

# Tribal Guerrilla Warfare Against a Colonial Power

ANALYZING THE WAR IN AFGHANISTAN

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The guerrilla war in Afghanistan pits tribes against a colonial power. This form of guerrilla war is put into perspective and used to develop a simple dynamic mathematical model describing (1) the macrocombat interactions between the Afghan guerrilla forces and the Soviet and Afghan regular armies, and (2) the support of the guerrillas by the population. We perform various simulations using parameter values derived from guerrilla wars in South Sudan, Malaysia, and Yugoslavia. Most of our scenarios show that the guerrillas are relatively successful during the period retained for analysis (1980-1985) and inflict relatively heavy losses on Soviet forces. Only a very large Soviet escalation (over 300,000 troops) could make a difference, and even then, the resistance would be hard to eradicate because of the support of the population and the primitive state of the country.

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**W**ill the Soviet Union win in Afghanistan? Or can the guerrillas hold—and for how long? What policies can one envision for the USSR and the guerrilla mujahideens? These questions are addressed in this article. They are analyzed by using a simple mathematical model describing the macrocombat interactions between the guerrillas—supported by the population—and the Soviet and regular Afghan forces.

The guerrilla war experiences of South Sudan, Malaysia, Vietnam, and Yugoslavia constitute the empirical referent against which we

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**AUTHORS' NOTE:** While we have tried to be as objective as possible in our analysis, readers should be warned that our sympathy lies with the Afghan resistance. This article was first presented at the 18th European Conference of the Peace Science Society (Intern-

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analyze the present Afghan situation. The methodology used—a mathematical model simulating the evolution of the war according to different scenarios—might appear unnecessarily complicated, confusing, and even misleading to laypersons due to the paucity of available data. We argue that it is precisely because of this paucity and the sometimes contradictory nature of the data that the analysis benefits from the use of a rigorous language: mathematics. The different scenarios we analyze by simulating our model over the 1980 to 1985 period allow us to study the impact of alternative data values upon the course of the war and assess the importance of different assumptions. In addition, since our assumptions are explicit, they can be more readily challenged by other analysts. Our method also allows us to assess the impact upon the course of the war of various strategies one can envision for the parties to the conflict, mainly the USSR, the Afghan government, and the guerrillas.

Thus our analysis is an a priori one: We do not statistically estimate parameters on the basis of historical values (an a posteriori analysis). Instead, we investigate a current event with the help of a model built on the basis of empirical information obtained from other similar events. This article is meant to be an example of how an a priori quantitative analysis of a complex sociopolitical phenomenon can increase our knowledge by (1) assessing the importance of various facts; (2) discriminating among alternative assumptions by making explicit their predictions; (3) rigorously describing the future evolution of the phenomenon on the basis of the assumptions made; and (4) generating important insights by playing with a model of the phenomenon. Our hope is to demonstrate the feasibility of an approach that is quantitative and rigorous but is not statistical and empirical in the traditional sense of these terms.

This investigation is limited to the military aspects of the Afghan guerrilla war. Much has already been written, mainly on the level of the world strategic situation and Soviet intentions about the Afghanistan crisis. But one thing seems clear: Had the Afghan people not resisted to the extent they did, the whole discussion would probably have faded

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tional) in Geneva on August 30-31, 1981. We would like to thank Miroslav Nincic and Urs Luterbacher for their comments, though of course we bear sole responsibility for the views expressed here. We are also indebted to Paul Bucherer, Gustav Daniker, Gilbert Etienne, J. J. Puig, Olivier Roy, to several guerrilla leaders, and to functionaries of international organizations—who wished to remain anonymous—for the information they gave us and for their helpful comments.

away. It is because of successful guerrillas still holding out quite well against the invaders that the Soviet intervention is not yet a fait accompli. Our concentration on the military aspects of the situation does not mean that the political side remains in the background; on the contrary, a guerrilla war is a preeminently political war. It means that we do not analyze the overall diplomatic-strategic game around Afghanistan involving, in addition to the protagonists, the superpowers, Pakistan, Iran, the Islamic states, and the United Nations. Our analysis focuses on the local strategic conditions of the war within Afghanistan and their direct international ramifications—particularly the refugee camps in Pakistan and Iran. The study is structured as follows. In the next section, the various forms of guerrilla war are described. Guerrilla and counter guerrilla tactics and strategies are specified. We then discuss the case of a tribal guerrilla war against a colonial power, pointing out the elements that appear paramount for success. We present our basic model of the Afghan guerrilla war in detail in the next two sections. In the final section, the outcomes of various policy alternatives are critically evaluated in terms of the model.

## GUERRILLA WARFARE

Clausewitz (1968) formulated one of the first conceptions of a guerrilla war in his *Bekanntnisdenkschrift* of February 1812 to Gneisenau. In it he asked the future chief of staff of the Prussian army to fight the French occupation forces with a people's militia. This militia would encompass all able men, ages 18 to 60, who were not already soldiers in the regular army. Such a war would take the same course as the civil war waged in Spain from 1807 to 1814 from which the term "guerrilla" originated: "guerra" means war, and guerrilla is the smaller form of it or "little war"—guerrilla war is an unconventional war. According to Clausewitz:

One usually thinks that the enemy can be deprived of his courage with a cruel treatment of captive insurgents, by death sentences, etc. But what an unnecessary apprehension! As if we also could not be as cruel as the enemy, as if the enemy is not made of flesh and blood as we are! The enemy will try to use these means, and the war will rapidly take a cruel character. But to whose detriment? Obviously to the detriment of the one who can risk fewer people, who fights with regular armies. Let us answer cruelty by cruelty, respond to brutality by brutality! Ours will be an easy task to overbid the enemy, and to bring him back to the boundaries of restraint and humanity [1968: 733-734].

But guerrilla warfare existed long before Clausewitz, though under very different forms. Hahlweg (1968) was the first author to show both theoretically and (on the basis of innumerable historical examples of guerrilla war) empirically that no actual model of guerrilla war can be developed and that we must differentiate depending on goals and procedures among various types of guerrilla war. His conclusions were taken up and pursued by Beaufre (1972) and Laqueur (1977). Laqueur presents a typology of guerrilla war based on historical analysis, while Beaufre first establishes his typology and then examines it in the light of various guerrilla wars throughout history. Basically, these three modern authors show that guerrilla warfare has always existed as a natural form of fighting for the initially weaker side. Moreover, guerrilla warfare has evolved during the centuries toward more intense forms, and has expanded geographically from simple warfare between tribes to the resistance wars of occupied states in the nineteenth and twentieth centuries and into an instrument of conflict between the two superpowers. Whether it has revolutionary or national goals, it can be traced back to the resistance offered by the peoples of Asia to the ever-expanding realms of the Hethites (fifteenth century B.C.) The following different types—based on the actors and aims of guerrilla warfare—can be described:

(1) *Guerrilla War of a Tribe (either Family or Clan) against Another Tribe.* The goal of this kind of guerrilla war is plundering food or kidnapping women or slaves. By means of ambushes or surprise attacks on the enemy village, the attacker tries to kill the enemy tribal fighters without great loss to his own side. If an attack fails, the attacker withdraws as quickly as possible; gains of territory do not count. Increased fighting takes place only if protection of the family and herds requires it. If an attack is successful, the enemy fighters are massacred; women and children who have not been killed on the spot are taken as slaves, and the stolen food and herds are taken away immediately. This primitive form of war already shows certain characteristics of modern guerrilla warfare, such as the tactics of raid and surprise attack and the goal of beating the enemy with as few losses as possible for oneself. Furthermore, the inclusion—contrary to conventional warfare—of the civilian population and economy presages modern guerrilla war.

(2) *Resistance of Native Tribes against a Colonial Power with the Help of a Guerrilla War.* From the start the colonial expedition is

fighting in the middle of a hostile native population. After the first engagements in the form of classic battles with the resistance fail, individual tribes turn to guerrilla warfare. They aim to annihilate the expeditionary corps and banish the colonial power from their territory. The expedition tries to win over the local population by recruiting the natives for lightly armed units and exploiting divisions under the leadership of locals in an effort to turn the war into a civil war. The territory the colonial power covets is split into two zones. The first zone is dominated by the expeditionary main force with its allies; this zone is relatively safe for the expedition, and intelligence functions well there with native assistance. The second zone cannot yet be controlled by the expedition. Between these two zones, the tribes—now enemies among themselves—are fighting a guerrilla war. Through propaganda and various other political and economic measures, the colonial power tries to expand the zone under control by enrolling more and more tribes. The main characteristic of a guerrilla war by tribes against a colonial power is that the entire resistance is badly coordinated and organized (Beaufre 1972: 23; also see Gottmann, 1943). The colonial forces, on the other hand, are centrally directed and are in possession of the most modern weapons. This asymmetry may explain why the colonial power is generally successful in such conflicts.

(3) *Tribes United by a Common Religion or Ideology Form a Common Front against the Colonial Invader.* Central leadership guides resistance by different tribes in a war of liberation supported by an overwhelming majority of the population. In addition, public opinion in neutral states is courted in order to gain moral and diplomatic support and obtain weapons. Movement by the expeditionary corps can then be limited tactically and operationally. The next step is to mobilize the mass media of other states and increase pressure on the colonial power. This pressure and the financial and human costs of a long, drawn out war induce the colonial power to start negotiating with the political leaders of the liberation movement. At the beginning the latter show readiness to compromise. As soon as some advantages have been obtained, further demands are made. Again aided by propaganda and international pressure, the demands usually are met by the colonial power. The readiness for compromise finally ends in the unconditional withdrawal of the colonial power from its former colony—using face-saving devices.

(4) *A National Guerrilla War against an Occupying Power.* This type was successfully carried out by occupied states against the Third Reich

during World War II with external support. Its principal aim is the liberation of a state and its citizens; this aim can sometimes be combined with revolutionary goals and the abolition of the existing socio-economic system.

(5) *Revolutionary War against the Ruling Government by a Political, Ideological, Ethnic, or Religious Minority.* The minority wants to take over the politico-economic leadership and to control the state apparatus. The result of a successful guerrilla war of this type is often a change in the socioeconomic system.

But these different types of guerrilla warfare are not always found in pure forms. A guerrilla war is usually defined by a combination of various goals pursued by a number of actors. One example is the liberation war of Angola against Portugal, which was followed by a second guerrilla war among several factions characterized by differing ethnic and political dimensions. The first three types of guerrilla warfare involving tribes characterize the current guerrilla war in Afghanistan.

The primary goal of tribal guerrilla warfare is negative: the reestablishment of the status quo ante by driving the invader out of tribal territory. Once this goal has been achieved, not much is planned even though the war may change the socioeconomic order by, for example, creating a new elite of combat leaders. The organization of such a war is primitive because of the lack of both positive political goals and a command structure to coordinate guerrilla logistics and operations. Armed attacks are limited to spontaneous actions breaking out in a more or less random fashion. In addition, the guerrillas have only simple weapons, mainly rifles. This is why Laqueur (1977: 69) writes:

It usually proved easier . . . to conquer new colonies than to hold them against a hostile population; the occupiers were few, the natives many, climatic conditions were adverse and the Europeans had little immunity against indigenous diseases. In retrospect, it is surprising that the imperialist powers suffered in the event only temporary setbacks. But then, more often than not, they faced disunited tribes, lacking modern arms and reliable supply lines. Guerrilla warfare waged by them was usually of the most primitive kind, deficient in leadership, direction and endurance; it was only seldom that an inspired leader would emerge in Asia or Africa to offer effective defiance.

What elements prove most important for the success of a guerrilla movement? The following discussion of the main modern guerrilla doctrines will try to answer this question. It will also put their insights

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into perspective by applying them to the case of a tribal war against a colonial power.

Modern developments in guerrilla war doctrines start with Mao Zedong's "Strategic Problems of the Revolutionary War in China" written in 1936, and his "Strategic Problems of the Partisan War Against the Japanese Aggression" and "On the Long War," both written in 1938 (see Mao, 1969). The writings of General Giap (1962), Che Guevara (1969), and Marighella (1971) were based extensively upon Mao's conceptions. But while Mao and Giap were successful, the same cannot be said of the other two theoreticians. Their doctrines failed in South America.

For Mao and Giap, guerrilla warfare is just one of the forms and means of a resistance war against occupying or colonial forces. For both strategists, it is the Communist Party that decides upon the objectives and stakes of a guerrilla war. The emphasis, especially in Mao's thought, is upon the link between peasants and the Communist Party: the party is formed of peasants on whom it relies, and it recruits, trains, and arms them to fight as guerrillas against the aggressor. In the final phase of the resistance war, the action of the guerrilla forces is combined with that of new regular forces formed to fight a war of movement against the occupation forces. The result of this phase is victory through the annihilation of the occupying army.

Che Guevara's objective was a victorious revolution of the *campesinos* (poor landworkers) over the rich ruling classes. To attain this goal, the revolutionaries first have to find a region where the *campesinos* and peasants are exploited and unsatisfied. Then a so-called *foco* or potential rural revolutionary region is developed. The *foco* becomes a crystallization point for peasants during their guerrilla fight against the armed forces of the rulers. Since politico-military direction is concentrated among the guerrillas, there is no difference between the party and the guerrillas and they form a single entity. The end product of the process is a revolution against the rich with social measures favoring the exploited. According to Marighella, on the other hand, the first *focos* originate among the workers and intellectuals in a large town. At the beginning the guerrillas act in little groups and try to undermine people's trust in the government by systematic operations such as bank attacks and blackmail kidnappings. After the workers and intellectuals are mobilized through these successful actions, the guerrilla war is extended to rural regions. Finally, the creation of a revolutionary army brings about a victorious revolution, and the Communist Party takes a leading role in helping the exploited through social measures.

The planning and direction of a guerrilla war—and interactions between the population and guerrilla forces—are steered by a political apparatus in the Mao and Giap doctrines. More or less identical to the party, this apparatus is built up hierarchically: It starts with the cell in the village and ends with the central committee and the politburo at the top. It is also active in military affairs, functioning parallel to the military command structure. It performs the crucial task of influencing the population through political, psychological, and ideological measures. Due to all the work it does within the population, necessary functions of a guerrilla war can be performed such as gathering intelligence about the enemy, coordinating operations, providing health services, hiding guerrillas, and meeting logistical needs. It also guarantees continuous reinforcements from peasants willing to join and fight with the guerrillas. On the other hand, since the conceptions of Guevara and Marighella unite the political and the military function within the guerrilla forces, they do not allow for a good political, psychological, and ideological conditioning of the population. Conditioning is also hampered by the spatial division between the guerrillas and the population. Accordingly, the population is not motivated enough to support and help the guerrillas, and their effectiveness is more problematic. Guerrilla war is thus a predominantly political war, and the crux of its success or failure resides in the support of the population. This support cannot be taken for granted in the long run, even in situations favorable for the guerrillas. It needs to be consistently gained through a variety of political measures. But this presupposes a military command that has to remain subordinate to an efficient guerrilla political command.

The support of the population usually is not lacking in a guerrilla war fought by tribes, at least for those tribes attacked by a colonial power whose control attempts run counter to the tribes' world view of absolute independence from the outside. Military leadership is generally also subordinate to the political command often exercised by tribal chiefs and elders. But technological and economic disparity between the tribes and their colonizers, plus the fact that they are internally split by numerous rivalries, prevent tribal guerrillas from being successful against an invader ready to make sacrifices over a long period. The long-term guerrilla war strategy of aiming to exhaust the opponent is thus difficult to implement among numerous tribes. They may agree to short-term tactical alliances but can hardly be expected to show as strong a purpose and as united a front as those characterizing many successful guerrilla wars (e.g., the Chinese and Vietnamese ones) in

modern history. The tribes run the risk of being played off against each other, or at least of being dealt with one by one by a determined colonial power.

A split resistance is thus a source of weakness; paradoxically, it is also a source of strength. The guerrillas may not win, but they may hold because of the strong popular support they receive channelled through the tribes' social systems. In addition, the decentralization and primitiveness of the guerrilla forces make them very difficult to eradicate. A more sophisticated guerrilla movement is more vulnerable because a concentrated structure may be destroyed in a few damaging blows. Thus a guerrilla movement that is badly disorganized on the highest ("national") level may be extremely well organized at the lower level of the individual tribes. There the tribal leaders and elders may perform all the functions seen by the Mao and Giap doctrines as crucial, and the society may provide the necessary reinforcements, logistics, and intelligence. In favorable situations with populations sufficiently large and willing to sustain the great cost of a guerrilla war, guerrillas may inflict such heavy costs upon the colonial power that the latter may have to give up. Outside support will further increase the guerrillas' effectiveness.

### THE AFGHAN GUERRILLA WAR

Few observers dispute that the guerrilla war in Afghanistan involves nearly universal resistance by the Afghan people against the Soviet invasion. Before the invasion, there was already widespread resistance, starting during the winter of 1978-1979, to the rule of the communist-controlled central government of Kabul. The Soviet intervention transformed the fight of rural regions against a modernist government into a holy war pitting the overwhelming majority of the Afghan people against the atheists from the North. The upheaval was quite spontaneous; it was based on religious and ethnic reasons rather than on Afghan nationalism. Three years later, the Soviet Union can count on the support of only a small minority of the population.<sup>1</sup>

Our conceptual framework is a tribal guerrilla war against a colonial power. All the major ethnic groups—the Pushtun, Tajik, Uzbek,

1. For reference works on Afghanistan, see mainly Dupree (1980a) and Frazer-Tytler (1967). Interesting analyses of the guerrilla war are by the French authors Roy (1980-1981; 1982), Chaliand (1981), and Expedit (1981), and by Arnold (1981), Carrere d'Encausse (1981), and Khalilzad (1980).

Hazara, and Aimaq—are involved in the fight against the Soviet armies and the regular Afghan armies. Like the Tajik and Uzbek, the smaller Turkōman and Kirghiz ethnic groups—which are also present in the Soviet Union—are fighting in the resistance. The official *Kabul New Times* writes daily about combats in various regions of the country and around all the major towns: Kabul, Qandahar, Herat, and Mazar-i-Sharif. This indirectly confirms the existence of a universal resistance movement. The resistance is organized mainly by regions; it intervenes principally when Soviet or regular Afghan forces come close. Tribal and religious leaders and elders decide who does what for the guerrilla movement. The basic unit is the family: It delegates one or more of its men to fight and supplies the guerrillas with food and other logistical help. In many instances, resistance is a part-time occupation since the men rotate among home, the fields, and the guerrillas. Social pressure to help the resistance is very strong, and the guerrillas do not have to recruit people coercively. On the contrary, it is an honor to be given a weapon to fight. Dupree (1980a: 118-119; 1980b) has shown that tribal feuds are quite common in Afghanistan and perform certain social functions. These small wars are guerrilla wars of a tribe (either family or clan) against another tribe described in the second part of this article. The hit-and-run attacks characterizing such wars are typical of guerrilla warfare. The current Afghan guerrilla war thus builds upon a long tradition, the main change being that the opponent is now common to all. Even though the tribal system is not universal in Afghanistan, we retain the term “tribal” guerrilla war because of the fragmentation of the Afghan sociopolitical system and because in individual units, the military command is usually subordinate to a political command typically assumed by tribal chiefs, religious leaders, and elders.

Due to the bad quality of the available data, we do not statistically estimate a model. Rather, we develop an a priori model of the guerrilla war based upon both conservative assessments of the strength of the guerrillas and parameters obtained from other, similar guerrilla wars. As we show in the next section, this a priori model performs rather well for 1980 to 1982. We can then examine the consequences of other assumptions; these alternate assumptions are based on our a priori results, concurrent views of the situation, and plausible policies that can be envisioned for the various parties.

Instead of evaluating imprecisely and tediously—with the help of various reports—the number of guerrillas fighting, we proceed differently. We start with the total population and conservatively evaluate the number of potential guerrilla fighters and the number actually fighting

at a given time. The last section emphasized the importance of support from the population for the success of a guerrilla movement. Our analytical framework puts this relationship in the foreground. Accordingly, we distinguish among five groups whose interactions interest us: (1) the guerrillas, (2) the potential guerrillas, (3) the rest of the population, (4) the Soviet army, and (5) the Afghan regular army. The factors governing the evolution of the size of these groups are of two basic types: (1) interactions between the guerrillas and the population, primarily as potential guerrillas join the ranks of the fighting men; and (2) combat interaction between the guerrillas and their enemies—the Soviet and Afghan regular forces—that result in losses for both sides. The first type of factor involves accounting-like assessments as an individual leaves one group to join another. The combat relationships reflect the asymmetrical nature of a guerrilla war without fronts. While the losses on the conventional side—USSR or Afghan army—are directly proportional to the number of opposing troops, the losses of the guerrillas are proportional to the size of both their own and the conventional armies. The more Soviets and regular Afghans are fighting, the higher the guerrilla losses—but the guerrillas are like fish in a population sea (Mao's aphorism). Their exact position is not known to their enemies, who need to shoot more or less blindly over the guerrilla region, and thus the losses of the resistance are also proportional to their own number.

Before turning to a discussion of specific assumptions, the main features of our a priori base model need to be presented. Figure 1 portrays the main relationships modeled, and Table 1 presents the mathematical model. The initial conditions are for February 1, 1980, approximately a month after the invasion, when the stage for the situation in 1980 to 1982 was set. The model consists of five ordinary differential equations representing the evolution of the five groups during the six-year period 1980 to 1985. A continuous formulation was chosen because we are at a macrosociological level of analysis with continuous interactions. The parameters are on a monthly basis.

The first equation explains the change over time in the number of guerrillas actually fighting the Soviet and Afghan armies. Their number is increased by reinforcements from the potential guerrilla population and diminished by their losses. These depend on the size of the fighting forces. The assumption is that the antiguerrilla troops do not know the exact position of the different guerrillas and, as a result, fire blindly over the region where the guerrillas are. The antiguerrilla forces have inadequate intelligence about their enemy because of its support from

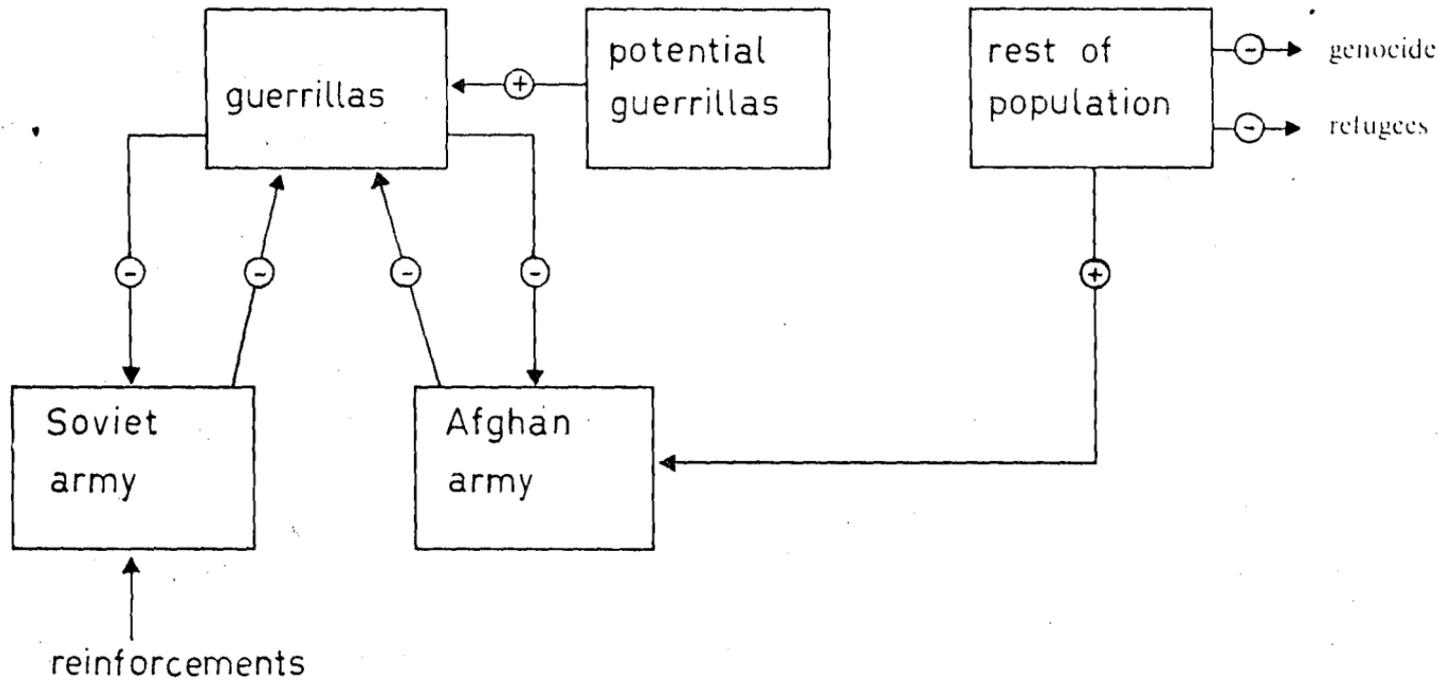


Figure 1: Schematic Presentation of the A Priori Model

TABLE I  
The A Priori Model

*Initial Conditions*  
*(February 1, 1980)*

155,000	guerrillas	:	$\frac{dGUER}{dt}$	=	$0.01 * GUERPOT$ Fighters joining the guerrillas	-	$0.00000035 * GUER * (USSR + AFGH)$ losses		
1,470,000	potential guerrillas	:	$\frac{dGUERPOT}{dt}$	=	$- 0.01 * GUERPOT$				
10,850,000	rest of population	:	$\frac{dPOP}{dt}$	=	$- 1500$ Afghan army recruits	-	$0.0011 * POP$ genocide	-	$REF$ refugees leaving
0	Soviet army	:	$\frac{dUSSR}{dt}$	=	$2 * (85,000$ Soviet objective	-	$USSR)$ Soviet	-	$0.003 * GUER$ losses
35,000	Afghan army	:	$\frac{dAFGH}{dt}$	=	$1500$ recruits	-	$2 * 0.003 * GUER$ losses		

Note: Parameters are on a monthly basis.

the population (support which the regular forces lack). This support provides the guerrillas with good intelligence about the enemy's tactical and operational moves, making it possible for the guerrillas to hide more effectively. The guerrillas also get intelligence from the Afghan army. As a result, the conventional troops usually have to fight against an invisible enemy at a macro level of analysis, spreading their fire more or less randomly over a large region.

While there have been conventional confrontations in towns like Herat or Qandahar and in regions like the Panjsher Valley, the main characteristic of the war is that it lacks established fronts. The antiguerrilla forces stay mainly within towns and fortified strongholds, and their incursions into the countryside held by the resistance usually leave enough time for the guerrillas to spread and hide. The major exceptions are the use of air force—mainly helicopters—that give the Soviets a great deal of mobility. But they still lack the intelligence among the population on the ground that would allow them to perform effective counterforce operations. Air force operations are mainly of the countervalue type (i.e., bombing to punish the supportive population and deprive it and the guerrillas of basic necessities). While such actions bring about great suffering, it is not clear (as shown by the bombing over Germany during World War II and the Vietnamese experience) that they are very effective. This is why, in the first equation, guerrilla losses are proportional both to the number of targets (guerrillas) and to the size of the combined forces of the adversaries (the Soviet and Afghan regular armies).

The evolution of the potential guerrilla population is described by the second equation where potential guerrillas joining the fighting guerrilla forces are subtracted. The transition rate from potential to actual is a simple function of the number of potential guerrillas. This relationship was retained because of its logical simplicity: It means that with the passage of time, there will be potential guerrillas joining the fight as a part of the whole process—notably guerrilla losses to be replaced and weapons to be obtained by the potential fighters who are trained. The assumption here is that there is no growth in this group during the war, not even due to youth who eventually become old enough to join the guerrillas.

Potential and actual guerrillas are not included in the remainder of the population explained by the third equation. It is also assumed that the population does not grow at all during the war (i.e., that the birth rate is equivalent to the death rate). But three factors decrease the size of

the population: (1) recruits into the Afghan army (at the rate of 1,500 per month); (2) deaths resulting from the war (a genocide factor), and (3) migrants leaving Afghanistan, almost exclusively for Pakistan and Iran.

The number of Soviet forces was more or less constant from the beginning of the invasion up to the end of 1982, when it increased from 85,000 to 110,000. The Soviet equation describes the continuous adjustment between a Soviet objective of 85,000 men and their losses, which are regularly replaced. (Later we analyze increases in the Soviet objective.) Their losses are proportional to the number of guerrillas who are shooting at them with a knowledge of where they are—a basic characteristic of guerrilla hit-and-run operations. The fifth equation describes changes in the size of the Afghan regular forces. They increase at the rate of 1,500 recruits per month and decrease due to losses in the same fashion as the Soviet army, but at double the rate.

The different assumptions can now be discussed in more detail.

#### EVALUATION OF THE STRENGTH OF THE GUERRILLAS

The available information is too fragmented for a good assessment of the guerrilla forces in Afghanistan by region. This is why we proceed deductively, starting from the total population and making conservative estimates of the potential and actual guerrillas. Probably the best example showing the primitiveness of Afghanistan is furnished by its demographic statistics. The population—which has never been subjected to a census—is estimated at between 10 and 20 million, with most estimates clustering around 14 to 16 million. Etienne (1972) gives an estimate of 7 to 12 million for 1956, and Fry (1974) gives an official estimate of 8 to 17.88 million for 1972. It is on the basis of such figures and a very hypothetical population growth rate—established by taking neighboring countries' data—of the order of 2% to 2.3% per year that the population is determined. Janata (1981) examines population growth for Afghanistan and estimates its more or less constant population at 12 million. We assume the number of 15 million people, from which we deduct the refugees who left the country before the intervention, the dead under the Taraki and Amin regimes, and the nomads. The latter are estimated at 2 million by Dupree (1980a: 164-166); while Janata (1975) gives a maximum figure of 1 million. We deduct a figure of 2 million representing both the nomads and those who died from 1978 to 1979 due to genocide under Taraki and Amin. This leaves 13 million. For our initial condition as of February 1, 1980, we estimate the number of refugees in Pakistan at 500,000, and we add 100,000

refugees in Iran;<sup>2</sup> refugees in other countries are negligible. Life in refugee camps, even though difficult, seems better for many than the normal conditions they encountered in Afghanistan; maybe up to one half of the refugees leave Afghanistan because of better conditions elsewhere.

We are thus left with 12.4 million people in Afghanistan by February 1, 1980, nomads not included. The potential guerrillas are men ages 15 to 60. These age limits may seem too extreme but we feel they are in line with numerous reports about the many adolescents and older men fighting (in any case, age classes over 45 represent a small part of the population). We estimate the proportion of all men between 15 and 60 at one-quarter of the total population.<sup>3</sup> Then we assume that only one half of these are able men willing to fight for the resistance. This seems to be a conservative assumption since even for urban regions—which are mostly under the control of the central government—none of our sources estimates the regime's supporters at more than 50%. Our potential guerrillas thus number one-eighth of the total population in Afghanistan or 1,550,000. We add to this number one-eighth of the total refugees because many men in refugee camps actively participate in the war. For the number of guerrillas in February 1980, we make the rather conservative assumption that only 10% of the potential guerrillas are actually fighting. This gives us 155,000 guerrillas,<sup>4</sup> which is in line with the estimates of all of our sources.

2. The figures we have for Pakistan show a monthly flow of from 50,000 to 200,000 refugees, ranging from 201,000 on October 2, 1979 and 400,000 at the end of 1979, to 932,000 at the end of June 1980, 1,399,000 at the end of 1980, 2,266,000 at the end of June 1981, 2,655,000 on January 31, 1982, and over 3,000,000 at the end of 1982 and beginning for 1983. For projections, we used the high figure of 120,803 obtained on the basis of the average trend during the first 18 months. For Iran, the estimates we have are quite divergent. Iranian authorities estimated their Afghan refugees at between 350,000 and 1,500,000 at the beginning of 1981. A United Nations statistic for March 1981 cites 400,000 (Keesing's: 30,880). One of our sources gives an estimate of from 600,000 to 800,000 in June 1981; this appears to be a good estimate according to international organization functionaries involved in negotiations with Iranian authorities. We took 100,000 for February 1, 1980 and 700,000 for mid-June 1981 and interpolated linearly between these two dates, since the refugee flow toward Pakistan also follows a more or less linear evolution.

3. According to Dupree (1980b: 4), the adult male to female ratio is about 116 to 100. For 1970, we could have the following repartition: up to 15 years: 43.1%; from 15 to 45: 43%; from 45 to 65: 11.2%; over 65: 2.7% (*Schlag nach* 1981: 53).

4. Thus the initial condition for the potential guerrillas is

$$1,550,000 + 75,000 - 155,000 = 1,470,000$$

For the rest of the population it is:

$$12,400,000 - 1,550,000 = 10,850,000$$

### DETERMINATION OF THE COMBAT PARAMETERS

There are two combat parameters—to determine losses on both sides—in the model. We have made the assumption that Afghan loss rates are twice the Soviet ones because of poorer training of the Afghans and because in bloody fighting, in many instances Afghan soldiers are sent before Soviet ones. To determine the loss parameter for the guerrillas, it is very important to take the combat area into account because the larger it is, the more advantageous it is for the guerrillas, who can spread out. Even official figures on the area of Afghanistan are at variance, so we have taken the one usually cited: 650,000 km<sup>2</sup> (Dupree, 1980: 58). The government-controlled area includes towns and the few urban regions, the communication axes, and several regions bordering the Soviet Union (including the Wakhan Valley north of Kashmir that links Afghanistan to China). We are estimating the guerrillas' area at 400,000 km<sup>2</sup> because, while a substantial portion of Afghanistan is semidesertic or desertic, our sources indicate that the guerrillas are present almost everywhere. The combat parameters were taken a priori, using figures statistically estimated by Stahel (1980: 119-121) for the guerrilla war in Malaysia during the 1948-1960 period. The losses by the counter guerrilla side there were similar to U.S. losses during the Vietnam war in 1966. Stahel (1980) used these two parameters (for losses on both sides) in an a priori analysis of the guerrilla war in South Sudan from 1963 to 1972, with good empirical results. We used the same parameters—correcting (i.e., decreasing) the one for guerrilla losses in proportion to the larger combat area in Afghanistan—in our base simulation of the Afghan war because of certain similarities between South Sudan and Afghanistan. In both cases, the Soviet Union is helping the government of an extremely undeveloped Third World country to control a large territory inhabited by a population strongly opposed to the central government. In both cases, the combat area is quite inhospitable and the guerrillas can count on a great deal of support from the population. The USSR was much less involved in South Sudan, but its aircraft and helicopter pilots performed antiguerrilla operations. All these combat parameter assumptions are discussed further in the context of alternate postulates and scenarios.

### DETERMINATION OF THE PARAMETERS OF THE POTENTIAL GUERRILLAS EQUATION •

An important assumption is the 1% figure for potential guerrillas who join the fighting ranks each month. We have taken this round figure on

an a priori basis. Though this rate seems high it is not: It is lower by about a third than the rate at which reinforcements were coming in for the Yugoslav resistance movement during World War II (Stahel, 1980: 165). In Yugoslavia, the resistance against the occupying German and Italian forces was quite large, though torn by ethnic and political rivalries no less important than those in Afghanistan.

#### THE EQUATION FOR THE REST OF THE POPULATION

This is composed of three terms. The first is the 1,500 recruits per month of the Afghan army, which implies 18,000 men per year, or 5%, 10%, or more of the able men living in areas controlled by the government. The second represents civilian deaths from the war, notably from the Soviets bombing villages to scare and punish guerrilla supporters. The rate of 0.11% used here constitutes half the average between the genocide rates in Yugoslavia and those in the South Sudan (Stahel, 1980: 122, 165). It is true that numerous atrocities occur in Afghanistan, including bombings of civilians, summary executions, use of napalm and even chemical weapons, and widespread use of antipersonnel mines. But it does not seem equivalent—up to now—to the organized genocide in South Sudan and the horrors of Yugoslavia, despite some systematic campaigns for destroying villages, fields, herds, and food reserves. Still, the 0.11% monthly rate is extremely high when compared to other wars (compare Mueller, 1980), and it probably overstates civilian losses. Even the guerrillas do not speak of more than several hundred thousand deaths for 1980 through 1982. Finally, the third term in the population equation represents the refugee flow. This is based on both official Pakistani figures that are accepted by international humanitarian organizations and on our own estimates for refugees in Iran.

#### EVALUATION OF THE STRENGTH OF SOVIET AND AFGHAN REGULAR FORCES

Soviet troops numbered approximately 5,000 before the December 27, 1979 invasion. Initial reports in early January 1980 spoke of 80,000 to 100,000, but the number 85,000—the one most cited—was probably reached only in February or March 1980 because the invading divisions were not at full strength from the start. Their number increased to 110,000 only toward the end of 1982. The factor of 2, multiplying the

difference between Soviet goals and the effective number of Soviet troops, implies a two-week adjustment between the situation and the goals that appears to be realistic, and that also generates plausible figures for Soviet forces at the end of February and in March 1980. According to *The Military Balance*, the Afghan regular army had 100,000 men in July 1978. A year later, it was estimated to have approximately 80,000 due to internal troubles. Two weeks after the Soviet intervention, estimates dropped to only 40,000 to 50,000, as whole units sometimes fought the Soviets and joined the resistance. The Parscham government of Karmal also tried to purge the Khalq-dominated officers' corps. We put the strength of the Afghan army at 35,000 on February 1, 1980. Since August and September 1980, the pay has been substantially raised. This did not induce many volunteers to join the army, however because in January 1981 the government announced general conscription for all men aged 20 and over. Forced conscription has induced many youngsters to hide or to leave government-controlled regions—mainly towns—and (partially) join the resistance. Voluntarily or involuntarily, the Afghan regular army has been the greatest source of weapons for the guerrillas. In addition, soldiers and officers who help the guerrillas are not atypical.

### RESULTS OF THE A PRIORI MODEL FOR 1980 TO 1985

Our a priori dynamic model describes the evolution of the military situation within Afghanistan from February 1, 1980 to the end of 1985. The model presented in Table 1 was simulated using a continuous systems simulation language (Korn and Wait, 1978; Wait and Clarke, 1976). The main results are represented in Figure 2, which traces the evolution of the strength of the guerrilla, Soviet, and Afghan army forces. The number of guerrillas increases to 249,000 in January 1983 before decreasing to 200,000 at the end of 1985. The Soviet army remains constant according to the postulate made, and the level of Afghan regular army forces increases very slightly to 45,000. This base run seems to replicate events in the period from 1980 to 1982 quite well. These were combats limited to a few towns and some regions in early 1980, followed during the summer of 1980 and especially since 1981, by more intense combat involving more and more Afghan regions and towns. Thus the war seemed to be escalating through 1982. In addition,

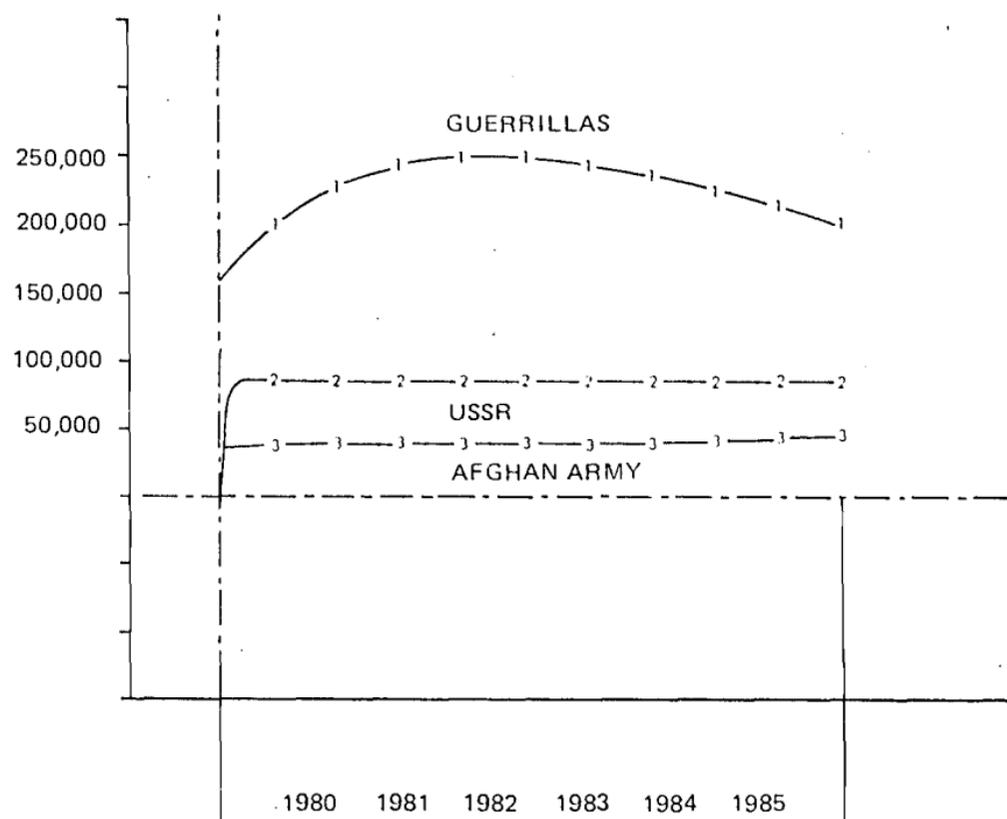


Figure 2: The Base Simulation

the size of both the Soviet and Afghan armies did not change significantly.

Since the combat-loss parameters have been determined a priori, the predictions for the losses generated by the full model running endogenously from the start can be compared to the actual losses in Afghanistan. This allows us to validate the model. There are, of course, diverging estimates about these losses, but a certain consensus among analysts enables us to judge the performance of the model. The potential guerrilla population decreases from 1,470,000 to 723,000, showing very heavy losses for the guerrillas of 703,000 over the six years. These losses represent approximately half of the potential guerrillas and nearly 6% of the prewar population. They seem much too large—no analyst or guerrilla fighter has come up with such figures. The Soviet losses are quite important. Numbering 48,000 over the six years, they are comparable to U.S. losses in Vietnam. The Afghan army losses are, as prescribed in the model, double the Soviet ones.

What are the different estimates for Soviet losses? Fukuyama (1980: 15) estimates them at between 3,000 and 15,000. He also stresses (p. v.) that

Soviet operations reflect an apparently great sensitivity to casualties. The Soviets have relied on heavy preparatory fires with airstrikes and artillery and have used mechanized infantry columns to clear lines of communication. There has been very little use of dismounted infantry or airborne troops to clear ridges and take the high ground.

Made in the summer of 1980, this assessment still appears valid in 1982, even though the Soviets have been exposing themselves more since then. Dupree (1980c: 10) writes in July 1980 of 8,000 Soviet dead. Chaliand (1981: 96) estimates the number of Soviet dead for the year 1980 at 6,000 to 8,000. Expedit (1981: 25) thinks there may be 5,000 Soviet dead and 12,000 casualties for the Afghan regular army in 1980. Khalilzad (1980: 23) presents similar figures. Guerrilla leaders present higher figures: Gailani (September 1980)—8,000 to 10,000; Hikmatyar (February 1981)—30,000; Khalis (May 1981)—30,000. Thus it appears that our predicted Soviet losses are well within the bounds of current estimates. They also appeared realistic to all our sources.

In summary, our base model cannot be (as yet) rejected because its predictions—or rather “postdictions”—are quite good for the first three years of the war. It needs to be emphasized that these results were

obtained on the basis of a priori assumptions for a dynamic model running endogenously from the start. The model predicted (1) the intensifying combat of 1981 and 1982, (2) the difficulties in building up the Afghan army; and (3) the high Soviet casualties. The extremely high guerrilla losses are unrealistic (this is also why we have not made the combat area much smaller). But even then the guerrillas hold out, bolstering our confidence in this basic finding from our analysis: The adverse conditions for the resistance imposed by our conservative assumptions still allow for development of a resistance. This result is obtained because the support of the guerrillas by the population gives us a high reinforcement rate of 1%. As we shall see again below, the same results are obtained when we deflate both the guerrillas' losses parameter and this reinforcement rate.

How sensitive are these results to varying assumptions? Since the data are bad, this is an important question to ask because the results may depend to a critical extent on one or more false assumptions—or at least on empirical evaluations that may err considerably. The overall answer to this question is negative: The results are quite robust and do not appear to depend on a few crucial assumptions (see Table 2). Rather, even when parameter ranges vary widely, the guerrillas are holding more or less well. They are never annihilated in any case, while the Soviets are still enduring appreciable losses and the development of the Afghan army remains a problem. The results are most sensitive to changes in the strength of the guerrillas and in the combat-loss parameters. Only unrealistic changes therein modify our conclusions, which we think are based on conservative assumptions.

The two last sensitivity analyses of Table 2 need to be discussed in more detail. By implying a continuous change of several parameters at the same time, they give even more importance to the role of the population than our earlier analysis (where the support of the population is analyzed mainly through the mobilization rate and also in an implicit fashion, as our whole conception is based upon the massive population support for the guerrillas in Afghanistan). Mao spoke of guerrillas being like a fish in the (population) sea: The more water there is, the happier the fish. If one deprives the fish of its water, it dies. This is a strategy commonly used by antiguerrilla forces, which try to control most of the population by attracting or pushing it into towns, or sometimes by genocide for inducing mass migrations. To capture these various effects, we have introduced a population support variable; the

TABLE 2  
Some Results of the Sensitivity Analysis  
(Results at the End of 72 Months)

<i>Changes Made</i>	<i>Guerrillas</i>		<i>Guerrilla Losses</i>	<i>Soviet Losses</i>	<i>Afghan Army</i>
Results of a priori base model	249,000 198,000	(after 3 years)	712,000	49,000	45,000
Reinforcements coming at one-third the rate	73,000		395,000	24,000	95,000
Reinforcements coming at 3 times the rate	548,000 374,000	(after 3 years)	1,081,000	100,000	no army after 3 years
Guerrilla losses parameter: one-third	564,000		345,000	90,000	no army after 4½ years
Guerrilla losses parameter: 3 times	39,000		871,000	17,000	108,000
Counter guerrilla losses parameter: one-third	233,000 134,000	(after 2 years)	775,000	14,000	115,000
Counter guerrilla losses parameter: 3 times the rate	317,000 295,000	(after 2½ years)	615,000	183,000	no army after 15 months
Initial condition of guerrilla strength: 50,000	214,000 171,000	(after 3 years)	633,000	40,000	64,000
Different initial conditions assuming total population of 12 million	117,500 186,000 131,000	(beginning) (after 2 years)	568,000	36,000	72,000
Population support variable	209,000 51,000	(after 1 year)	675,000	21,000	101,000
Population support variable and initial condition for guerrilla strength: 50,000	158,000 47,000	(after 1½ years)	573,000	16,000	112,000

proportion of the population remaining in the country relative to the population at the beginning. This proportion—which diminishes from 1 to .55 toward the end of 1985—then multiplies the Soviet and Afghan

losses as well as the mobilization rate of the potential guerrillas. It makes all these factors smaller with the decrease in the population generated by the model (mainly through the refugee and genocide elements). The inverse of this proportion—going from 1 to 1.82—multiplies guerrilla losses, which accordingly become larger and larger with time. In both sensitivity analyses using this population support variable, the guerrillas are able to develop their forces at the start but are then increasingly hampered in their operations. Nevertheless, after six years of fighting in Afghanistan, there still are about 50,000 guerrillas and an Afghan regular army of over 1,000,000 men.

As already discussed, the results of the base run of the a priori model imply an unrealistically high rate of guerrilla losses. This means that the counter guerrilla forces are not as effective and/or that the Afghan resisters are more effective than their counterparts in South Sudan. The reinforcement rate retained for Afghanistan takes into account the fact that the resistance compensates for its high losses. Now if we take the Yugoslav guerrilla loss parameter (Stahel, 1980: 163), we are assuming mainly that the guerrillas try very much to minimize their losses (as they do; see Roy, 1982). The model then predicts a continuous increase of guerrilla strength up to 670,000 at the end of six years. This is clearly impossible, because there would not be enough weapons available. Thus we need to take a much lower reinforcement rate than the already not-so-high 1% monthly figure. If this rate is only 0.2%, then the guerrillas continuously increase their number up a maximum of 214,000 and incur 138,000 deaths. Soviet losses are close to the ones predicted by the base model; the Afghan army is somewhat larger (60,000). A reinforcement rate of 0.1% brings about an almost unchanging guerrilla strength between 155,000 and 144,000, guerrilla losses of 113,000, Soviet losses of 33,000, and an Afghan army of 77,000. Half of this rate (0.05%) is sufficient to keep the guerrillas at over 100,000. This analysis where all the predictions made by the model are realistic is an a posteriori one. Due to the large pool of potential guerrillas available, it also suggests that the resistance can hold out over a long period.

## ANALYSIS OF VARIOUS POLICIES

The base model presented in the preceding section gave results that appear valid for the period from 1980 to 1982: The guerrilla forces

continue to develop, inflict heavy losses upon the Soviets and prevent the regular Afghan army from increasing significantly in size. But this situation may change during 1983 and thereafter. In this section, we discuss various policy options.

The Soviet Union sent approximately 85,000 troops during the early weeks of the invasion. They increased their contingent in the country to 110,000 men toward the end of 1982. A further escalation is a real possibility because Soviet decision makers may become frustrated with time and abandon their cautious policy of simply holding the urban regions and communication axes. The "lessons" of Vietnam retained by the Soviets (Zimmermann and Axelrod, 1981) stress that the will of a people cannot be broken but also that it may well be broken when a population does not have adequate outside support. Contrary to what is usually believed, a large Soviet escalation would encounter logistical problems and be limited by the size of Soviet forces. Only infantry units and, if possible, mountain infantry, can be really effective in Afghanistan. The USSR has only a few divisions of this type (see *The Military Balance*, 1979-1980: 109), and they might be needed elsewhere. In addition, reserves in a lesser state of preparedness might have to be called to serve in the divisions. Thus if we assume that the Soviet goal is 200,000 men in Afghanistan—the supplementary forces arriving in January of 1983 as rapidly as forces arrived during the 1979 invasion—the simulation of the model yields the following results. The guerrillas have 112,000 instead of 200,000 men at the end of 1985. Soviet losses are somewhat smaller (42,000 instead of 48,000 men over the six years), and the Afghan army can be rebuilt at a faster rate, finishing at 58,000 at the end of the simulation. While guerrilla losses are higher, there are more potential guerrillas than in the base run. In other words, even such a large escalation does not appear to eradicate the guerrillas, who keep on striving to fight against numerically superior forces. A contingent of 300,000 Soviet troops reduces the guerrillas to 74,000 at the end; the Afghan army is of approximately the same size (66,000), and Soviet losses are somewhat smaller. With 500,000 Soviet troops, the guerrillas number only 45,000, but they may then respond by increasing the mobilization rate of the potential guerrillas.

Instead of increasing its forces, the Soviet Union may try to develop the regular Afghan army. It would thus be pursuing a traditional policy of colonial powers, using local troops to fight the resisters. We assumed the success of such a policy and increased recruitment into the Afghan army by a factor of 3 (4,500 recruits per month instead of 1,500),

meaning 54,000 new recruits per year. But as could be expected from the results of the Soviet escalation scenarios, the situation does not radically change: The guerrillas are still holding out, and quite well at that. Thus this policy does not appear to be very effective and needs to be coupled with other measures—such as reinforcements from the USSR—to bring about a victory over the resistance.

Numerous reports have told about weapons being sent to the resistance—notably from Egypt, which has provided the guerrillas with Soviet arms. But the Egyptian operation was relatively limited, and it is highly probable that the resistance has obtained only modest support. What if we allow for better equipment for the guerrillas within the model? If they receive modern weapons and mortars, we are assuming a substantial development in the organization of the resistance because of the associated logistical problems. Introducing such weapons into Afghanistan requires a good transportation system and thus a coordination of various guerrilla groups that still does not exist. This scenario has been played out by assigning half the German loss parameter (against the Yugoslavs from 1941 to 1944) to the Soviet forces in Afghanistan (Stahel, 1980: 163). This change occurred in January 1983. The guerrillas, who subsequently would decrease otherwise, keep on increasing their forces up to a little over 300,000 at the end of 1985. The Afghan army is wiped out in three months and Soviet losses are unrealistically high (300,000). So it appears that giving modern weapons to the guerrillas would have a dramatic impact upon the course of the war. It is not difficult to picture such a development in concrete terms. If the guerrillas become able to hit Soviet helicopters, for instance, counter guerrillas will lose most of their mobility (the Soviets will have to fly at heights that will forestall many of their quite effective activities) and, accordingly, their effectiveness: A static posture is hard to maintain in an unfriendly country over the long run, not the least because of its effect upon troop morale.

## CONCLUSIONS

The Afghan guerrillas are holding their own and can be expected to maintain a successful resistance for a number of years. Only a very large Soviet escalation of several hundred thousand would have a significant impact upon the situation: Simply building up the Afghan army is not nearly enough to win. These are our main results for the period from 1980 to 1985.

The resistance is split among numerous tribes and religious and ethnic groups; it is akin in many ways to a traditional guerrilla war waged by tribes against a colonial power. The civilian population and the economy are heavily involved. While the guerrillas try to minimize their losses by hit-and-run tactics that are traditional in Afghan tribal warfare, they and the population still have to bear the heavy costs of guerrilla warfare. But they are able to inflict high losses upon Soviet troops.

The asymmetry of the war comes out clearly when different policy options are examined. A large Soviet escalation could lead to victory but only after a tiring process of destroying each resistance nest. This is due to the primitiveness of the country, the fragmented nature of its economy (locally more or less self-sufficient), and the decentralization of the power structure along tribal, ethnic, religious, and ideological lines. Because the Soviet army has followed the general trend of modern armies toward fewer and fewer infantry, putting its soldiers instead into armored vehicles, it would have trouble adjusting to an antiguerrilla war to be fought mainly by mountain infantry; this would also require a change in mentality. Therefore the Soviets have relied mainly on air warfare to date to retain the mobility they have lost on the ground. But the guerrillas, if provided with modern weaponry—especially ground-to-air missiles—could reduce this mobility to a large extent and inflict heavy losses upon the Soviet contingent. Thus the guerrillas are not only holding out, but could do so much more easily in the future, while the USSR would have to increase its efforts substantially in order to win. In addition, the resistance could play for time by decreasing its reinforcements. This means that the Afghan war will be with us for quite some time.

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