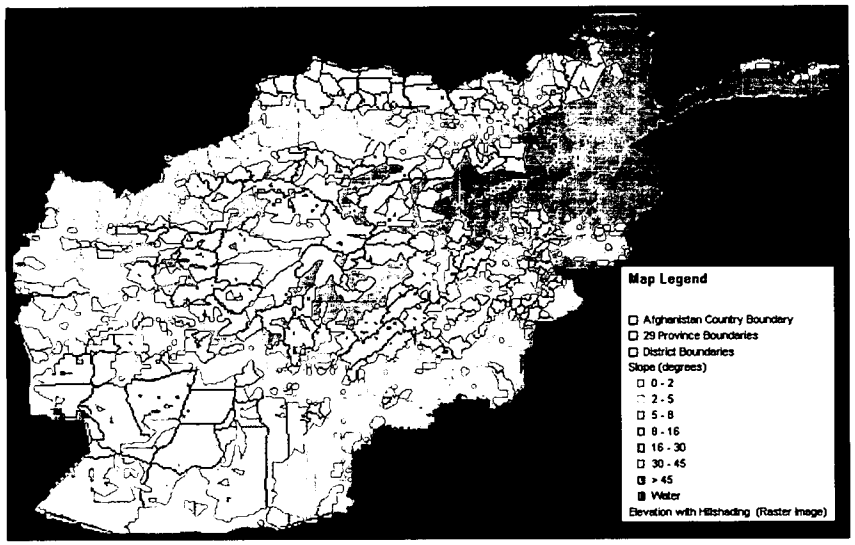

Figure 12.6: High Elevations and Slopes of Afghanistan
Source: United Nations 2001

chapter of this booklet. Afghans need to make great strides in the near future if they are to overcome the nutritional deficiency and disease that plagues them. From a US perspective, understanding the medical

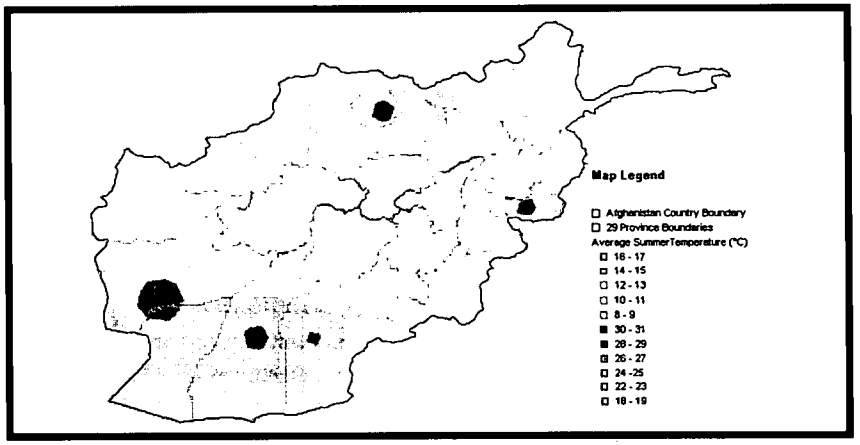

Figure 12.7: Afghanistan's Summer Temperature Extremes
Source: United Nations 2001

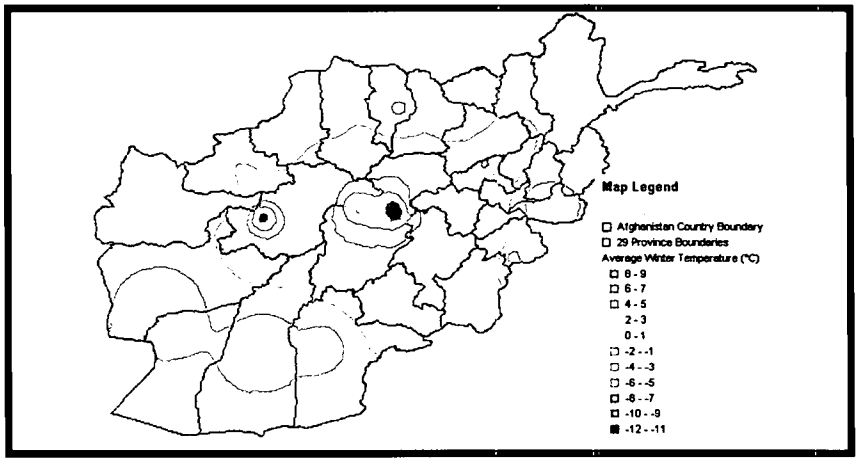

Figure 12.8: Afghanistan's Winter Temperature Extremes
Source: United Nations 2001

geography of Afghanistan is crucial to ensuring force protection. Commanders and their staffs must therefore consider this information in current and future decision-making processes in order to better understand the area of operations.

-Patrick E. Mangin

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CONCLUSION

Regional geographies are always in the process of evolving because regions constantly change through time. Regions are actually quite arbitrary constructs, since they are based on the criteria that geographers use to define them. Ideally, we discover some degree of homogeneity within the regional boundaries so that we can identify and explain the likenesses and differences between the study area and other places or regions. The political boundaries that define the territorial extent of the political entity of Afghanistan also served as the regional boundaries in our endeavor. As we have discussed previously, there is a long history of cultural, political, and economic interaction across the political boundaries of the state, particularly with the adjacent countries. Nevertheless, in the interest of time, we have chosen to restrict the scope of our effort and focus on Afghanistan, fully aware that the state exists within the larger context of Central Asia.

We have attempted to take a current, if not hurried, snapshot of Afghanistan and to organize and synthesize the data in an expeditious fashion. The country, like any other, is obviously a reflection of events and processes of the past, but it is difficult to anticipate the affects of current physical and human activities on the country's future. Thus, it is probable that some of our findings may become dated based on anticipated events of the near future.

We have employed the regional method of geography in order to better understand the distinguishing features and personality of the present country. It may be an overly ambitious task to attempt to grasp the totality of such a diverse place that occupies an area roughly the size of Texas in such a brief publication. Nevertheless, we have sought to recognize areally associated features that give rise to a distinct regional pattern that occurs within the country. Our end product is, of course, very much of a generalization. Yet by integrating various aspects of the physical and human character of the place, we can hopefully differentiate it from other countries and regions of the world. If we have succeeded in providing a useful reference for academic, government and military personnel, then we have accomplished our main objective.

-Eugene J. Palka

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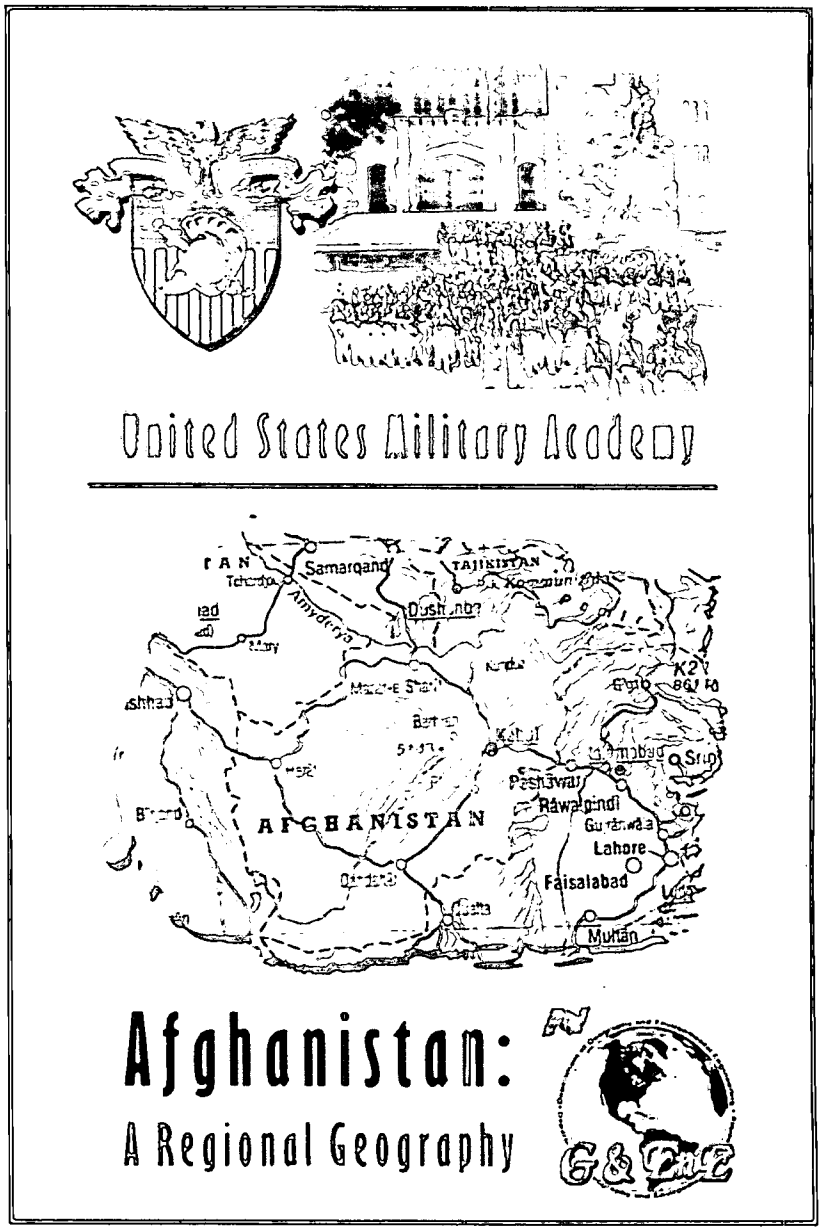

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