Marine Corps Intelligence Activity

Marine Corps Midrange Threat Estimate: 2005-2015

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Marine Corps Midrange Threat Estimate 2005-2015

EXECUTIVE SUMMARY

The degree to which the United States can maintain its security in the 21st century will be determined by how well the United States responds to a transitioning world. Marine Corps forces will be challenged by emerging technical, military, and geopolitical threats; by the growing resourcefulness and the ingenuity of non-state actors and terrorist networks; and by natural disasters.

Globalization has both positive and negative effects on world dynamics.

- States unable to keep pace with globalization will continue to grant increased powers to non-state actors (non-government organizations, private security/military organizations, criminals, gangs and terrorists).
- Failing states heavily populated with a costly aging population and a highly unemployed youth provide breeding grounds for terrorist groups.
- Demands of the modern and globalized state will continue to place increasing pressure on dwindling natural resources, including oil, water, and minerals. Unusual alliances will form to secure scarce resources.
- Globalization has eroded national identity and unity through the expansion of media and communication systems, technology, and popular culture, resulting in a surge of global religious movements.
- Globalization impacts characterization of modern warfare. Conventional war, while still a threat (Iran, North Korea, China) has taken a back seat to asymmetric and irregular types of warfare. Suicide bombings, child solders and acts of terrorism defy the rules of warfare. The ease of global transportation makes it easy for jihadists worldwide to infiltrate Iraq, while global communications have provided radicals with an ability to fund, network, and organize.

Major natural and man-made disasters will continue to increase in frequency and severity throughout the world and will produce permanent changes to societies, ecosystems and environments, along with material damage, loss of life, distress and displacement. As a result, more complex humanitarian relief emergencies can be expected.

Infectious diseases will likely remain the world's leading cause of death. This is due, in part, to increased population density, poor sanitation, and increasing global transportation.

The explosion of information and communications technology propels the evolution of political and social values, actions, and forms of organization. Global media and the internet provide adversaries the ability to shape global opinion and create an information operations force multiplier that the United States has yet to successfully counter.

Threats in the 21st century will be unconventional, unforeseen, and unpredictable (U3) from adversaries using asymmetric approaches and irregular tactics. Potential adversaries, states and non-state actors, will be adaptive, creative and become increasingly sophisticated using lessons learned from encounters with American weapons and tactics and apply those lessons learned with increasing complexity, adaptability, and skill by using non-linear, irregular activities.

Warfare in the 21st century has transitioned from conventional to asymmetric. Potential adversaries of the United States recognize their relative impotence in conventional, force-on-force operations; they instead seek to draw the United States into arenas where its conventional capabilities and technological edge are blunted. Asymmetric threats and irregular warfare are among the primary threats to U.S. Marine forces.

Future warfare will be increasingly shaped by the following:

- *Strategically*, war will not be defined by direct military-on-military attack; instead, violence will focus asymmetrically on undermining deployed troops and U.S. policies.
- *Tactically*, warfare will include attempts to disrupt order and distract U.S. forces and undermine popular support and legitimacy for U.S. intervention. The enemy's goal is not to test the "three-block" Marine but to require a marine on every block.
- *Organizationally*, warfare will move from the hierarchy of military command to a more cell-based, leaderless group structure that maximizes convenience and tactical adaptation, emphasizes and minimizes network vulnerability.
- *Ideologically*, warfare will be driven by new identities outside basic nationalism. State, cultural, religious, and individual perspectives will combine to create evolving groups and objectives.

Twenty-first century threats will be enhanced by adversaries' cultural and geographic familiarity with their environments. Future adversaries to the Unites States will be driven by ideologies that do not restrict the nature of conflict and will be unfettered by borders, boundaries, or rules. They will assimilate with the local populations using the urban environment for cover and concealment. They will also pursue understanding of U.S. military tactics, techniques, and procedures to accumulate a modern, effective arsenal.

Information operations (IO), terrorism, and weapons of mass destruction (WMD) are the dominant strategic and tactical asymmetrical threats of concern domestically and overseas.

- Extremist organizations (including terrorists), intelligence services and criminal groups along with nation states are likely to continue pursuing IO capabilities, including attack and exploitation capabilities, and propaganda and media manipulation.
- Terrorism is the most likely asymmetric threat to U.S. interests at home and abroad. Terrorist groups will continue to be decentralized, self-reliant, innovative, and networked.
- Ten countries are believed to have nuclear weapons. Terrorist groups and other rogue elements will seek to obtain and/or develop WMD, including chemical and biological agents.

Potential adversaries will have increasing access to both low technology and high technology weapons, which used to be exclusive to nation-states. Future threats and strategies will employ a variety of technologies in both conventional and asymmetrical ways. U.S. supremacy in conventional warfare will remain unchallenged until possibly 2020. Of the

five principal operational dimensions that must be considered, the following technical threats are identified.

- Maritime
  - Availability of far-reaching reconnaissance, surveillance, and target acquisition (RSTA) information will make it increasingly difficult for Marines to transit the seas undetected and untargeted.
  - Shallow and restricted waters and adjacent areas provide an arena for mobile and static coastal defense guns, rockets, missiles, and mines. Most will have improved lethality because of advances in sensor, propulsion, stealth, digital computer, explosives, or fusing technologies.
- Firepower
  - Artillery will be more self-contained and mobile with much-improved complementary RSTA capabilities.
  - Land-based artillery, missiles, and rockets will continue to outrange naval guns, and will be capable of delivering conventional high explosives, dual-purpose improved conventional munitions, weapons of mass destruction, mines, and/or precision-guided munitions (PGMs).
  - PGMs will be deployed widely using an array of guidance systems that will allow increased engagement ranges and accuracy.
  - Advances in laser and power technologies will transform today's sensor-blinder into a hard-kill weapon.
- Maneuver
  - A wide variety of ground weapons ranging from small arms to exotic or high-end systems, namely non-nuclear electromagnetic pulse (EMP) or laser devices, highlighted with interjections of innovative or improvised systems, such as volumetric weapons or improvised explosive devices.
  - Natural and man-made obstacles, urban infrastructure, harsh climates, and increased combat capabilities of conventional forces may complicate the execution of expeditionary operations.
- Air
  - Sophisticated surface-to-air missiles (SAMs) and modern integrated air defense networks will proliferate. SAM guidance systems will be increasingly difficult to jam or evade, and will use nontraditional portions of the electromagnetic spectrum.
  - Many systems will be capable of simultaneously employing radar, optical, and thermal target detection and tracking sensors that will be difficult to detect and counter. Advanced or improved aircraft, many with low radar signatures, will also proliferate.
  - Unconventional uses of older types of man-portable air defense systems (MANPADS) by irregular forces remain a key concern. Lasers capable of shooting down aircraft have already been fielded by some nations.
- Information superiority
  - Stealth technology and camouflage, concealment, and deception techniques will be maximized to hide potential targets and/or protect tactical movements.

- Key military facilities and capabilities will go underground, both physically in the earth and figuratively within urban areas.
- Mainstay Marine Corps communications will be vulnerable to electronic warfare techniques. Electronic attack systems will be capable of operating automatically against multiple sensors, and may involve radiofrequency devices. These systems will be smaller, low cost, have increased jamming or destructive power, and be adaptable to a variety of platforms.
- Qualitative improvements in command, control, communication (C^3) and information systems will be prevalent. Information Operations (IO) techniques to subvert the U.S. and take advantage of potential psychological warfare opportunities is also expected.

The most prevalent destabilization factor in the world's regions is the growing trend in Islamic extremism. Africa, South and Southeast Asia, Eurasia and the Middle East are all experiencing gradual moves toward extremist Islamist views in many countries in their regions. Although many of these developing regions are riddled with rampant infectious diseases and economic troubles, the primary motivating factors for U.S. Marine involvement in the regions will be ethnic conflicts and increasing terrorist activity.

The U.S. military must develop more agile strategies and adaptive tactics if it is to succeed in this complex environment. While the current U.S. capability overmatch in conventional operations will continue for some time, Marines must be equipped with the requisite regional, cultural and language knowledge to effectively deal with persistent and emerging irregular, traditional, catastrophic, and disruptive threats in the littorals and complex urban terrain. The face of the primary threats to the Marine Corps is changing and the Marines must change with it.

Information Cutoff Date: 1 July 2005

MCIA-1586-01-05

Contents

Contents (Continued)

Contents (Continued)

Contents (Continued)

Appendix

Marine Corps Midrange Threat Estimate 2005-2015

FOREWORD

This estimate's intent is to prepare the Marine Corps for potential 21st century threats. Conventional warfare is quickly becoming a secondary option to those who cannot compete in major theater conflict. Borderless, complex and adaptive, potential adversaries lurk in the shadows of the urban jungle and cyberspace, complicating the rules of warfare. Future adversaries have unprecedented access to information, resources (personnel and funds) and technology – and are applying it asymmetrically against the United States and its deployed military forces to mitigate our military strengths. The terrorist attacks on the United States in September 2001 were a defining moment for the conduct of future United States Marine Corps operations.

Effective planning for future operations requires cultural intelligence – a detailed knowledge of culture and customs, knowing about our enemy as well as analyzing what our enemy knows about us. Awareness of local cultures in emerging threat environments will be increasingly critical in determining who wins and who loses.

The U.S. military must develop agile strategies and adaptive tactics to succeed in the 21st century threat environment. While the United States will continue to dominate conventional capabilities for some time, Marines must achieve the same level of capability in unconventional situations. Building on their expeditionary skills, U.S. Marines must increase their capacity for decentralized, nonlinear operations in contested zones, including the littoral and complex urban terrain.

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Section 1:

GLOBAL DYNAMICS AND THEIR EFFECTS ON U.S. SECURITY

"Our security will require all to be forward-looking and resolute, to be ready for preemptive action when necessary to defend our liberty and to defend our lives."

President George W. Bush, 1 June 2002

The degree to which the United States can maintain its security in the 21st century will be determined by how well the United States responds to a transitioning world. Marine Corps forces will continue to be challenged by emerging technical, military, and geopolitical threats; by the growing resourcefulness and ingenuity of non-state actors and terrorist networks; and by natural disasters.

Traditional military roles cannot be ignored. Marines must also keep a wary eye on states with strengthening conventional and unconventional capabilities (Iran, North Korea), and particularly on the growing power and influence of the People's Republic of China. As the world transitions, so will the nature of Marine Corps missions.

In the 21st century, potential adversaries will use both conventional and irregular warfare against the military and technological dominance of the United States. In the near term, the United States will remain the dominant military power. However, asymmetric tactics, as demonstrated in Afghanistan, Iraq, and during the September 2001 attacks on the United States, have effectively challenged that dominance. To maintain superiority, the United States must be prepared to respond to asymmetric threat tactics, techniques, and procedures in addition to the range of conventional, force-on-force threats.

U.S. Service members provide security to enable an Iraqi woman to vote in 2005 during the country's first election.

The attacks of September 2001 marked the beginning of a new concept in global confrontation that is ideological and borderless. Warfare in the 21st century will be determined and affected by many non-military factors, including economic strength, public will, energy issues, irregular warfare, and geographic areas of instability.

GLOBALIZATION

Globalization is the logical outcome of U.S. and Western capitalism after the fall of the Soviet Union. Without a Soviet economic bloc, economies opened to cheaper producers and larger markets. At the same time, communication technology created a system that enables individuals, corporations, and nation states to reach around the world faster and less expensively.

Changes to most societies have been significant. Everything from labor markets to potential movie audiences is assessed on a global scale. States that seem to be political adversaries are, in reality, economic partners (e.g., China and Taiwan). Nations that can adapt to the demands of globalization by maintain-

ing property rights, stable currency, an educated work force, reliable financial institutions, and open access to information can benefit from trade and investment.

Money drives the changes. More than US$1.9 trillion trades hands every day. If a state adapts to the demands of globalization, money flows. If it does not or cannot, investors ignore the country. Globalization can severely weaken or even collapse states that attempt to opt out of the economic system. Many feel alienated by the prospect of a single, dominant system. The resulting backlash will define many conflicts.

Some perceive globalization as exploiting weak states and nullifying public social nets that once defined nations and societies in exchange for enriching multinational companies and Western consumption. Deceitful leaders and would-be revolutionaries can capitalize on the anger this generates. As such, the same technological tools being used to create global economic interdependence can also be used to destroy it.

For those opposed to globalization, the United States is an obvious target. While most Americans saw the World Trade Center attack as an assault on the tallest buildings in Manhattan, many foreigners saw the attack as an assault against a symbol of the economic culture we export. The United States dominates the global system, but does not own it. Potential adversaries and competitors will not defect from the system, but will leverage it to mitigate U.S. strength. Conflict for the mid term will focus on two groups that are now fighting for supremacy – those who have money and those who have none.

Building destroyed by bombing.

Non-state Actors

Non-state actors began filling the void left by those states weakened by the transforming global economy. As a consequence, non-state actors are most powerful where the local government is weakest. In the near term, U.S. forces are likely to face most conflicts in those states with powerful and involved non-state actors that are either in-country or quickly spring up in reaction to intervention. Understanding the role of these actors is vital in understanding the threat and future opponents on the battlefield.

A peripheral effect of globalization is the empowerment of individuals and groups. With funding more accessible through modern technology and communications, they become more independent of government. These groups and individuals not only influence their home countries and people, they can solicit support for their causes from the entire world. Some non-state actors are helpful and vital to U.S. operations abroad. Non-violent non-state actors such as non-governmental organizations (NGOs) feed the poor and help governments in crisis. In contrast, violent non-state actors, such as al Qa'ida, create an increasingly dangerous challenge.

Private Security Organizations

Private security organizations may become a threat to Marine forces, but not likely in a direct manner. Most private armies have been contracted to conduct security, counter-insurgency, or training in developing countries. Private security organizations will likely hesitate to be involved in a conflict where they would face a professional and formidable foe like the United States. A much more likely threat would come from an insurgent or terrorist group who has received training in improved tactics, techniques, and procedures from mercenary advisors.

With more non-state and private actors (media, aid, contractors) present in areas of conflict and crisis, private security has become a serious growth industry. The demand for security personnel since the September 2001 attacks on the United States has created a new challenge for U.S. military forces. Iraq's poor security has generated a thriving private industry comprising Iraqis and former military personnel from

around the world who protect foreign contractors working on construction projects, journalists, senior government officials, and diplomats. Private security forces in Iraq are estimated to number 20,000, making it a larger armed contingent than the United Kingdom, the United States' closest coalition partner. Private security organizations vary in goals, training, weaponry and rules of engagement, and are unregulated by one authority. The likelihood of an incident occurring between Marines and security personnel will increase.

Private Military Forces

Private military forces (PMFs, also referred to as mercenaries by some) have played key roles in conflicts in Liberia, Angola, Colombia, Sierra Leone, and Iraq since the Thirty Years War (1618-1648). The end of the Cold War has given rise to thousands of PMFs. Even the strongest nations have outsourced many key and, in some cases, highly sensitive military industries (training, defense) once thought of exclusively as government responsibility. These hired militaries have rapidly taken central roles in security, strategy and training for foreign militaries, all of which can affect Marine operations.

At the same time, some governments have grown increasingly dependent on PMFs. U.S. firms, for example, provided almost the entire logistical and maintenance support for the Saudi Army during Operation DESERT STORM. Today, PMFs are far more complicated than the mercenaries of the past, and are driven by corporate profit, rather than individual gain. As such, the presence of PMFs has expanded exponentially. PMFs accounted for one of every 100 Americans involved in the Gulf War, and one of every 10 Americans in the Iraq War. PMFs fight battles, train advisors, and provide material support, including everything from fighter planes and ships to laundry services and meals. Some PMFs focus on security work for multinational corporations, the UN, or NGOs, including humanitarian groups. Others work to remove landmines from war-torn areas in Africa and Asia.

Non-governmental Organizations

The presence of international organizations, particularly non-governmental organizations, has increased dramatically over the last two decades. It is estimated that the number of international NGOs rose from an estimated 6,000 in 1990 to nearly 26,000 in 1996 and by 2002, more than 37,000 international NGOs were reported. While most of these NGOs provide services in less-than-ideal situations during less-than-ideal conditions, their presence can have a significant effect on U.S. military activities. NGO personnel can impede military operations by acting counter to the goals of the military mission, to include refusing to evacuate hostile areas or conducting inappropriate religious activity during humanitarian crisis when Marines are rendering aid. Reports by NGOs criticizing U.S. military action can also undermine U.S. legitimacy in the international community and communities in which they are operating.

In the current security environment, NGOs are often seen as semi-official distributors of Western government relief, rather than independent, impartial agencies who are there to help those in need, regardless of politics, religion or ideology. This has led to increased targeting of NGO personnel, to include killings and kidnappings. It can also lead to subsequent withdrawal of NGO personnel, leaving the U.S. military to fill in humanitarian gaps. Reductions in aid organizations during crises could result in increased relief tasking to U.S. Marines.

Violent Non-state Actors

Violent, non-state actors include terrorist groups, insurgents, and organized criminals. Their capacity for violence can stem from myriad sources, including greed, religious or non-religious ideology, or a basic quest for power. Asymmetric tactics provide them flexibility in achieving their goals.

These violent actors are more challenging to U.S. forces than nation states because they are more difficult to deter from offensive operations. A government is easily targeted because it has command and control centers and, generally, a highly centralized bureaucracy, whereas violent, non-state actors operating in cells and through networks can blend into the general population. Nations can be held accountable to standards of international law and to their people, and violators face economic or political sanctions from the global community. Non-state actors are difficult to hold accountable because they do not adhere to inter-

national law and cannot be sanctioned. Self-elected leaders are loyal to themselves and their causes.

Violent, non-state actors tend to have a receptive audience in the world's growing youth population. Unemployed and disenchanted by the failed promises of modernization and trade, these young people will be easy to recruit if some of their basic needs are not met. The changing demographics of the world will play a significant role in how the United States may address some of the backlashes to globalization.

Organized Criminals

Organized crime thrives in resource-rich states undergoing significant political and economic transformation. It also thrives in countries where governments are weak, vulnerable to corruption, and unable or unwilling to consistently enforce the rule of law. The danger to Marine forces from organized crime comes in the shape of syndicates that form loose alliances with insurgent movements for specific operations, as is the current case in Iraq. The greatest danger from organized crime is the trafficking in nuclear, biological, or chemical weapons of mass destruction. This danger will increase over the time of this estimate.

Transnational Criminals

Increased global travel, information access, and communications capabilities have allowed transnational crime to become a significant destabilization factor. Often characterized as a law enforcement problem, crime is becoming a military problem, as well. Transnational crime is often based in regions with limited capital and high unemployment and birth rates. It proliferates in environments where citizens have limited legitimate economic opportunity. Criminal entrepreneurs in developing and transitional countries provide affluent countries with goods and services, drugs, and inexpensive human labor. They also profit from regional conflicts, trading small arms and military equipment for commodities (such as diamonds) that can be sold in both legitimate and illicit markets.

The effects of criminal enterprises are significant. The drug trade undermines public health and fosters addiction; trade in human beings contributes to disease spread. Trafficking women has had serious demographic consequences in some countries. Information technology, exploited by transnational criminals, has led to the spread of child pornography, international financial crime, and money laundering. Credit card fraud facilitated by internet use reaps enormous profits for criminal groups and can be used to fund terrorism.

Transnational Youth Gangs

While transnational youth gangs are not new, their recent alleged activity with al Qa'ida operatives highlights their potential threat. For decades, Chinese organized crime has used local youth gangs in many U.S., Asian, and European cities to significantly increase their illicit drug and human trafficking syndicates. Major smuggling routes through Central America have given Chinese gangs increased access to the United States. Cities such as New York, San Francisco, and Chicago have long been major areas of operations for gangs such as the Triads and Tongs. The rise of youth gangs in Central America and their connections to criminals in U.S. cities has focused more international attention on the increased challenges to law enforcement these groups represent.

Historically, motivation for crime has been perceived to be greed. "Traditional" crime syndicates, such as the Japanese Yakuza or the Colombian mafia, run operations that pursue long-term profit and invest in major international financial centers – safe havens to ensure long-term viability. These traditional criminal elements tend to avoid connections to terrorist elements. Overt terrorist collusion would bring scrutiny that would affect the survivability of their operations. In fact, many have interest in maintaining financial institutions that allow the organization to function.

Some groups, however, will align with international terrorist groups; they are unconcerned with market stability. Smaller groups, opportunistic and with shorter-term profit goals, have emerged and appear to have little concern with being linked with terrorists. These groups have risen from the many regional conflicts of the 1990s. In the Balkans and in central Asia where agile organizations are forming – organizations that operate across regions and cultures. Elsewhere, Middle East terrorists are cooperating with crime groups in the tri-border region of Argentina, Brazil, and Paraguay; al Qa'ida

Hizballah – From Terrorism to Legitimacy

In October 1983, Hizballah became a part of Marine Corps history when a truck bomb detonated at the Beirut Marine barracks, killing 220 Marines and 21 other U.S. service members. Formed earlier in the year by a group of Lebanese Shi'a who studied in Islamic schools in Iran, Hizballah's primary goal was to bring a Khomeini-style Islamic government to Lebanon.

During the Israeli incursion into Lebanon, Hizballah conducted a bloody civil war that ended in 2000 with Israel's withdrawal. Hizballah is an international organization with cells throughout the world that raise funds, publish ideology, conduct surveillance and conduct terrorist attacks. Considered by the U.S. as a dangerous non-state actor, Hizballah is a complex organization that may provide insight to future terrorist groups.

Once a rag-tag militia, Hizballah has successfully transformed itself into a powerful political and social force. Hizballah has become a media-friendly, computer-savvy organization with its own press kits, several websites and a television station called Al Manar, which is officially licensed by the Lebanese government. It publishes newspapers and magazines, and markets a full line of propaganda products, including a series of videotapes depicting suicide bombers and guerilla attacks against Israeli soldiers. At the same time, a political wing represents Hizballah in the Lebanese parliament; Hizballah charitable organizations provide medical care, social services, and education to tens of thousands of poor families in southern Lebanon, filling a void left by a weak central government.

Combining the strategies of providing services with terrorism bolsters credibility with local populations and builds a legitimacy needed to govern. The group's evolution from terrorism to politics poses both military and diplomatic dilemmas for the United States.

operatives are associated with crime groups in western Africa (diamonds); and the Philippines-based Abu Sayyaf routinely conducts piracy in the south Pacific.

The links between transnational crime groups and terrorists are strongest in regions with corruption. In countries with most severe corruption problems, the state cannot effectively guard borders, regulate the flow of goods, or investigate transnational crime because the members of the state collude with, or may even control, the nation's criminal elements.

Criminal organizations that smuggle nuclear material are a possibility. The 2003 shut down of A.Q. Khan's nuclear smuggling ring in Pakistan proved that private individuals could significantly proliferate nuclear technology without U.S. intelligence knowledge and to considerable profit. While A.Q. Khan's group was not a traditional crime syndicate, his smuggling ring pointed to the ability to smuggle almost any valuable item that is in high demand.

Street Gangs

Foreign policy experts have suggested that the tightening of U.S. immigration policies has created an unintended threat: the transnational street gang. Since the mid-1990s, Tens of thousands of immigrants with criminal records have been deported to their home countries, often in Latin America and Asia, each year. In 1996, around 38,000 immigrants were deported after committing a crime; by 2003, the number had jumped to almost 80,000. Although many gang members have spent the majority of their lives in the United States, once arrested, their immigrant status often results in deportation.

With little connection to their new country, the deportees seek ways to return to the United States, connect with other deported gang members, or seek protection from local gang members. Connecting with other gang members generally results in increased crime, violence, and instability. The deported gang members are also susceptible to being exploited by terrorism groups; the El Salvadoran MS13 gang is allegedly linked to al Qa'ida.

CULTURE

The post-Cold War era and events since 11 September 2001 have given rise to a complex, multi-polar environment, where most wars are fought within nations rather than between nations and the non-state actor has risen in military and political prominence, filling a void often left by weak governments. Cultural differ-

ences not only serve as an impetus for war, but as an underlying factor to numerous ethnic and regional conflicts. The increasing number of conflicts has challenged the United States and its allies to take a more active role in the world in order to effect global stabilization and security. The 21st century security environment provides new challenges for the U.S and, more specifically, for the United States Marine Corps.

Multiple definitions exist for culture – but most definitions are similar in describing culture as the dominant qualities of a specific area that collectively serve as a foundation for that area's distinct environment. Culture is made up of social, political, ethnic, economic, religious, historical, and linguistic factors. It defines people, their behavior, beliefs, institutions, norms, morals, and values. Culture can unite peoples across national boundaries as easily as it can divide people within those boundaries. Cultural barriers are often wrongfully over-simplified by treating them as language barriers; however, even language barriers are not that simple. The language barrier is not limited to word-for-word translations but also includes idioms, slang, non-verbal gestures, and social conventions, which all make up communication. The translator's role is made easier when he/she has a grasp of all the elements that make up the language of a culture.

Cultural knowledge and intelligence has become increasingly important because traditional methods of warfare have proven inadequate in 21st century conflicts, such as those in Iraq and Afghanistan. U.S. technology, training, and doctrine designed to counter the Soviet threat are not adequate for low-intensity counterinsurgency operations where civilians mingle freely with combatants in complex urban terrain.

The major combat operations that toppled Saddam Hussein's regime were relatively simple because they required the U.S. military to do what it does best: conduct maneuver warfare in flat terrain using overwhelming firepower with air support. However, since the end of major combat operations in the campaign, coalition forces have been fighting a complex war against an enemy they do not fully understand. The insurgents' organizational structure is not military, but tribal. Their tactics are not conventional, but asymmetrical; their weapons are not tanks and fighter planes, but improvised explosive devices (IEDs) and suicide bombers. They do not abide by the Rules of War and the Geneva Conventions, nor do they appear to have any formal rules of engagement.

Exporting America

American culture is exported more widely than any other in the world. U.S. movies, music, history, language, business methods, and political ideologies show up in countless foreign nations. Commercialism, globalization, and capitalism have made the United States more transparent than any other country. This can be a force multiplier for potential adversaries, as American vulnerabilities and weaknesses are more easily illustrated and understood, placing U.S. forces at a disadvantage. For example, Iraqi jihadists believe they have a stronger will than U.S. troops (because of media portrayals of American society as frivolous) and can therefore, outlast them in war. They feel that their devotion to their cause will be rewarded in the afterlife. Their religious-based belief acts as a force multiplier, which feeds the insurgency's persistence.

Effective cultural intelligence is not only a force multiplier but can also dispel dangerous and misleading categorizations and generalizations. Humans fear what they do not understand. That fear manifests itself in mistreatment of people who are foreign, and disrespect for practices that are unfamiliar. U.S. forces must be well informed and prepared to fight an enemy that has extensive knowledge of American culture and history (military and political) that it may use to its advantage. The U.S. military has a unique advantage in the cultural and religious diversity of the United States. This advantage can be exploited when facing an increasingly informed enemy who seeks the upper hand through its own intelligence and close observation of American culture.

Mirror Imaging

While the consequences of a lack of cultural knowledge might be most apparent (or perhaps most deadly) in a counterinsurgency, a failure to understand foreign cultures has been a major contributing factor in multiple national security and intelligence failures. In the days preceding Pearl Harbor, the U.S. government picked up Japanese signals (including conversations,

decoded cables, and ship movements), yet failed to distinguish signals and noise because it was unimaginable that the Japanese might do something as irrational as attacking the headquarters of the U.S. Pacific fleet.

In a similar instance of mirror imaging, or applying one's own standards in analysis of another's anticipated actions, India's nuclear tests on 11 and 13 May 1998 came as a complete surprise to CIA analysts. The analysts believed Indians would not test their nuclear weapons because Americans would not test nuclear weapons in similar circumstances. Such ethnocentrism (the inability to put aside one's own cultural attitudes and imagine the world from the perspective of a different group) is especially dangerous in a national-security context because it can distort strategic thinking.

The conflict in Iraq also demonstrates the cultural importance of successful intelligence. Misunderstanding jihadist motivations has caused the United States to readdress its assessment of the tenacity of the ongoing insurgency in the country.

Building a Cultural Foundation

Firepower may achieve temporary battlefield superiority in conflict, but it will not necessarily achieve a favorable conflict resolution. In the current and potential expeditionary operating environments, where military operations extend beyond combat and may also include nation-building and stability operations, it is imperative that equal weight be given to military and cultural factors. Understanding culture can help address important military and civil issues, such as determining the extent of the enemy's will to fight, of resistance groups to persevere, or of the population to support insurgents, tribal leaders or warlords. Cultural intelligence is rapidly becoming as important to mission fulfillment as are high technology weapons.

A deep cultural knowledge of future adversaries and populations within potential operating areas will be essential to successful U.S. military operations. Distance culture (reviews of previous academic research) is not an adequate substitute for on-site culture (knowledge developed through focused fieldwork). First-hand knowledge is far more difficult to develop during a conflict when association with Americans could put sources at risk. It is imperative that the groundwork on cultural intelligence be conducted prior to the onset of a crisis. Cultural databases must be populated prior to putting military forces on the ground. Immigrant and refugee testimonies, travelers' accounts, in-country immersion trips by military or civilian personnel, and even debriefings of previously deployed military can be collected, analyzed, and exploited. All these resources can contribute to a clearer picture of the human terrain Marines can expect.

RELIGION

While religion has become a significant driver in world dynamics, it is important to understand what drives the apparent resurgence of religious violence.

In the past 70 years, the United States fought two political movements (fascism and communism) that threatened to take over many governments. Both of these ideologies were born of modern secular ideas. Their belief in science and an educated ruling class took the place of religion for many. With the defeat of the Nazis and the fall of the Soviet Union, many expected the world to embrace secular capitalism. The September 2001 attacks on the United States proved otherwise. Religion, particularly in much of the developing world, is a part of everyday debate. The perceived values of globalization, from global regard for treatment of women in the Middle East to the loss of traditional families in China, are driving many of the global religious movements today.

Modern religious fundamentalism represents, to an extent, a widespread rebellion against the acceptance of secular modernity. While communist and authoritarian regimes suppressed religion for their own gains, much of the oppression came under the guise of modernization, creating a somewhat understandable suspicion of Western governance. Where there is reform, there are constituencies saying that moving toward democracy means adopting Western ideals, and invites an increase in sexual immorality, crime, and violence. Segments of the population believe they have to return to a more protective environment, in which the government actively favors a particular notion of religious and ethnic identity, and the enforcement of religiously sanctioned values. This often leads to conflict. In every culture, wherever a modern, Western-style soci-

ety has been established, a religious counterculture has developed alongside it in conscious rebellion. Fundamentalist movements are rooted in a belief that their way of life and values are at risk of being destroyed, and with that comes strong reaction.

Massive change also drives religious movements. As countries attempted to do in 50 years what took the West 300, modernization meant neglecting the spiritual aspect of transition, and viewing religion as an obstacle to progress. Moreover, development too often failed to deliver even the material benefits it promised. The current resurgence of religion is a modern attempt to harness traditional identities for contemporary use. This has had implications, not just in Islamic states but also in those attempting counter fundamentalism through Christianity, Judaism, Sikhism, Hinduism, Buddhism, and Confucianism. This backlash has created challenges for the United States.

Religion's Effect on National Identities

Much of the rise in religious politics could be regarded as filling the void while the secular nation-state is in a period of transition; especially states that are still authoritarian and/or corrupt. Globalization has significant implications to traditional nationalism and the nation-state in several ways. It has weakened them economically, not only through the global reach of transnational businesses, but also by the transnational nature of their labor supply, currency, and financial instruments. For many, globalization has eroded their sense of national identity and unity through the expansion of media and communications, technology, and popular culture.

Some of the most intense movements for ethnic and religious nationalism have arisen in states where local leaders have felt exploited by the global economy. They feel unable to gain military leverage against what they regard as corrupt leaders promoted by the United States, and resent what they see as an invasion of U.S. popular culture on television, the internet, and in motion pictures.

Religion and ethnicity define public communities. The need for national identity persists because there is no single alternative form of social cohesion and affiliation that can dominate public life the way the nation-state did in the 20th century. As such, religion, ethnicity, and traditional culture establish nationalist activity and identity.

While this has occurred in many religions, Islamic extremism provides the most current example. Seen as an Islamic nationalist, Usama bin Ladin looks at Saudi Arabia and Egypt as states governed by apostates or infidels who corrupt and pollute the entire Muslim faith. He believes it is his obligation as a devout Muslim to incite armed revolt to transform those governments and others like them with an ultimate goal of a transnational form of Islamic rule. Palestinian terrorism is a similar example. A significant PLO objective is to win independent statehood for the Palestinian people. But for segments of the population, as well as for many non-Palestinian Muslims, that goal also has strong religious significance, and the struggle of the Palestinian nationalist is interpreted as part of a wider Islamic campaign.

Religion's Effect on War and Terrorism

War and violence are rarely solely about faith; they involve politics, economics, nationalism, even a personal sense of humiliation. However, conflict is often religiously influenced, such as in Sri Lanka, Sudan, and Israel-Palestine. Religion in conflict provides legitimacy, a mechanism for recruitment, and a vast array of asymmetric tactics. Conflict for religious purpose has instant legitimacy. Concepts of cosmic war are accompanied by claims of moral justification. It is not so much that religion has become a political tool, but that politics has become a religious tool. Through enduring absolutism, worldly struggles have been lifted into the level of sacred battle. Fighters are not just joining a war but partaking in redemption. For the disenfranchised, this can be a significant motivation.

Strict religious codes impart a sense of redemption and dignity to those who uphold them. The very act of killing on behalf of a moral code is a political statement. Yet these are not just personal acts. These violent efforts of symbolic empowerment have an effect beyond personal satisfaction and feelings of potency. Such acts break the state's monopoly on morally sanctioned killing. By assuming the right to take life in their own hands, the perpetrators of religious violence make a claim of power on behalf of the powerless — a basis of legitimacy for public order other than that on which the secular state relies. *Jihadists* moving into

Iraq to fight Americans send a message that they have the faith to fight a conflict that the neighboring rulers are either too weak or too spiritually corrupt to fight.

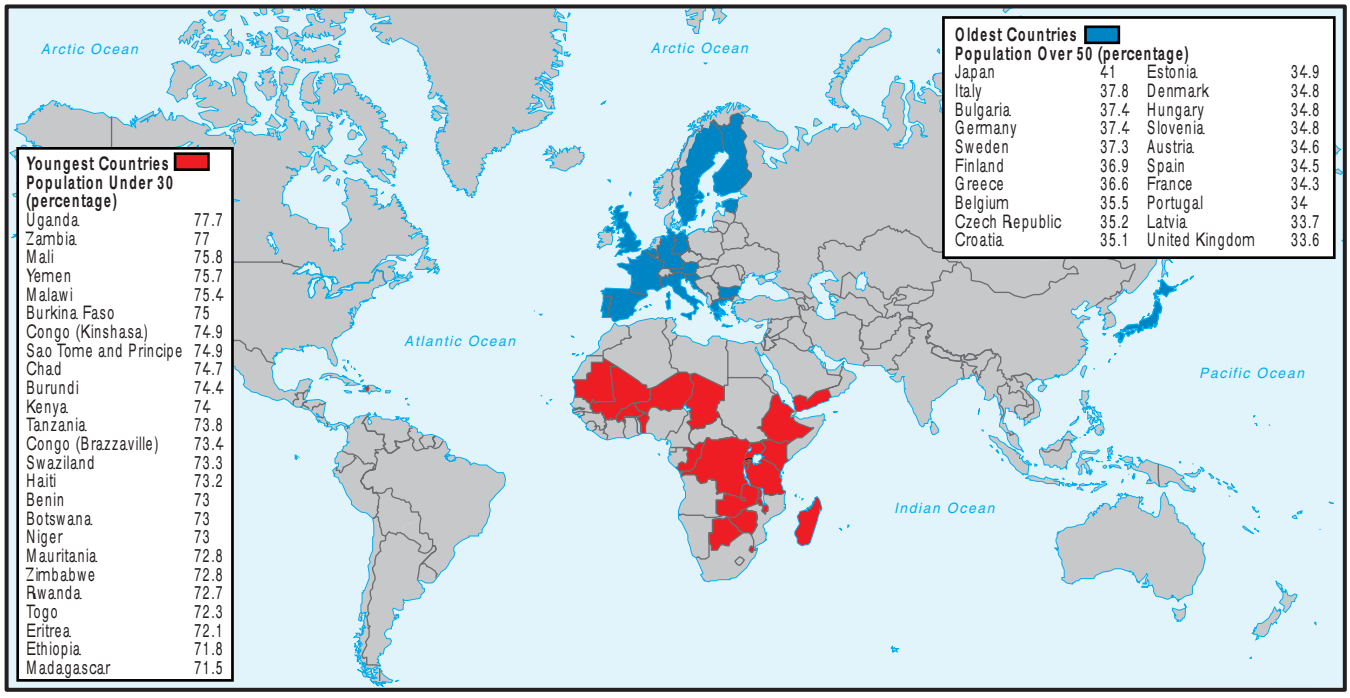
In these "religious battles," there is no need to compromise or to contend with society's laws and limitations; one is obeying a higher authority. In spiritualizing violence, religion gives the act of violence remarkable power. Asymmetric and irregular tactics that require personal sacrifice and use of civilian targets exploit weaknesses of law enforcement, traditional militaries and the state. Religion will continue to be a tool in future conflicts.

DEMOGRAPHIC TRENDS

Current population studies estimate that in 2015, the world population will reach 7.2 billion, 18 percent more than the 6.1 billion people in 2000. Of this growth, 95 percent is occurring in developing, already overpopulated countries. This will result in a disproportionate youth population. Concurrently, an aging population in advanced countries may force governments to realign their foreign policies to reduce the fiscal burden and bolster elder-care programs. Other impacts to U.S. interests worldwide include people from the disaffected middle class—highly educated, widely traveled, and unable to acquire desired jobs or assimilate into a larger society (such as Muslims in Europe). They may become isolated and turn to religion as an outlet to affect change. Most of the September 2001 terrorists were from this group.

The Youth Population

In much of the developing world, a disproportionate percentage of the population falls in the age group of 15-29. This anomaly may cause instability as large populations of restless, dissatisfied young people are confronted with economic stagnation and unwelcome social change. Members of this demographic tend to be highly politicized, outspoken, and motivated by perceived social, economic, and political injustices. States that fail to adequately integrate youth populations into the economy are likely to perpetuate the cycle of political instability, ethnic wars, revolutions, and anti-government activities that already affect many countries. Large youth populations are likely to be the most disruptive to U.S. interests in Afghanistan, Colombia, Iraq, Pakistan, Saudi Arabia, Uzbekistan, the West Bank, and Gaza — all places where alienated youth are prime candidates to become foot soldiers in radical religious and nationalist movements.



Concentrations of the Oldest and Youngest Populations.

The Aging Population

Fertility rates are declining, and people are living longer. The National Intelligence Council estimates that by 2050, the number of people older than 65 will reach nearly 1.5 billion, about 16 percent of the world's estimated 10 billion people. The fiscal budget pressure will be strong, as the non-working population increases and the working-age population (those aged 15 to 64) decreases. Governments will have to spend more on health care, pension programs, and other social welfare programs. Many nations, including the United States, will likely decrease military expenditures. Europe, known for its commitment to social welfare programs, may offset these costs by decreasing its involvement in international alliances, such as NATO; this could place more demands on U.S. forces to meet the world's military and peacekeeping needs.

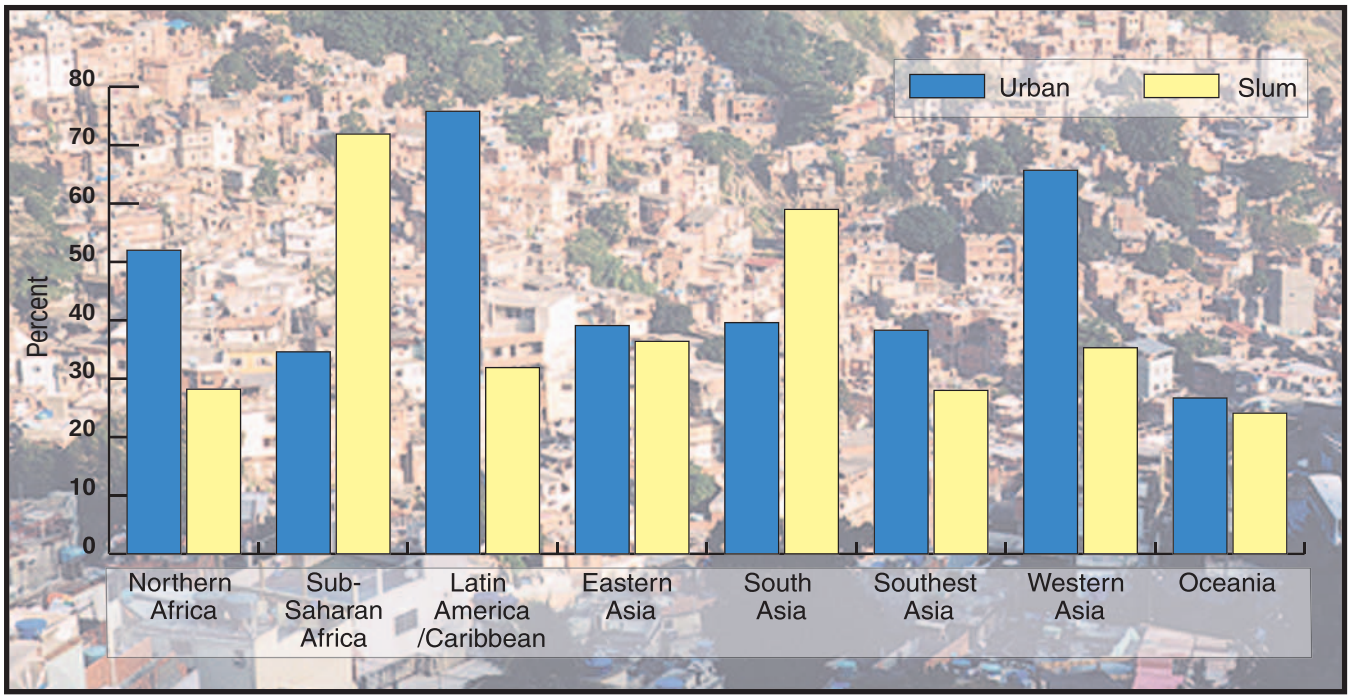
Declining birthrates could have a destabilizing effect on countries like Russia, whose population is decreasing at a rate of 750,000 per year. This type of trend places pressure on a country's armed forces, labor supply, and economic prosperity.

Urbanization

Forty-seven percent of the world lives in cities. As of early 2005, one in six people, or nearly one billion, live as "squatters," defined as those without deed or property rights who must rely on services outside the state. These squatters are almost exclusively in developing nations. Within a generation, more than half of the world's urban population likely will be in this category. Not all live in shanty towns; some actually become solidly middle class over time. This is an indicator of the states' inability to provide basic services or legal rights for its people, and can often lead to a destabilized state.

In such regions, civil order often succumbs to powerful criminal gangs. Although the state still functions, it has lost significant control. There is a considerable nontraditional threat from Brazil to South Africa from gangs who conduct black marketing; smuggle people, guns and drugs; and form alliances with terrorist organizations. As public services disintegrate, residents are forced to hire private security or pay criminals for protection. The following are some global urban issues:

- In Brazil, police have fallen back on a containment policy, surrendering certain areas, primarily



World's Urban and Slum Proportions.

the squatter settlements, to gang rule. The rich have embraced helicopter transportation as a means to avoid travel through these areas.

- In Johannesburg, much of downtown, including the stock exchange, has been abandoned to squatters and drug gangs.
- In Mexico City, crime rates soar despite the presence of 91,000 policemen.
- In Karachi, 40 percent of the population lives in slums, and gangland violence and pro-al Qa'ida cells are present.

As cities around the world fall into disorder, the United States may be asked to assist in training local militaries for armed interventions.

CATASTROPHIC EVENTS

Major natural and man-made disasters can produce permanent changes to societies, ecosystems, and environments, along with material damage, loss of life, distress, and displacement. This often results in complex humanitarian relief emergencies that compromise socioeconomic development and create escalating demands on diminishing resources.

Natural Disasters

On 26 December 2004, a massive tsunami in the south Asia left 280,000 dead or missing, and sparked one of the Marine Corps' largest humanitarian relief operations. The destruction seemed immeasurable, but future catastrophes may be much worse. Earthquakes and volcanic eruptions, floods, mud slides, and droughts will continue to devastate countries already hard hit by poverty and political turmoil.

The world has seen a sharp increase in natural disasters. There were about 100 each year in the early 1960s, and as many as 500 per year by the early 2000s. The increasing devastation caused by earthquakes, tsunamis, and hurricanes is not necessarily due to their greater frequency, however, but because populations have grown and people have altered where they live (floodplains, mountainsides, coastal areas) and the conditions in which they live. As larger populations live in more marginal areas in informal, substandard housing, without the proper resources and technology, the number of lives lost to natural disasters will continue to increase.

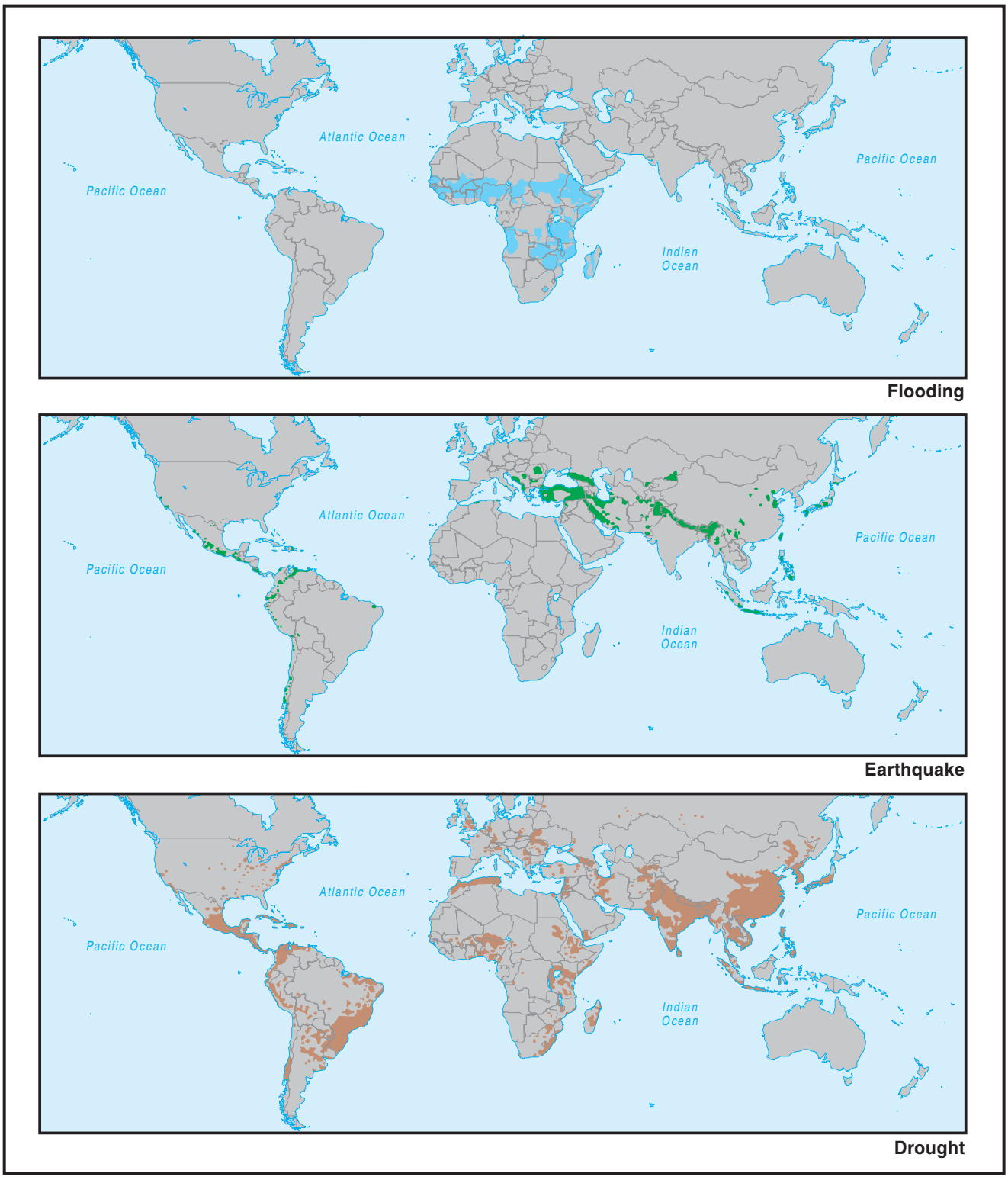
An Indonesian man searches through rubble in Banda Aceh, Sumatra after the December 2004 tsunami.

Since 2000, the Marine Corps has conducted humanitarian missions in Iraq, Indonesia, Afghanistan, Sri Lanka, Haiti, and Mozambique. This highlights that even during the Global War on Terrorism (GWOT), humanitarian relief and other support missions remain a Marine Corps priority.

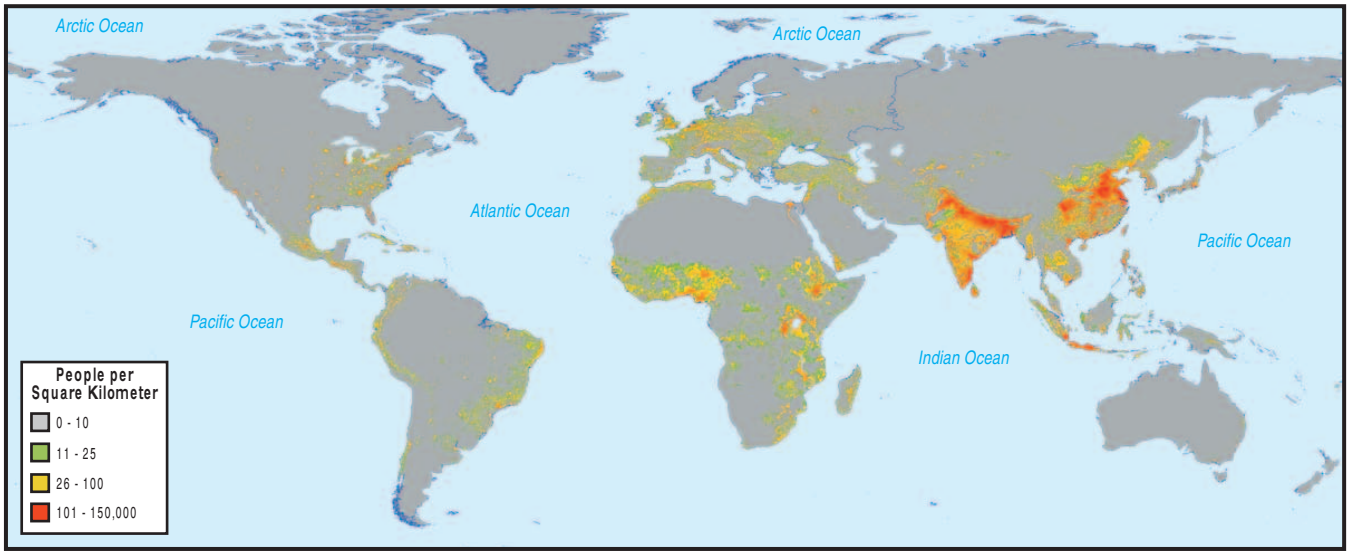
Man-made Disasters

Man-made disasters refer to non-natural events that can be sudden, and have immediate calamitous consequences, or long-term, protracted affects. Man-made disasters, such as the Chernobyl explosion or a dam collapse, usually have an element of human intent, negligence, error, or involve the failure of a system. These catastrophes are a growing threat as evidenced by trends over the past decade.

Man-made disasters can occur without apparent outside influence, as with structural, building, or mine collapses. Power or telecommunication outages, while occurring suddenly, generally are not calamitous unless they extend over a long enough period of time to strain resources and cause hardship. Explosions of volatile chemicals, fluids, or gas, can occur as a result of error, sabotage, or terrorism.



Regions Most Often Affected by Natural Disaster.



World Population Density Map. This map, when compared to the maps on the left, demonstrates the significant humanitarian issues in those areas most frequently affected by devastating natural disasters.

Man-made disasters, to include civil strife, civil war, and international war, can have both long- and short-term effects. On a national level, this involves war-like encounters between armed groups from the same country fighting within the borders. Such outbreaks may cause large-scale medical problems such as epidemics, food and water shortages, refuse accumulation, displaced persons, and refugees.

Disasters associated with civil strife and war have killed more than 20 million people in 150 conflicts since 1945. In places like Congo, Rwanda, Burundi, Angola, Sudan, Somalia, Liberia, Northern Iraq, Chechnya and former Yugoslavia, war and civil strife have claimed the lives of hundreds of thousands in recent years. Land mines kill one person somewhere in the world every 20 minutes. Trends of the past decade are clear: armed conflict and complex, man-made disasters are increasing in frequency and severity throughout the world.

SCARCE COMMODITIES

Natural resources, such as water, minerals, and oil, are not well distributed, and many of the world's most valuable resources are in some of the most volatile and corrupt regions of the world. Access and consumption drive prices and create shortages that cannot be quickly remedied.

A new dynamic is China, whose transforming economy is straining world resources that have yet to adjust. With its economy growing at roughly 8 percent each year, China has become the largest importer of many commodities, to include iron ore, copper and aluminum. In addition, China's new, car-buying middle class and surging manufacturing base creates oil demands that are noticeable at American gas stations.

Security Implications of a Tidal Wave

The tsunami of December 2004 hit hardest in the archipelagic country of Indonesia. The regional change in demographics may have the most significant impact of these events. Indonesia now has villages where men outnumber women 10-to-1, some having lost up to 80 percent of their women. The Aceh province's hard-hit village remnants consist almost entirely of widowers. Lamsenia, a once-thriving fishing and farming village of 833 on the west coast, now has only 35 women among its 158 survivors, and all but one of those have moved elsewhere. Gampong Pandee, on the edge of the provincial capital Banda Aceh, was reduced from 1,139 people to 246 — with only 20 women.

This crushing blow to the population will have unintended consequences if ignored. Frustrated men without prospect of a family may turn to other organizations for a sense of belonging. While there was hope for a new peace out of tragedy in this contested region, the resulting demographic imbalance may encourage future strife.

While droughts, floods, and earthquakes are brought to mind when one thinks of human suffering, war is the root cause of many humanitarian crises. During conflict, populations are vulnerable to not only shrapnel and bombs, but to the famine and disease brought about by the environment created in conflict. This graphic illustrates the noncombatant casualties from war in Congo.

Demand has been strong from the economically resurgent U.S. economy, the world's largest consumer of commodities. Historically, there has not been such a strong, synchronized rise in demand across so many different commodities. Unusual alliances are forming to secure scarce resources. Examples include China and Latin America (iron ore, soya); China and Africa (oil); and China and Eurasia (natural gas).

Demographic trends, specifically population growth and urbanization, will affect not only government budgets and security, but also environments and natural resources. Deforestation, declining fisheries, and water resource depletion are directly related to population growth, as forests are cleared to provide housing, and more food and water are needed. Natural disasters may occur where soil degradation leads to flooding and population displacement.

Oil and Energy

The International Monetary Fund warned in April 2005 there may be sustained high oil prices over the next two decades. Reports persist of an extended period of high demand for raw materials and increasing oil prices if instability continues in major producing nations. Continued growth by China and India will increase oil consumption matching consumption rates of other developed nation. This has the potential to significantly impact global energy demand, putting significant strain on resources.

Middle-class families with more disposable income will continue to acquire air conditioners, washing machines, automobiles, and other resource-intensive devices. In 2000, the Department of Energy reported that the number of cars in the world is expected to increase by two-thirds over the next 20 years, producing a staggering demand for gasoline, iron, aluminum, and chromium. The United States will not only be one of the main contenders for these resources but also the main force to help manage conflicts associated with these shortages.

Oil and Governance

Higher oil prices rarely translate into benefits for the populations of oil producing countries. Countries whose economies are overly dependent on oil revenue tend not to be democratic. Among the top ten oil producers, only two (Mexico and Norway) are truly democratic and only three (Nigeria, Russia, and Venezuela) have elements of democracy. Although countries that do not export oil also can be undemocratic, economies that rely exclusively on oil revenue present disproportionate rates of corruption. In countries that discover large amounts of oil before their economies diversify, oil can have devastating effects on the population and environment.

Oil prices will likely remain high in the midrange. More oil revenue will allow authoritarian regimes to build support, making transitions to democracy more difficult. Competition for resources may allow corrupt regimes to maintain ties with the international community that would otherwise be severed. Such relationships tend to generate and perpetuate instability, not just internally but worldwide.

Mineral Trade and Smuggling

The trade and smuggling of diamonds in West Africa, coltan in the Democratic Republic of the Congo, and gold in Indonesia have all been linked to violence and civil conflict. Similarly, minerals have helped finance al Qa'ida's terrorist operations.

When managed well, valuable mineral trade plays a significant role in enhancing economic growth and stability, such as in Botswana, Namibia, Chile, Brunei and Gabon. However, the industry also has the potential to threaten peace and security. The presence of these valuable resources can exacerbate the zero-sum economic competition common during conflict.

Minerals linked to conflict share one or more of the following characteristics:

- They are easily extracted or plundered;
- They are valuable, easily transportable; and
- Their extraction and sales are difficult to monitor and regulate.

Valuable minerals can affect the geographic focus, duration, and intensity of violent conflict.

Geographic focus: Even if controlling mineral resources is not the original cause of the conflict, it can become the source of fighting. The presence of miner-

Diamonds in Africa

For some of western Africa, diamonds have brought about civil war and worker exploitation, and have attracted smugglers and corrupt government officials. During the 1990s, diamonds fueled the civil war in Angola until 1999, when the UN Security Council acted to enforce sanctions on the UNITA rebel group's diamond sales. Likewise, there have been diamond-related conflicts in Sierra Leone and Liberia, where rebel groups control diamond-rich areas and sell the gems to finance the purchase of arms and war supplies. Additionally, Hizballah is believed to have a stake in the illicit trade.

It is also believed that al Qa'ida became involved after the United States and others began disrupting the group's financial operations in response to the 1998 U.S. Embassy attacks in Kenya and Tanzania.

The advantages to the diamond trade are clear: a small handful of diamonds can be worth millions; they are easy to smuggle; and they cannot be traced in the same manner as traditional money. While conflict diamonds only account for between two to three percent of the world's diamond production, profits in this segment total an estimated US$8 billion annually. In 2001, a new procedure called for the regulation of diamond exports by requiring certification for all legitimate diamonds. However, the regulations are still voluntary and there are numerous loopholes that can be exploited.

als in remote regions can also reinforce secessionist tendencies. Conflict over resources in these regions rarely receives international attention, allowing the conflict to fester.

Duration: Mineral wealth can finance continued fighting, strengthen incentives to hamper the peace processes, and undermine discipline in military forces. Struggles over ownership can also increase the complexity and duration of conflicts.

Intensity: Mineral wealth can finance arms purchases, raising the level of military and civilian casualties. It can also become a further point of antagonism fueling the conflict. However, the presence of these resources can also diminish conflict intensity, with proper leadership and management.

Water

About a third of the world's population lives in countries suffering from moderate-to-high water stress (water consumption in these countries is more than 10 percent of renewable freshwater resources). At least 80 countries (or 40 percent of the world's population) experienced serious water shortages in the late 20th century. By 2020, an estimated two-thirds of the world's people will be living in water-stressed countries; water use will have increased by 40 percent, including an additional 17 percent for food production.

Water is shared among nations, regions, ethnic groups, and communities. Two or more countries share some 261 rivers, making trans-boundary water resources management a critical issue. Water has been a traditional source of dispute, and major water development projects have led to violence and civil strife. While water is often seen as a source of conflict, it is seldom the only or most important reason. Issues regarding shared water resources are often diffused by the international community. However, water shortages are increasing, and the resulting drought, crop failures, and conflicts will affect more lives each year.

DISEASE AND PANDEMICS

Infectious disease is the world's leading cause of death, and will present yet another challenge for Marine forces in the near term. Despite widespread optimism in the 1960s and 1970s, infectious diseases are not declining in lethality. Driving the resurgence of this phenomenon is increasing population density, poor sanitation, and the revolutionary improvements in global transportation, which facilitate the rapid spread of disease.

Emergent diseases such as Severe Acute Respiratory Syndrome (SARS), Ebola, and the Hanta virus are initially difficult to diagnose (often mimicking other ailments), and spread rapidly when introduced to a

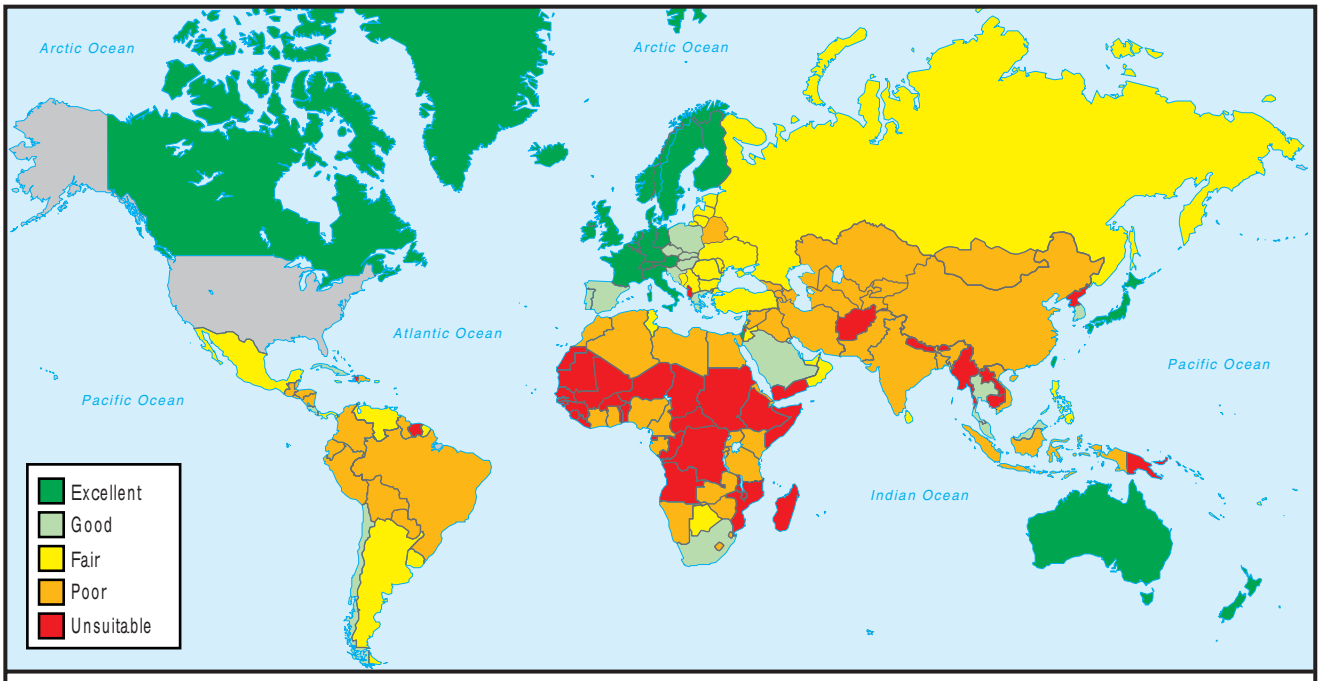
population. Many other diseases are becoming antibiotic-resistant. Improved transportation enables these diseases to quickly spread without containment, becoming a global problem within hours. Major disease epidemics cause social and economic instability and can weaken military preparedness. They also can contribute to increases in crime and difficulty in responding to crime.

The threat comes not only from the disease, but also the weakened state. With man's ability to travel cheaply and quickly, any failure to locally contain an outbreak can result in a global epidemic. Risk of high-casualty epidemics is mitigated by health and prevention as a function of a robust and transparent governance and civil society. The inability of a government to deal with health issues point to underlying weaknesses in the state, populations at risk, and a potential for future instability.

Infectious diseases contribute to regional instability by slowing economic growth and severely taxing national and regional medical capabilities. This then heightens political and cultural tensions. Infectious diseases have already affected the military readiness of many countries around the world. While future outbreaks cannot be predicted, the following illustrates different threats:

AIDS/HIV

Estimates predict that by 2011, more than 80 million people will have died from AIDS. The HIV/AIDS pandemic has had a particularly devastating effect on sub-Saharan Africa, where almost three quarters of the



Excellent
- Countries with modern health care infrastructures.
- Pharmaceutical availability and production capability are excellent.
- These high income economies have more than sufficient budgetary resources.
- Health care and public health education are a high national priority.

Good
- Countries with developed health care infrastructures.
- Pharmaceuticals usually available; production capability is adequate.
- Upper middle income economies sufficient to meet the need of the population.
- Health care is a high national priority.

Fair
- Countries with adequate health care infrastructures. Medical care generally is available, but relatively large sectors of the population lack adequate care. Tertiary care generally is available, at least in major urban areas; primary health care exists but is underdeveloped.
- Pharmaceutical availability is good in urban areas; minimally available in rural areas. Production capabilities generally are limited but maybe under rapid development.
- Lower-middle income economies; budgetary resources generally are available; but often not efficiently used.

Fair (Continued)
- Health care is of national importance, but may be overshadowed by other pressing demands (ie political instability, conflict).

Poor
- Countries with less developed health care infrastructures. Medical care is unavailable to large sectors of the population. Tertiary care is minimally available; primary and secondary health care is rudimentary.
- Pharmaceutical availability generally is restricted to urban areas, but production capabilities are limited.
- Lower income economies; significant support provided by outside assistance.
- Health care is a low priority.

Unsuitable
- Countries with least developed health care infrastructures. Medical care generally is unavailable or much of the population is poorly served. Primary, secondary, and tertiary health care availability depends on humanitarian organization.
- Pharmaceutical availability depends on humanitarian organizations.
- Health care expenditures depend on outside assistance; lowest income economies.
- Health care is not a national priority.

World Health Care Availability.

world's HIV-positive population lives. However, AIDS is not just Africa's problem. China, India, and Russia are reporting increasing numbers of AIDS infections. The following are several consequences of the global HIV/AIDS pandemic:

- Armies of sub-Saharan Africa may become unable to maintain regional stability.
- Many countries will be unable to subsidize treatment costs for growing numbers of patients. The rising costs may affect economies throughout the world.
- By not being able to work, an infected youth population can impede government attempts to be economically productive, care for its elderly population, employ its military forces, and maintain stability within borders.
- The disease may spread rapidly in China, India, and Russia, infecting a disproportionate amount of the world's population, triggering major social and political instability, and jeopardizing economic growth in Asia.

Smallpox

Smallpox is another highly contagious, and sometimes fatal, infectious disease. In the 20th century, smallpox killed 300 million people, more than the total war casualties of 20th century. Although outbreaks have occurred over thousands of years, the disease was considered eradicated after a successful worldwide vaccination program during the late 1970s. Scientists have not found a treatment for the disease. Vaccination is the only way to prevent contracting the disease.

The last naturally occurring case of smallpox in the United States was reported in 1949, and in the world in 1977 (Somalia). Scientists fear that if the disease re-emerged, the fatality rate would be higher than 30 percent, because vaccination is no longer widely practiced and the ability to produce an adequate supply of vaccine to contain an outbreak has diminished.

Smallpox is considered a dangerous bio-weapon; it is highly contagious, lethal, stable, easily deployable, and requires a low infective dose. However, the threat is limited by the difficulty in obtaining samples and the technology needed to develop and keep the virus alive.

Culture, Travel, and Disease

Successful disease prevention and treatment depends on culture. Illustrative of this dependence is the following narrative regarding the 2003 decision to discontinue polio vaccinations in a northern Nigerian province.

For 15 years, health officials were remarkably successful in containing and eradicating polio. In 1988, there were 350,000 new cases of polio in 125 countries, most of them in the developing world. That year four groups, WHO, Rotary International, UNICEF and the U.S. Centers for Disease Control (CDC), made it their goal to vaccinate polio out of existence, and with the help of private and government funding, they came close. By 2003, the virus was confined to six countries, Nigeria, Niger, Egypt, Pakistan, Afghanistan, and India, and seemingly headed for extinction by 2005.

However, the hard-line Muslim clerics in northern Nigeria boycotted the immunizations due to religious and political rivalries, a failed drug trial, and reports of the controversial 1999 book "The River," which linked AIDS to polio vaccinations in the Congo in the 1950s. Muslim imams and local politicians spread rumors that the vaccine could make women sterile, transmit AIDS, and/or that it was made with pork products. The timing could not have been worse. Of the 35 million Nigerians under 5 years old, 20 percent have no polio vaccinations.

It took more than a year for health authorities to convince the population of the benefits of vaccinations. But it was too late. Cases of polio genetically consistent with the Nigerian strain had spread, in succession, through more than 10 neighboring countries, including Chad, Cameroon, Central African Republic, Ivory Coast, and Sudan. In late 2004 the same virus appeared in Saudi Arabia, 2 months before the hajj – a time when 2 million Muslims from around the world trekked to Mecca and returned to their home countries. By May 2005, polio had spread to Indonesia, its first outbreak in 10 years. To date, 16 previously polio-free countries have reported new cases. While the number of deaths from this outbreak were low (many of these countries quickly moved to revaccinate their population); this illustrates the vulnerabilities associated with increased travel.

The resurgence of polio illustrates how rumor, culture, and modern population migratory patterns (such as the Hajj and regional commerce) can intersect to spread disease.

SARS

SARS, another highly infectious disease, can spread almost anywhere within a 24-hour period. Global travel makes the disease extremely difficult to contain. Initial symptoms of SARS resemble other, more common maladies, and are often treated as mild influenza. SARS antigens cannot be reliably detected until 10 days after the onset of symptoms, further complicating diagnosis and treatment.

SARS is believed to have initially jumped from animals to humans in southern China. The disease went undetected and spread globally, impacting Asian and Canadian economies. Beijing's initial reaction to SARS highlighted problems within China's government and disease control. The rapid spread of SARS illustrated to the world that any disease is potentially only a plane ride away.

Influenza

An influenza pandemic similar to the 1918 outbreak that killed 20 million to 50 million worldwide, including 500,000 in the United States, may be the greatest potential disease threat. Smaller outbreaks of influenza in the 1950s and 1960s left thousands of Americans dead. Researchers have indicated that another influenza epidemic may be on the horizon. Recent cases of humans contracting avian (bird) flu have caused great concern with health care officials. These strains of influenza can be fatal. Scientists believe that pandemic viruses are caused by a mutation of human and avian influenza. These avian virus strains have an astonishing ability to mutate, thus defeating existing vaccines.

Human infections with avian influenza viruses detected since 1997 have not resulted in sustained human-to-human transmission. However, because influenza can mutate and spread rapidly, monitoring for human infection and transmission is vital. Because each year's flu vaccine production relies on prediction of the suspected flu strain, and there are limited production facilities, the potential for a catastrophic event is high.

Effects of Disease on Military

According to the Armed Forces Medical Intelligence Center, disease and non-battle injuries accounted for the largest percentage of hospitalization among deployed U.S. troops during every major battle in the 20th century. Marines will face increased threats from disease, especially when deployed to tropical climates, countries lacking sanitation services, or to regions experiencing viral outbreaks. The damage is amplified by exposure to untreated sewage, polluted water, hazardous waste and indigenous insects and vermin. Increased interaction with local populations, a requirement for most Marine Corps missions in the near term, will raise the likelihood that Marines will come into contact with infectious disease.

INFORMATION REVOLUTION

The explosion of information and communication technology propels the evolution of political and social values, actions, and forms of organization. This creates overlapping identities that are often global in scope (through such venues as the internet or specialized schools). There is also an increasing appreciation for the power of information operations (IO) in warfare. With IO, one can use global media and internet connections to shape global opinion and create an IO force multiplier that the United States has yet to successfully counter.

The ability to inexpensively spread information has created a new emphasis on tailored language and the use of symbols, traditions, myths, and metaphors to invent and plant ideas, such as the conspiracy stories that surfaced after the September 2001 attacks. Information can be limitlessly played, reshaped, and replayed. Images and simulations are sometimes as significant as actual events because they become events themselves. In this type of conflict, information operations are as important as actual warfare. Defeat is achieved through the perception of chaos and perceived inadequacy of opposing forces.

The world is undergoing a diffusion of power, geopolitical uncertainties, and technological change. Just as control of industrial technology was key to military and economic power during the past two centuries, control of information and information technology will be key to power in the 21st century.

The global communication sphere (GCS) not only gives the United States more access, but also makes it

more vulnerable. It comprises all devices, media, and interconnections used to disseminate information worldwide. Emerging warfare threats rely on GCS access, which provides a mechanism to achieve and maintain information access and superiority. The GCS is vital to conducting political warfare, empowering leaderless cells to quickly coordinate and conduct operations anonymously.

With viewership multiplying, one propaganda message can have multiple effects. Adversary IO may target local constituencies or sympathetic populations; however, mass media creates audiences with unpredictable reactions. One message can affect local and regional governments, regional powers, international allies, and the American public. Messages can strike fear in opponents, inspire the faithful, or serve as recruiting advertisements depending on the viewer. These secondary or tertiary effects make counter IO increasingly challenging. The United States has been unable to respond to this new trend effectively. The threat of this influence on future military operations cannot be overstated.

Advances in GCS allow terrorist cells instant reports on mission results against U.S. forces. Supporters rally in chat rooms, build web pages, use e-mail, text, and instant messaging to solidify their network. Opponents use America's language and culture to camouflage themselves in local populations.

Section 2:
TWENTY-FIRST CENTURY WARFARE

"I make the enemy see my strengths as weaknesses and my weaknesses as strengths while I cause his strengths to become weaknesses and discover where he is not strong." **— Sun Tzu**

SETTING THE STAGE

The threat environment facing today's Marines can be defined in three words: unconventional, unforeseen, and unpredictable. As the United States continues to be the world's dominant military force, potential adversaries seek to undermine its strengths asymmetrically. Non-traditional methods of warfare will be used and will vary widely. Adversaries, both states and non-state actors, will adapt, be creative, and become increasingly sophisticated. They will learn from encounters with American weapons, tactics, and doctrines and apply those lessons learned with increasing complexity, adaptability, and skill by using non-linear, irregular operations.

U.S. military operations in the 21st century will likely focus on neutralizing asymmetric threats. Non-state actors such as terrorists and insurgents will likely be the primary threat to American national security and its interests for years to come. Asymmetric warfare is based on surprise – doing the unthinkable or unconventional to undermine the enemy's strengths and exploit his weaknesses. States and non-states actors will compensate innovatively for military and technological weaknesses.

Future adversaries to the United States will be driven by ideologies that do not restrict the nature of conflict. Success will be measured by the breadth of damage, numbers killed, and amount of fear created and will have no borders, boundaries, or rules.

Security Search in an Asymmetric Environment.

The United States will remain the dominant power for at least the next 10 years. Its economy has weathered global financial crisis well; it leads the world in development and use of the most significant technologies (civilian and military); and it has the most fluid and effective capital markets. In addition, the United States' advanced industrial research and development spending is nearly half the world's total each year, and it maintains strong alliances with key nations.

The superiority of U.S. military concepts, technology, and capabilities has been illustrated consistently since Operation DESERT STORM. However, adversaries understand their inability to build forces equal to our current conventional warfighting capabilities. Most future adversaries will only be able to pursue their objectives if they can avoid direct U.S. military confrontation and/or develop asymmetric means (operational and technological) to reduce U.S. military superiority, render it irrelevant, or exploit perceived weaknesses.

Most nations develop and maintain militaries, not as a means to fight the United States, but to defend themselves locally and regionally. As such, conventional military threats will continue to come primarily from Iran, North Korea, and China. In addition, China and Russia export military equipment (less advanced systems from China and more advanced systems from Russia) to a multitude of countries. These weapon systems are more advanced than what the buyers currently have in their inventories. The extent to which these weapon systems will actually pose a threat on the battlefield varies with each country's military education levels, cultural views on redundant training, and resource and maintenance constraints. In many cases, the psychological effect of a nation having the region's most capable weapons systems is a sufficient deterrent to conflict or provocation.

In the midterm, warfare will be increasingly shaped by the four following assumptions. These will define the new operational challenges facing Marines:

Strategically, *war will not be defined by direct military-on-military attack; instead, violence will focus asymmetrically on undermining deployed troops and U.S. policies.*

Since the U.S. military is perceived to be too strong to beat conventionally, its future adversaries will focus their efforts on undermining the United States' legitimacy for maintaining a presence in their regions and on affecting the political and popular will. The lines between war and peace, as well as civilian and combatant, will be blurred intentionally to isolate and create confusion. Adversaries will attack economic, political, and social institutions to frustrate the local population into challenging any authority charged to maintain stability. Asymmetric tactics will become standard and adaptable. Concepts of guerrilla, terrorist, and criminal will become blended and blurred.

Tactically, *warfare will include attempts to disrupt order and distract U.S. forces and undermine popular support and legitimacy for U.S. intervention.*

Creating chaos, disruption, and insecurity intimidates the local population, causing people to shift loyalties, refocus goals, or retreat. It triggers questions about the costs of U.S. intervention and obligates considerable U.S. presence to maintain order.

The enemy's tactical goal is to block attempts at societal order that could affirm American objectives. To do this, adversaries will become skilled in manipulating disenchantment with U.S. leadership. By disrupting basic services, combatants can create insecurity and discord. They can then take advantage of the disgruntled population and recruit members by offering a better alternative, *even though they caused the initial problems*. Future warfare will replace the Marine's warrior role for a mayoral one; the enemy's goal is not to test the three-block Marine, but to require a Marine on every block.

Organizationally, *warfare will move from the hierarchy of military command to a more cell-based, leaderless group structure that maximizes convenience and tactical adaptation, emphasizes and minimizes network vulnerability.*

Non-state adversaries will organize around continuously adapting cells or nodes that are ideal for the asymmetrical trends previously described. Their small, dispersed nature makes these cells difficult to penetrate and target. They can be motivated by greed, patriotism, religious fervor, naiveté, revenge, or boredom. They may have no true central direction, may or may not work toward a common purpose, and may work in groups or alone. Ultimate goals might vary among the factions, but all cells will be united in their hatred and distrust of the United States, a distrust that has significantly increased. Such cells can recruit, not only former military components of the state, but also any able person wanting to fight U.S. forces.

As technology improves, these cells will become more efficient and more independent. Internet connections and cell phone communication allow organizations to consolidate lethal knowledge, funding, and manpower. Reports of successful tactics can be relayed throughout the network, creating a faster adaptation loop, in which people learn and gain momentum. Factions can coordinate through third-party websites. Of greatest effect, organizations no longer must rely on a local constituency or state sponsor for money and personnel (as was the case in traditional guerrilla war). Today, cells can recruit anyone with internet access. With this international potential, ideology becomes crucial.

Ideologically*, warfare will be driven by new identities outside basic nationalism. State, cultural, religious, and individual perspectives will combine to create evolving groups and objectives.*

Ideology may be the most radical concept in asymmetric warfare. Because ethnic, tribal, and religious identities compete with the nation state, one's identity is no longer tied to the state in which he lives but to what he believes. Traditional and cultural boundaries will be blurred as individuals place their loyalties in something that can provide them structure and order. The United States has effectively battled standing armies to protect the conventional territorial state. However, it will be more difficult to counter the tactics of an ideological organization, like communism, that operates outside traditional cultural boundaries.

ASYMMETRIC WARFARE

The lack of military competitors to the United States means that U.S. military operations in this century will likely focus on neutralizing asymmetric threats. The Joint Staff defines asymmetric warfare as "attempts to circumvent or undermine the opponent's strengths while exploiting weaknesses using methods that differ significantly from expected methods of operations."

Asymmetric threats challenge the United States military by opening new venues for conflict. Terrorism against civilians is but one possibility; information operations is yet another. Asymmetric warfare can also appear in the doctrine or tactics, technology and objectives that an opponent adopts. Asymmetry is not a tool used solely by irregular forces, terrorists, insurgents, or weaker states. Asymmetric approaches are limitless.

Full Spectrum Targeting

The most successful asymmetric strategies against the United States will likely have several common features: a detailed understanding of U.S. capabilities and vulnerabilities; an asymmetry of objective (the adversaries' objectives will likely be more important to them than ours are to us); and an integrated approach involving numerous symmetric and asymmetric elements. Asymmetric approaches will focus on strategic, operational, and tactical targets.

Strategic asymmetries attempt to deter, preclude, or degrade an opponent's national command authority's ability to use military force. They generally focus on opponents' national will/public opinion; national infrastructure; the highest-level, civilian-military command and control; and domestic mobilization capability. Examples of strategic asymmetric attacks against the United States would include:

- Conducting an information campaign to undermine U.S. leadership's ability by demonizing its actions, portraying it as aggressive, exploiting humanitarian or environmental sensitivities, or swaying public opinion against the United States' position.
- Eliminating the safe-haven status of CONUS by striking (or threatening) U.S. territory or its national infrastructure with WMD, conventional weapons, terrorism, sabotage, computer attack, or some other form of damage or destruction. The goal would be to deter the United States from initiating, continuing, or escalating the conflict.
- Employing strategic deception to hide or protect a surprise capability from the United States.

Operational asymmetries generally work against our preferred theater warfighting concepts. They would be attempts to undermine our ability to execute one or more key elements of U.S. operational planning – dominant maneuver, precision engagement, focused logistics, full dimensional protection. Examples of operational asymmetries follow:

- Damaging, degrading, or corrupting essential military C4ISR capabilities.
- Attacking key nodes (in CONUS, en route, or in theater) in the U.S. mobilization and force deployment apparatus.
- Sabotaging stockpiles and equipment.
- Undermining foreign political support essential to U.S. freedom of maneuver (e.g. coalition operations, territorial access, basing agreements, overflight rights).
- Conducting terrorist attacks against key overseas bases and facilities.
- Threatening (or using) WMD.

Tactical asymmetries focus on U.S.-allied combat forces already engaged in theater. Examples include the following:

- Jamming, degrading, destroying, or denying the use of global positioning systems (GPS).
- Employing tactics that would increase collateral damage and/or result in increased casualties (civilian and military).
- Shifting operations to urban areas.
- Using cover, camouflage, concealment, denial, and deception (C3D2) to hide and protect key capabilities and facilities from U.S. intelligence and precision attack.
- Terrorist attacks against U.S. and allied troops.
- Actions that violate what the U.S. considers 'laws of warfare,' for which the U.S. has no analogous response (e.g., human shields, manipulating humanitarian aid as a weapon, using hospitals for military means).

Specialized Environments

Specialized, asymmetric environments represent the most likely scenarios U.S. forces will face. These environments (jungle, desert, mountain, urban) are usually found at the lower end of the conflict spectrum but represent a major percentage of the operating areas for U.S. military forces. An asymmetric environment may pose no specific threat to a U.S. military presence, at least initially. In some cases, a U.S. presence alone may act as a trigger or catalyst to asymmetric actions. The irregular actions of warfighters and popular perception of those actions can generate hostility and asymmetric reactions, especially over time when expectations are not realized, or if neutrality is (or is perceived to be) abandoned in favor of one side or another.

The 21st century environment will task U.S. forces with situations ranging from humanitarian assistance and peacekeeping to high intensity urban fighting. Cities are likely centers of future involvement, as they are the world's population centers, transportation hubs, seats of government, sources of wealth, centers for industry, and key nodes for communication and information networks. Humanitarian assistance operations, peace operations, reconstruction, and full-scale high-intensity combat may occur simultaneously in different neighborhoods.

ASYMMETRIC THREATS

Threats to Infrastructure

Many adversaries believe the best way to avoid or offset U.S. military superiority is to develop a capability to threaten the U.S. homeland. The infrastructure (finance, continuity of government, electric power, emergency services, gas and oil distribution, telecommunications, transportation, and water supply) may be vulnerable to disruptions by physical and computer attack. The interdependency of the infrastructure creates a vulnerability.

The information infrastructure also creates new vulnerabilities. Increasing links to expanding information infrastructure from points around the world will expose nations to threats from a variety of new and different sources. These potential vulnerabilities can also be opportunities for U.S. strategists, as future adversaries may have similar dependencies on information and information systems.

The most immediate and serious infrastructure threat, however, will be from terrorist, criminal, and other small groups carrying out well-coordinated strikes against selected critical nodes. While conventional munitions attacks are most likely now, over time these groups will develop an increased capacity for WMD (particularly chemical) attacks, which would be aimed at producing large numbers of casualties, damaging key infrastructure components, or creating widespread fear and panic.

Noncombatants

Noncombatants represent security challenges for commanders operating in the 21st century battle space. That their numbers are large and they are constantly present in the operating area during hostilities can have operational and strategic consequences. Noncombatants can include refugees fleeing their homes, in-place civilians refusing to leave their homes, businesses, and non-governmental organization personnel who are assisting civilians for whatever reason, and even the media. Noncombatants can restrict the flow of military traffic on roadways, create targeting challenges by occupying buildings or conducting daily activities in the middle of a conflict, and can be used by adversaries to influence U.S. military decision-making and action.

Adversaries may use noncombatants as camouflage, shields, and targets; they can be women, children, and the elderly. Their presence inhibits protective fires and complicates evasion and personnel recovery efforts; limits maneuver by clogging lines of communication; strains combat service support assets; and restricts the targeting of enemy forces and facilities. The effects of conventional or WMD attacks on friendly forces are magnified by the presence of noncombatants.

The mobile and fluid nature of modern non-linear warfare also increases the probability of intermingling of combatants and noncombatants. An example occurred during the flight of Iraqi soldiers from Kuwait City, when Kuwaiti citizens were used as hostages. In such situations, targeting and the employment of high

explosive ordnance is restricted due to the risk of high level of collateral damage.

Adversaries can use noncombatants to sway public-opinion on an international scale through the use of media. They can portray noncombatant suffering and casualties as the direct result of U.S. actions. Some may attempt to distribute altered and misleading photographic and video materials to the media to gain local, regional, and even international support and resources along with influencing U.S. national strategy and decision-making.

Child Soldiers

The use of child soldiers has increased because they serve as a readily available and affordable way of generating forces. The use of children in combat is a post-World War II phenomenon originating in developing nations, formed by cultural viewpoints that children are a resource and enabled by the proliferation of small arms and light weapons. According to United Nations' estimates, there are approximately 300,000 child soldiers worldwide, and the number is expected to increase. Children follow orders, require minimal logistics and pay and, due to their immaturity, have fewer inhibitions toward committing violence. Their size and agility are advantageous in guerrilla warfare.

The presence of child soldiers will complicate Marine Corps operations and force Marines to balance self-preservation against traditional American values regarding children. Expeditionary forces will have to prepare for the psychological impact of witnessing atrocities carried out by children, as well as being in situations where they are forced to kill or wound armed children in combat.

Rehabilitating child soldiers during post-conflict peacekeeping or reconstruction operations will also be crucial. Often, since the only skill former child soldiers have is killing, much work has to be done before child veterans can become productive members of society and not return to the life of a combatant. This process is greatly complicated by the deep psychological scars that affect boys and girls who have carried out, been subject to, or witnessed acts of brutality. A 14-year-old Afghan boy likely killed the first U.S. service member in Afghanistan.

INFORMATION OPERATIONS

Information Operations (IO) consists of various actions undertaken to access, deny, or change data and/or perceptions of data as information. The Marine Corps faces unique and creative threats in all five aspects of IO: psychological operations (PSYOP), operations security (OPSEC), military deception (a subcomponent of denial and deception), electronic warfare (EW, including directed energy weapons, electromagnetic pulse weapons), and computer network operations (CNO) consisting of computer network attack (CNA), computer network defense (CND), and computer network exploitation (CNE).

Adversaries recognize our civilian and military reliance on advanced information technology and systems. They also understand that information superiority provides the United States with unique capability advantages. Many also assess that the force driving U.S. military actions is U.S. public opinion. Accordingly, numerous potential foes see information warfare—whether directed at military systems or the U.S. public—as a relatively low-cost means to undermine support for U.S. actions or attack a key U.S. capability, and thereby counter its military superiority.

The non-state actor is a growing practitioner of information operations, particularly in influence operations such as media manipulation, propaganda development and distribution, and information access. Terrorists, insurgents, and other non-state adversaries will continue to exploit IO advances like the internet to recruit, mission plan, raise funds, train, and spread disinformation about the U.S. and its allies.

The internet provides anonymity and a global distribution medium. This allows non-state actors to communicate, develop, and produce multi-media propaganda and training venues, and to target both select and widespread populations with tailored messages. In addition, the internet provides a medium whereby adversaries may assess the impact of their own actions against the U.S. through our own media and individual online commentaries.

The availability of commercial off-the-shelf (COTS) tools to conduct IO—computers, digital multimedia

Muslim Fundamentalist Propaganda Discs.

recorders, and digital communications infrastructures—continues to increase. As a result, the Marine Corps must anticipate that any potential adversary will have an enhanced ability to conduct reconnaissance, coordinate activities, and spread ideology and information throughout the world.

Cyber Warfare

Cyber warfare provides the ability to displace more conventional warfare in terms of "non-kinetic" means. This threat will increase as technologies mature and more sophisticated tools are developed. The level of threat, from limited hacking to an integrated attack capability, will vary widely among adversaries. At present, most nations probably have some program to protect their own networks, but relatively few have offensive IO capabilities. Many with limited resources and tools will seek to develop a nominal IO capability through modest training and computer purchases or by hiring criminal hackers. Because nation states are likely to be deterred by U.S. power, the most likely sources for an offensive IO attack will be from non-state actors such as terrorists, insurgents, cults, criminals, and hackers, though some may be conducted as a proxy of a nation state.

Information systems can be targeted from anywhere in the world using inexpensive hardware and software. The threat of unauthorized intrusions into computer systems and networks will increase as connectivity to the internet increases and more sophisticated attack tools are developed. Such connections create vulnerabilities that can be exploited by hostile actors, using malicious software, viruses, Trojan Horses and worms on the internet. In addition, physical attacks like cutting power cables or destroying hardware are the equivalent of physical denial of service attacks. Systems supporting Marine Corps deployment during the time-phased force deployment data collection and execution would be particularly vulnerable to attack or disruption.

It is argued that America's energy sector would be the first domino to fall in a strategic cyber-terrorist attack against the United States. Each year, the average large

The Cyberwarfare Actors

***The Incompetent Threat**. The incompetent threat is an amateur who by some means (perhaps by following a hacker recipe or by accident) manages to perform some action that exploits or exacerbates vulnerability.*

***The Hacker/Cracker.** This threat implies a person with technical knowledge who understands the processes used and has the intent to violate the security or defenses of a target to some degree.*

***Disgruntled Employee or Insider.** A trusted individual inside the organization, who develops animosity toward his employer; this is the ultimate inside threat.*

***Criminals.** One who conducts information warfare activities and attacks purely for economic purposes.*

***Political Dissidents.** Groups who conduct IO for the purpose of spreading the basic message of their cause and to invite others to action.*

***Terrorists.** Terrorists hope to cause the media to provide a great deal of publicity for their actions, thereby further disseminating their message of fear and uncertainty.*

***Competitor Nations**. Other IO attacks may be nations attempting to influence U.S. policy; foreign espionage agents seeking to exploit information for economic, political or military intelligence purposes; tactical counter measures intended to disrupt a specific military weapon or command system; or an attempt to render a major catastrophic blow to the United States by crippling the national information infrastructure.*

utility company experiences about 1 million cyber-intrusions that require investigation to ensure that critical system components have not been compromised.

Deregulation and an increased focus on profitability have forced utility companies to move more of their operations to the internet, using supervisory control and data acquisition (SCADA) systems. These systems manage the actual flow of electricity and natural gas, and perform other critical functions at chemical processing plants, water purification and delivery systems, wastewater management systems and other various facilities. A cyber-terrorist with the ability to control, disrupt, or alter the command and monitoring functions performed by these systems could threaten national security.

Russia, China, India, and Cuba have acknowledged preparations for cyberwarfare and will continue to pursue the development of IO capabilities; North Korea, Libya, Iran, and Syria have some IO capabilities. Even though many countries are developing IO capabilities, few have demonstrated the means to fully integrate various IO tools into a comprehensive attack that would cripple a country's infrastructure. However, some could develop the required abilities to mount such attacks over the next decade.

Cyber warfare may continue to showcase issues of political, ethnic, or religious disagreement even in the absence of a capability to cripple infrastructure or impact military capabilities. Regional and political tensions already have resulted in hacking activities in various countries. Examples follow:

- In 1999, hacking exchanges occurred between China and Japan over the Nanking massacre; between China and Taiwan over the latter's independence of the former; and between India and Pakistan over control of Kashmir.
- In 2000, Armenians placed false information in the Azerbaijan daily newspaper, *Zerkalo*.
- The 1999-2000 tensions between Israel and Palestinians generated hacking activity, with the activity of pro-Palestinian supporters expanding to include corporations and a pro-Israel organization in North America as targets.
- Supporters of the Former Republic of Yugoslavia performed virus and denial-of-service attacks on NATO computers.
- A collision between an American surveillance plane and Chinese fighter in April 2001 resulted in a hacking duel between United States and China supporters.
- The al Qa'ida Muslim Alliance, a hacker coalition composed of GForce Pakistan, the Pakistan Hackerz Club, and the Anti India Crew that appears to support al Qa'ida and the Palestinian cause, hacked several American sites, including that of the General Accounting Office, threatening to continue attacks against Indian, United States, and Israeli sites.

Extremist organizations, intelligence services and criminal groups as well as nation states are likely to continue pursuing IO capabilities (al Qa'ida computers recovered in Afghanistan illustrate this) and could threaten various

	Africa	Asia	Europe	Middle East	North America	Latin America /Caribbean	Oceania /Australia
World Population (%)	14.0%	56.3%	11.4%	4.0%	5.1%	8.5%	0.5%
World Internet Usage (%)	1.5%	34.0%	29.2%	2.2%	24.9%	6.3%	1.8%
Internet Usage	13,468,600	302,257,003	259,653,144	19,370,700	221,437,647	56,224,957	16,269,080
Usage Growth 2000 - 2005	198.3%	164.4%	151.9%	266.5%	104.9%	211.2%	113.5%

Current as of March 2005 *Courtesy of: www.internetworldstats.com*

World Internet Usage Percentages.

systems with the proper tools and techniques to exploit vulnerabilities, and the intent to do so.

The Rise of the Internet

The internet is rapidly becoming the medium of choice for potential adversaries for many reasons. Most notably, the internet provides:

- Easy access;
- Little or no regulation, censorship, or other forms of government control;
- Speed of information;
- Ability to easily access and use multimedia tools (audio, video, text, graphics, etc.) and establish a web presence;
- Anonymity of communication;
- Ability to shape coverage in the traditional mass media; and
- Ability to influence globally.

As internet cafes and wireless web access points proliferate, terrorist groups and other organizations will increase their ability to conduct activities anonymously. Use of free, web-based e-mail accounts, e-mail dead drops, code words, anonymous "re-mailer" sites to send untraceable e-mail and chat rooms make this medium more attractive.

The internet has also increased the use of Voice-over Internet Protocol (VoIP) communications technology that is not well regulated or accessible by law enforcement. This technology uses hidden messages encoded and embedded in apparently harmless files using steganography techniques. They are then posted on public internet sites. Monitoring or controlling internet access during military operations will be increasingly important.

While the number of internet users is leveling off in the U.S, the number of users in the developing countries is growing. In 5 years, much of the world will have access to the internet. Foreign contributors will dominate political and social content. Distinction between local and international is irrelevant, as an internet café in Karachi has the same access to information as the desktop computer in Quantico. Islamic bulletin boards and message forums are well-known places of *jihad* activity. The better known forums such as al Ansar (now The Islamic News Network) are used to promote jihadi propaganda and post messages for the Western media, which monitors its activities. Thousands of other small internet groups have formed around the goal of global jihad. In Iraq, most of the communication between various militant and terrorist groups, including Abu Musa al-Zarqawi and his supporters, is believed to be conducted through internet cafes. Most insurgent operations against U.S. military operations and forces may have been planned and coordinated through the use of the internet.

Cell Phones

Cell phones are full scale media devices. Future devices will upgrade the quality and the speed of the networks. As developing countries forego land lines for cellular towers, cell phones will become the primary communication devices for most of the world's population. The potential for cell phone use on the modern battlefield is discussed in Section 3.

Influence Operations

Influence operations pose a significant threat to U.S. operations abroad in the near term. Since the attacks of September 2001, the enemy can say what he wants, when he wants and to whomever he wants, using global communications, and can magnify any perceived U.S. mistake into an international call to arms. Adversaries can exploit the U.S. military's lack of local language and cultural knowledge and weaken the ability of the United States to effectively communicate its position to a foreign population. Potential adversaries realize that using the global media to win "hearts and minds" is their most effective strategy to defeat U.S. efforts at all levels. It is the core of modern asymmetrical warfare and until the U.S. counters the threat, it will only get worse.

TERRORISM

Terrorism is the most likely asymmetric threat to U.S. interests at home and abroad. The terrorist threat to the United States will grow as disgruntled groups and individuals focus on America as the source of their troubles. America is viewed as the vanguard of Globalism – and that perception will fuel direct targeting against U.S. interests. But generally, future terrorists

will strike at the targets they can reach. Terrorism will tend to occur in urban centers, often capitals. If softer targets are not available, the U.S. military may be targeted due to its overseas presence and its status as a symbol of power, U.S. interests, and U.S. influence.

The terrorist threat is highest in the following countries: Albania, Algeria, Azerbaijan, Bahrain, Bosnia-Herzegovina, Colombia, Egypt, Ethiopia, Greece, Indonesia, Jordan, Kuwait, Lebanon, Macedonia, Pakistan, Peru, Philippines, Qatar, Rwanda, Saudi Arabia, Serbia, Turkey, Uganda, United Arab Emirates, and Yemen. These are likely to be high-threat areas for many years.

The characteristics of the most effective terrorist organizations include: highly compartmented operations planning and networking, good cover and security, extreme suspicion of outsiders, and ruthlessness. These traits make them very hard intelligence targets. State sponsors (such as Iran) and individuals with the financial means (such as Usama bin Ladin) will continue to provide financial and technological support to terrorists. The potential for terrorist WMD use will increase over time, however, the most likely weapons of choice will remain IEDs and suicide bombings. The production, delivery and execution of large IED attacks will continue to improve and become more lethal. IEDs are more thoroughly addressed in Section 3.

Among these countries, those that are most aggressively seeking to acquire or develop WMD and their means of delivery are Iran and North Korea, followed by Syria. The Bush Doctrine aims not just to prevent the spread of WMD, but also to "roll back" and ultimately eliminate them from the arsenals of these states, and prevent the terrorist groups they sponsor from acquiring them.

Evolving Terrorism

Terrorism reaches far beyond any one border. The United States is confronting a decentralized enemy

Defining Terrorism

All terrorist groups present an asymmetric threat, but not all asymmetric threats use terrorism. Understanding terminology can aid understanding the threat. The following are terms commonly used regarding terrorism:

Antiterrorism: *(AT) Defensive measures used to reduce the vulnerability of individuals and property to terrorist acts, to include limited response and containment by local military forces.*

Combating Terrorism: *(CbT) Actions, including antiterrorism (defensive measures taken to reduce vulnerability to terrorist acts) and counterterrorism (offensive measures taken to prevent, deter, and respond to terrorism), taken to oppose terrorism throughout the entire threat spectrum.*

Counterterrorism: *(CT) Offensive measures taken to prevent, deter, and respond to terrorism.*

Establishment Terrorism: *Oppression of a populace by a ruling group or party. Well-planned and executed programs with the specific goal of keeping the ruling group in power (i.e. Cuba, North Korea, Iran).*

Extremist: *Of a character or kind farthest removed from the ordinary or average. Exceeding the bounds of moderation; going to the utmost in action and opinion; accepted norms of behavior are subordinated to the "higher cause".*

International Terrorism: *A terrorist group or organization that operates across international borders and targets more than one government or society. (expl: operating against "Western democracies")*

Domestic Terrorism: *Operates only within one country; target is within that country and terrorists usually come from within the country.*

Terrorism: *Calculated use of unlawful violence or threat of unlawful violence to inculcate fear; intended to coerce or to intimidate governments or societies in the pursuit of goals that are generally political, religious, or ideological.*

Terrorist: *An individual who uses violence, terror, and intimidation to achieve a result.*

Terrorist Group: *Any element, regardless of size or espoused cause, that commits acts of violence or threatens violence in pursuit of its political, religious, or ideological objectives.*

Transnational Terrorist Group: *Terrorist group or organization that operates across international borders, but only targets one government or society. (expl: operating against the United States).*

with no conventional military signature — a clandestine enemy who lives in the shadows and assimilates into the population. Contemporary terrorism exhibits the following trends:

- Decentralized organizations;
- Increased self-funding abilities;
- Continuous innovation in terrorist tactics, techniques, and procedures and the use of weaponry;
- Ties to international, transnational and national networks with increasing collaboration among groups; and
- Established operational bases in failing states.

One of the greatest difficulties in combating terrorism is the amorphous nature of terrorist groups. Terrorists typically form networks that dissolve as soon as the mission is accomplished, only to reappear else where in a new form, with a new mission. Eliminating one cell rarely compromises entire operations.

The transformation of al Qa'ida is a prime example of this phenomenon. Once a sprawling, multimillion-dollar operation with its own training camps, businesses, and even guesthouses, al Qa'ida lost much of its infrastructure in the 2001 invasion of Afghanistan and later crackdowns in Pakistan, Yemen, Saudi Arabia and the Philippines. In its place, a more elusive foe has emerged: a loosely affiliated network linked together by local militants, the internet, and a shared ideology of radical Islam. Al Qa'ida leadership is ideological by way of its promotion of an anti-Western world view, and has reached a level of self-propagation.

Searching for a Bigger Bang

Terrorist groups around the world are seeking to obtain and develop WMD. In March 1995, the Japanese terrorist group Aum Shin Rikyo released sarin gas into the Tokyo subway system killing 1 and injuring thousands. After the events of September 2001, anthrax attacks across America killed five and caused widespread concern. Al Qa'ida has made the acquisition of WMD a priority. In August 2001, Usama bin Ladin was visited by two former officials of Pakistan's atomic-energy program—Sultan Bashiruddin Mahmood and Abdul Majid—at a secret compound near Kabul. Bin Ladin and his top lieutenant, Ayman Az-Zahwahari, questioned the two about the potential for al Qa'ida to develop nuclear weapons. After Mahmood and Majid were arrested on 23 October 2001, Mahmood told Pakistani interrogation teams, working in concert with the CIA, that bin Ladin had expressed a keen interest in nuclear weapons and had sought the scientists' help in recruiting other Pakistani nuclear experts who could provide bomb-making expertise.

Terrorist groups are moving toward self-reliance in funding. They have developed their own sources of financing and therefore are not as reliant on state sponsors. While this does not mean that state-sponsorship for terrorism will end, terror groups will focus on raising money through direct donations, charity NGOs, criminal activities, and kidnapping. Extortion and the narcotics trade account for another large portion of terrorist funding.

Terror groups are becoming more international in nature, improving tactics, obtaining weapons and funds, and establishing links to other groups through internet activity. Dissemination methods may include websites, email, chat rooms, web log (blog) sites, etc.

Terrorists are innovators. They will continue to use low-tech counters to U.S. technological and military strengths, while at the same time continuing their efforts to obtain and develop advanced technology and WMD. They often rely on international media to spread their message; terrorist groups have increased the sophistication of their propaganda and effectiveness of their manipulation. Al Qa'ida's characterization of the GWOT as a "global war on Islam" to the Muslim world is a good example of the group's growing skill in IO.

Tools and Tactics

Terrorists are adopting information technology (IT) as an indispensable command and control tool. During raids on terrorist hideouts, for example, authorities are more frequently confiscating computers and other IT equipment. Instead of searching for leads in hand-written notebooks and address books, counterterrorism authorities must now sift through hoards of information on CD-ROMs and hard drives. Also, increasing terrorist use of advanced encryption tools often delays the process of finding key files and information.

Terrorist groups have not yet demonstrated a true capability or intent to conduct a cyber attack on any nation's infrastructure. However, as off-the-shelf technology becomes less expensive and easier to acquire, the threat for cyber attack increases.

Piracy: Maritime Interdiction

Maritime shipping is another possible vulnerability. Water covers almost three quarters of the earth and is traversed by more than 50,000 large freighters transporting 80 percent of the world's traded goods. Piracy is at its highest level in the modern era, as attacks on shipping have tripled in the past decade as terrorist groups have begun co-opting pirates to conduct maritime terror attacks.

Pirates are equipped with speedboats, automatic weapons and the latest in communication technology. The economic concern for this activity is clear: most of the world's oil and gas is shipped across the water. Security experts have long warned that terrorists will attempt to ram a hijacked ship loaded with volatile cargo, perhaps even a weapon of mass destruction, at a major U.S. port. Such an attack could devastate the international economy while inflicting tremendous casualties and damage to the target port facility and surrounding area.

Future Threat: Pirates of Islam

Connecting the Indian Ocean to the South China Sea, the 630 mile-long Strait of Malacca is one of the busiest ocean waterways in the world. An estimated 50,000 ships pass through the straits in a year-more than double the number that navigate the Suez Canal and almost triple that of the Panama Canal. Every day a quarter of the world's trade passes through the strait, which is extremely vulnerable to terrorism. If terrorists were to hijack an oil tanker and scuttle it in the narrow area of the 1.5-nautical-mile-wide channel, world trade would be severely disrupted for months.

Pirates have hijacked tankers in the strait to practice steering them — the maritime equivalent of the September 2001 terrorists training in American flight schools. According to Indonesia's state intelligence agency, detained senior members of Jemaah Islamiyah, the al Qa'ida-linked Indonesian terrorist group, have indicated that they have already considered launching attacks on Malacca shipping. The consequences of such an attack would include a wild spike in world oil prices, drastic increases in shipping costs, and environmental disaster. Worse yet would be several such attacks occurring simultaneously in critical maritime chokepoints around the world. Given al Qa'ida's track record of executing synchronized spectacular attacks, this danger cannot be discounted.

WEAPONS OF MASS DESTRUCTION/EFFECT

Nuclear Weapons Capabilities

Ten countries are believed to have nuclear weapons. North Korea and Iran have nuclear weapon and component production programs. Several countries have renounced their nuclear weapons programs but retain the technical capabilities to resume them at any time. Fundamentally, any country with a nuclear technological base equivalent to that of the United States in the 1960s, as well as advanced computer skills could design a nuclear weapon. Given access to nuclear reactors or other commercial or illicit nuclear/radiological sources, an adversary would be able to obtain sufficient material to build an effective radiological dispersal device (RDD) or a low-yield nuclear weapon (~10 kilotons, near equivalent of a "Little Boy" bomb). RDDs are likely to be employed by non-state antagonists or terrorist organizations via irregular means.

Biological Warfare Capabilities

Biological warfare (BW) is the use of pathogens or biologically derived toxins for military or terrorist applications. Biological agents have been used as long as man has fought wars. Contamination of wells, insertion of diseased carcasses into besieged cities, and distribution of smallpox-carrying blankets are all techniques that have been used in the past to achieve militarily significant results. Biological weapons are assessed to be less expensive and easier to develop than nuclear and chemical weapons. These agents are employed to cause disease in humans, plants, animals or to damage equipment. Future agents may be engineered to target populations with a specific gene. Genocide may be enabled by such technologies, providing terrorists with a tool to selectively attack a given population.

BW agents are likely to threaten U.S. forces during the forecast period. A major concern will be the inability

to determine whether an attack has occurred. This complication occurs since affected individuals typically have a delayed onset of symptoms. Current forces lack sufficient warning methodologies that can appropriately identify the release of BW agents. This inadequacy is likely to continue to be a problem in the next decade, and will be a significant burden to battlefield and civil operations.

Concern that BW agents could be used against the United States and Coalition partners grows. Evidence suggests that terrorist organizations are aggressively pursuing resources and materials suitable for developing a biological capability. Equipment needed for the development of a rudimentary biological production capability consist of basic laboratory equipment such as Petri dishes, glassware, and small-size fermentors — less than 100 liters.

Chemical Warfare Capabilities

Chemical Warfare (CW) is more problematic than BW. CW agents can be produced in small laboratories, making the extent of proliferation of this capability unknown. More than 40 countries are estimated to have some form of CW capability today, and the technology is readily available. Designer agents/drugs will likely be the wave of the future with substances designed to achieve precise effects on the intended victims. The knowledge to produce such substances is readily available and generally requires minimal chemistry education to understand and apply. Methods of dispersal may also change. Nanotechnology may enable the use of small robots as vectors that could operate in swarms and attack/inject victims with predetermined doses of an agent.

CW agents consist of traditional chemical agents, nontraditional chemical agents, and toxic industrial chemicals (TICs). Nontraditional agents (such as Novichok) refer to a group of agents not covered under the Chemical Weapons Convention; they are produced by a binary reaction of precursors, and are equal in toxicity to VX nerve agent. TICs are industrial by-products with acute toxicity that may be used by adversaries either conventionally or via irregular means. Myriad states are assessed to have a CW capability or infrastructure (to include financial and academic resources, industrial facilities, and scientists) that can support key components of an offensive chemical program.

The dual-use nature of the equipment and materials required to make chemical weapons, to include precursors, will make CW use by rogue elements a continuing concern.

Strategic Space and Ballistic Missile Capabilities

There are many different ways to deliver a nuclear, biological, or chemical weapon to its target, but the most militarily effective vehicle is the ballistic missile. Given the weapon's widespread effect, the use of primitive, low-accuracy delivery missiles will remain a preferred method. At one extreme is the modification of older surface-to-air missiles such as the SA-2 to a tactical ballistic role; at the other, indigenous development of a ballistic missile manufacturing capability. In the middle falls in-country assembly or purchase of a third-country missile, such as the SS-1 SCUD design. While Russia has eliminated intermediate-range missiles and is reducing its intercontinental missile inventories, China is modernizing and expanding its missile capabilities. North Korea, Iran, Israel, India, and Pakistan are building short- and medium-range missiles and are developing longer-range missiles. Dozens of countries have or are developing short-range ballistic missiles and more are likely to buy them.

FOREIGN INTELLIGENCE

Adversaries hoping to employ asymmetric approaches against the United States must have detailed intelligence on U.S. decision-making, operational concepts, capabilities, shortcomings, and vulnerabilities. Consequently, U.S. agencies face extensive intelligence threats from many foreign nations and sub-national entities, including drug cartels, terrorists, international criminal organizations, foreign commercial enterprises, and various disgruntled groups and individuals. These intelligence efforts are generally targeted against the national security policy-making apparatus, national infrastructure, military plans, personnel, and critical technologies. The open nature of the United States' society make effective counterintelligence and security much more difficult to achieve.

MILITARY DENIAL AND DECEPTION

Many potential adversaries are undertaking more and increasingly sophisticated military denial and deception (D&D) activities against the United States. These operations are generally designed to hide key activities, facilities, and capabilities (e.g. mobilization or attack preparations, WMD programs, advanced weapons systems developments, treaty noncompliance) from U.S. intelligence to manipulate U.S. perceptions and assessments of those programs, and to protect key capabilities from U.S. precision strike platforms. Advances in satellite warning capabilities; the growing availability of camouflage, concealment, deception, and obscurant materials; advanced technology for and experience with building underground facilities; and the growing use of fiber optics and encryption, will increase the C3D2 challenge.

U.S. Marines must be prepared to face an adversary's use of D&D during future operations, most likely as a component of an overall asymmetric warfare strategy. The effectiveness of D&D techniques can be magnified when employed as a part of a larger information operations campaign, as exemplified by the Serbian deception campaign in Operation ALLIED FORCE. D&D represents a cost effective part of an asymmetrical strategy to overcome U.S. military superiority.

Future U.S. adversaries will likely be able to manipulate computer data and databases. For example, they could initiate computer network operations that either attack our information systems or insert false information. However, foreign D&D techniques need not be high tech to be effective; simple decoys can effectively mislead U.S. overhead collectors.

SPACE AND COUNTERSPACE

The United States' reliance on (and advantages in) the use of space platforms is well known by our potential adversaries. Many may attempt to reduce this advantage by improving their own capability to use space-based assets, and/or by developing capabilities to deny or degrade U.S. space access. By 2015, these efforts will likely erode relative U.S. strengths in areas such as satellite reconnaissance, communications, mapping, and navigation.

The trend toward space commercialization will increase the number of countries capable of using space-based platforms and capabilities for civilian and military purposes. Programs already underway will significantly increase the quantity and quality of some space services – particularly global mobile satellite communications and space-based imagery – available to any country willing to pay. The proliferation of low-earth-orbit (LEO) satellite communications services could have a significant impact on the communications architectures of many developing nations and may enhance the tactical command and control capabilities of foreign military units.

Commercial satellite imagery with resolution of less than one meter is already on the market and will become increasingly available in the coming years. This may provide indications and warning, and may aid technical analysis of military assets. It will also provide those currently not using space assets with access to a new, significant form of intelligence information. Radar imagery has revolutionized worldwide assessments. Even relatively low-resolution imagery has been demonstrated to have military intelligence value, and countries are pursuing or improving their capabilities in this area.

Some countries are developing capabilities to threaten space assets, in particular through denial and deception, signal jamming, and ground segment attack. By 2015, there will be increased potential for future adversaries to employ a wide variety of means to disrupt, degrade, or defeat portions of the U.S. space support system. Some countries are interested in technologies that could be used to develop counterspace capabilities. These efforts could result in improved systems for space object tracking, electronic warfare or jamming, and directed energy weapons.

BEYOND THE THREE-BLOCK WAR: THREATS TO OPERATIONS

When the "Three Block War" concept was coined by the Marine Corps Commandant, General Charles Krulak in 1997, it is doubtful that the extent of the role that the Marine Corps would take in 21st century, post-conflict environments such as Afghanistan and Iraq was anticipated. Not only have Marines had to maintain a

combat-ready posture and conduct counter-insurgency operations, they have constructed schools and mosques, settled disputes, served as interim police, provided security for polling stations, conducted training for the police, National Guard and military forces, and acted as virtual governors.

These all-encompassing military missions, heavily overlaid with political, economic and humanitarian considerations, provide a glimpse into the future of Marine Corps operations. In the 21st century, Marines will be required to juggle concurrent military missions. Marines will have to operate effectively across the mission spectrum: conflict, peacekeeping, reconstruction, stability, and support operations. The Marine Corps has a history of participating in small wars, nation-building and counterinsurgencies. In the 21st century, the Marine Corps will increasingly be faced with threats and operations that move well beyond the littoral that will include at a minimum, the following:

- Stability and Support Operations;
- Small Wars/Counter-insurgency Operations;
- Humanitarian Assistance, Disaster Relief and Nation-Building;
- Peace Operations;
- Combating Terrorism;
- Counter Proliferation and Non-Proliferation;
- Combating Drug Trafficking; and
- Noncombatant Evacuation Operations.

Since the collapse of the Soviet Union, the restraining influence of superpowers on local conflicts has largely disappeared. Local conflicts, long submerged in east-west rivalry, have reemerged in greater number, intensity, and variety of cause. Most do not directly affect the interests of the United States. Others affect universal humanitarian interest in the amelioration of human suffering. Some of these conflicts impinge on United States trade interests, access to markets and materials, the safety of our citizens, and the stability necessary for democratic life. These require a response in the form of stability and support operations.

Marines patrol a market street in al Saqlawiyah, Iraq.

Stability and Support Operations

Military force alone cannot win in stability and support operations, but it can lose. War is sometimes said to be simple in its concept but complex in its execution. Stability and support operations are complex in both concept and execution.

Stability and support operations provide the United States government with an alternative to war. They are not merely the road to war nor a cleaning up afterward. They are a way to achieve national policy objectives without entanglement in an unplanned, undesired, and unnecessary war. They are used in peacetime and in the political-military state of conflict, a middle ground that is neither peace nor war, either because no other means will work or because the values threatened, while important, do not justify the high cost of war.

Small Wars/Counter-insurgency Operations

Insurgencies, due to the relatively weak nature of their forces, typically employ irregular and asymmetric tactics such as ambushes, suicide bombings, sniper attacks, and deception. Because of the shock effect and lethality of suicide bombings, recent trends indicate that insurgents are using them more frequently. Future developments may include rudimentary WMD, such as radiological “dirty” bombs, and chemical or biological weapons. Insurgents will constantly develop counters to U.S. tactics and technology, often using low tech or COTS technology in ingenious ways.

The local population plays a significant role in any insurgency. Insurgents greatly benefit from popular support. The population provides logistical support, surveillance, and cover and concealment, as well as a pool from which insurgents draw recruits. Civilians also provide insurgent forces with valuable information on Marine forces and vice versa.

Humanitarian Assistance/ Disaster Relief and Nation-Building

While civilian agencies bear the brunt of responsibility for most HA/DR missions, sudden natural disasters and human conflict often require a military force or presence. The Marine Corps has a history of providing for others during times of need and this tradition will be continued in the future. Post-disaster relief in the littoral will include responding to maritime disasters, such as hurricanes and floods, but Marines must be prepared for the gamut of post-disaster relief operations they will face. Marines can expect to be thrust into tense situations where humanitarian relief efforts may be seen as hostile acts in themselves, as was the case in Somalia in 1993. Factional fighting or instability complicates humanitarian assistance measures and potential adversaries may see the ensuing chaos as an opportunity. U.S. forces participating as part of international relief efforts must be prepared to provide assistance in uncertain operational environments.

Civilian humanitarian groups will often need protection to fulfill their mission. The new generation of terrorists does not spare humanitarian aid workers. In fact, terrorists often actively target them to create chaos. Humanitarian aid workers are a threat to insurgents because they work to improve the plight of the population, which in turn, improves the stability situation, and therefore, lessens the chaos.

A U.S. Service member participates in a humanitarian assistance mission in al-Anbar province, Iraq in November 2004.

Peace Operations

Peace operations support diplomatic efforts to maintain peace in areas of potential conflict. They stabilize conflict between two or more belligerent nations or sub-national groups. Peacekeeping operations require the consent of all parties involved in the dispute, while peace enforcement is generally more dangerous because one or more of the sides refuses to honor the terms of peace.

While some military officials are uncomfortable with using Marines in peacekeeping roles, national security will likely dictate that Marine forces respond to crisis situations and adapt to a peacekeeping role. When stability comes to Iraq and Afghanistan, Marine forces may need to be ready to assume a peacekeeping posture for an unspecified length of time.

Combating Terrorism

Marine forces will play an increasingly larger role in combating terrorist activities throughout the world. The initial phases of Operations ENDURING FREEDOM and IRAQI FREEDOM involved conventional

A U.S. Marine works with an Afghan soldier in operations in Nangarhar, Afghanistan, May 2005.

combat operations against regimes that supported terrorist groups. Increasingly, however, U.S. Marine forces will need to fight terror groups in countries that do not necessarily support terrorism but are too weak militarily or politically to counter such groups on their own; Philippines, Somalia and Yemen are examples. The challenges and demands of the GWOT will force the Marine Corps to respond to the terrorist threat around the world.

U.S. Marine forces will likely become more involved in the United States' efforts to train, equip, advise, and assist host country forces in uncovering terrorist groups. The true effectiveness of this effort remains to be seen, but it may prove to be a valuable tool in allowing the United States to affect terrorism in regions where politics impede direct U.S. military action. Convincing other countries to assist in the GWOT would also minimize further strains on the U.S. military. U.S. forces will be called upon to forge strong relationships with host-country personnel, to show great discretion in their conduct of operations, to maintain a low profile in the host country, and to be able to react swiftly and effectively when promising targets arise.

Counter-proliferation and Non-proliferation

Counter proliferation missions focus on using military power to protect the U.S. and national interests from the proliferation of WMD and other weapon systems. These missions can include raids to secure weapons and facilities, intelligence collection and analysis, and support for diplomacy, arms control verification and embargos. These missions extend not only to weapons but also to command and control, logistics support and intelligence-gathering mechanisms that support these weapons.

Combating Drug Trafficking and Crime

Drug trafficking and organized criminal activity not only present a direct threat to homeland security by flooding American streets with dangerous drugs, but these activities also fund insurgencies and terrorist organizations worldwide. Money from the sale of drugs finances the acquisition of sophisticated weapons, military hardware, training, and services for terrorists and insurgents in Colombia, Afghanistan, Iraq, Pakistan, Palestine, and elsewhere. In some regions, this form of profiteering has allowed insurgent or criminal groups to obtain influence and exercise power as de facto governments, such as the FARC in Colombia or the Tamil Tigers in Sri Lanka. In Sub-Saharan Africa, several insurgent movements have formed to seize control over valuable mineral deposits, such as the violent RUF rebels of Sierra Leone. These movements are lawless organizations that increase the instability of the region and greatly complicate U.S. or international intervention. It is likely that during the study period Marines will be increasingly called upon to combat these trends in drug trafficking and criminal activities.

Noncombatant Evacuation Operations

Since 1990, Marines have responded to State Department requests to evacuate embassies in Liberia (1990, 1996, 2003), Somalia (1991), Sierra Leone (1992), Albania (1997), Eritrea (1998), and the Democratic Republic of the Congo (1998). The operational environments have ranged from permissive to hostile.

Evacuation operations are characterized by uncertainty. A noncombatant operation (NEO) environment typically presents threats that are non-linear, unconventional, diverse, and difficult to predict. Threat personnel and activities may be indistinguishable from friendly and neutral elements; hostilities may be initiated by terrorists, local guerrillas, partisan factions, or criminal activities sanctioned by local groups. Action against one of these elements could be deliberately portrayed by anti-American forces as an indiscriminate attack on local nationals. The rise of anti-American sentiment throughout the developing nations, combined with opportunistic and often well-funded transnational political/terror groups, increases the likelihood of encountering hostility during any NEO.

Regardless of the threat environment at the onset of the operation, there is a possibility that it may change. The volatile situations that trigger a NEO are the same situations that could also bring about spontaneous or organized violence. U.S. citizens are often direct or indirect targets of this violence. Prior to the evacuation of Monrovia, Liberia, in 1990, factions that had been ambivalent toward the United States suddenly threatened to take hostages. This illustrates the dynamic NEO environment.

Information operations can play a large part in the successful execution of a NEO. PSYOP, such as using public radio broadcasts to project a positive image of incoming U.S. military forces to the Host nations' government, military and populace can help create a more permissive NEO environment. Opposition forces will likely attempt to create a hostile environment for the Marines through rumors, posters, newspaper articles, radio/television broadcasts, and web sites.

ANTI-ACCESS STRATEGIES AND TOOLS

The ability of the U.S. to maintain stability in strategically important regions around the globe rests on the ability to project power rapidly and decisively. As the expeditionary force in readiness, the Marine Corps is the key player in U.S. power projection operations and therefore must be ready for any and all anti-access threats. Future threats likely will emphasize attacking U.S. military forces before they are already established on the ground. Increasing technological advances in anti-ship mines, diesel submarines, and coastal anti-ship missile defense batteries will place landing forces at greater risk. Proliferation of long-range missile technology would further enable attacks on staging areas.

Potential enemies will also use asymmetric means to conduct anti-access and area denial operations. Special forces or terrorist attacks on ships, ports and airfields are a distinct possibility, as is the use of WMD in an anti-access attack. Logistical trains and food and water supplies are also vulnerable to an asymmetric attack during the force build up phase, while communication nets are vulnerable to disruption and exploitation. Anti-access propaganda and media manipulation can damage Marine missions before the forces hit the ground.

THE FUTURE OF ASYMMETRIC THREATS

Violations of the accepted Laws of War are becoming commonplace and many enemies will actively seek to manipulate these laws to their advantage. Houses of worship, schools, hospitals, and cultural landmarks will serve as military fortifications and logistics depots. Any U.S. attacks on these targets will be exploited to the fullest by enemy propaganda and sympathetic media.

Hand-held video cameras capturing images without context can be incredibly damaging to the U.S. mission. Women and children will be used to transport weaponS, provide intelligence, and in some cases, to act as human shields. Enemies may also prevent noncombatants from leaving the battle space to complicate U.S. targeting. Ambulances will be used to ferry supplies and militants, while taxi cabs will be used to launch RPG attacks. Enemy irregulars will fire weapons, discard them, and then blend into the civilian population. They will use fake uniforms of police, medical personnel or allied forces to launch surprise attacks.

Terrorists or insurgents infiltrate local authorities or support forces to gather intelligence or sabotage from within. In some ways, the suicide bomber is the most difficult sort of asymmetric weapon: deterrence and detection are difficult, and retaliatory response is difficult because the immediate perpetrator is dead and the authority behind the attack may or may not be identifiable. Although asymmetric tactics are employed on the tactical level, their effects are intended to be strategic.Adversaries will become increasingly creative, secretive, and manipulative. Threats will increase in scope and emphasize the unexpected.

In most respects, the United States has entered the millennium in strong strategic shape. It remains the world's strongest nation – in political, economic, and military terms – and is unlikely to face a global military challenger on the scale of the former Soviet Union for at least the next 15 years. However, China should not be discounted. Its continued military growth and economic expansion could impact U.S. regional interests in the mid-term.

The United States is at peace with the great powers, is friends with the world's strongest nations, and its most important adversaries are largely isolated, contained, and struggling. These circumstances present the United States with an unparalleled opportunity to shape a more stable, prosperous, and democratic global order. Despite these generally favorable conditions, however, the global security situation remains dynamic, complex, and dangerous. The explosive mix of social, demographic, cultural, economic, and political conditions that have undermined stability since the end of the Cold War remain. These conditions will continue to foster an

uncertain strategic environment in which challenging circumstances, opportunities, and irregular threats arise on a near-daily basis. While each individual threat and challenge is likely to be less significant than the global military problem posed by the former Soviet Union, collectively they will present a formidable barrier to the United States' strategic vision of worldwide prosperity, stability, democracy, and peace.

Section 3:
FUTURE TECHNOLOGY IMPACTS ON WARFARE

The United States is expected to remain a leader in defense technology research and development throughout the time frame of this estimate. Despite this position, the United States will face an increasing array of sophisticated technical threats, as foreign and U.S. technology proliferates to determined, resourceful adversaries. The United States will retain its supremacy in conducting high-tempo conventional warfare throughout the time frame of this estimate. However, the extent of its military systems' superiority will likely erode as state and non-state actors take advantage of emerging technology and proliferation of advanced systems, and apply COTS systems to military functions.

The potential combat or disruptive power of adversaries will improve significantly with system upgrades, transfers, or proliferation of weapon systems and technology. Low-technology projectile weapons, such as rocket propelled grenades, grenade launchers, and small arms remain capable of defeating well-armored platforms. The increased use of landmines and improvised explosive devices (IEDs) is also anticipated.

During the 21st century, the Marine Corps will continue to train for expeditionary maneuver warfare, serving as a forward-postured, immediately employable force in a joint and/or multinational environment. The success of any given mission will hinge on the Corps' capabilities to project power quickly and safely and then conduct and sustain concerted, efficient operations in any environment. The following are the five principal operational tenets that must be maintained:

- Maritime dominance,
- Firepower,
- Maneuver dominance,
- Air dominance, and
- Information superiority.

This section will identify and describe the emerging threat to these five tenets.

MARITIME DOMINANCE

Availability of far-reaching reconnaissance, surveillance, and target acquisition (RSTA) information, through either commercial means or organic assets, will make it increasingly difficult for the Marine Corps to transit the seas undetected and untargeted. Shallow, restricted waters and adjacent areas provide an arena for mobile and static coastal defense guns, rockets, missiles, and mines. Most of these will have improved lethality because of advances in sensor, propulsion, stealth, onboard digital computer, explosive material, or fusing technologies.

Countries with regional aspirations, such as China, will continue to upgrade their fleets' reach, endurance, and combat power, building a moderate blue-water capability. Most littoral navies will merely aspire to control their country's 200 nautical mile exclusive economic zone. In either case, this will require a shift to larger naval platforms with better seafaring qualities; it will also provide them with superior platforms for sea-based aviation and advanced weapon systems. Regardless of surface platform, the preferred armament will remain the anti-ship cruise missile. The continental shelf is the ideal environment for a defensively deployed diesel-electric submarine. The littoral mix of complex thermal layers, noisy marine life, coastal traffic, and complicated bathymetry seems designed to complicate antisubmarine search capabilities.

Anti-ship Cruise Missiles

The number and proliferation of supersonic missiles will gradually increase, although the development of subsonic, sea-skimming versions will continue to be the main thrust of research and development. Advancement in four specific technological areas—propulsion, stealth, explosive materials, and guidance and control (terminal maneuver capability)—may drive revolutionary improvements. Newer anti-ship cruise missiles (ASCM) will use millimeter wave radar or imaging infrared systems to give the missiles the ability to target a certain aim-point.

Some newer missiles would have coherent radar that allows better countermeasures discrimination. Russia's URAN and NOVATOR (3M-54E) missiles are advertised to have such capability. The submarine-launched NOVATOR has already been proliferated to China, thus enhancing the strike capability of China's KILO636 submarine force. The equally available Russian SS-N-22 Sunburn (Mach 2.5, 90 to 220 kilometer range) is reportedly in the Iranian inventory. Some sources suggest the system was designed for use in restricted waters such as the Baltic, the Black Sea and even Far Eastern coastal waters, and that NATO amphibious groups were significant targets. The state-of-the-art supersonic stealthy joint Russia-India missile, 3M55 Yakhont (BrahMos PJ-10), is being marketed online and is a fire-and-forget, low radar, cross section missile with a range of 290 kilometers and a payload of at least 200 kilograms HE. The missile has a radar altimeter to control the low-level cruise at from 5 to 10 meters altitude, and pre-programmed evasive maneuvers can be made during the terminal phase to avoid air defenses. The Yakhont is advertised to be capable of carrying a nuclear payload.

The upgrades planned for most ship-based missile systems will effectively produce new weapons. Point defense missiles such as the NATO Sea Sparrow are being upgraded for effectiveness against supersonic sea-skimming missiles maneuvering at up to 4G. Thomson-CSF's Crotale and BAE's Seawolf and SeaDart are also receiving major upgrades. All would be effective in protecting a littoral navy from naval expeditionary force attack. In the anti-ship arena, Aerospatiale's MM 38/40 Exocet Block 2 standard (65-kilometer range) incorporates technology developed for the supersonic ANS missile. The McDonnell Douglas RGM-84D Harpoon, sold nearly as widely as the MM-38/39/40 Exocet, has mostly been upgraded to Block 1C standards, which enable it to reacquire lost targets. The Block 1D and 1G versions increase the range by 75 percent, to 124 kilometers. European manufacturers offer similar performance increases for the Saab RBS 15M and Matra/OTOBreda Otomat. Russia's SS-N-22 Sunburn reaches nearly Mach 2.5, flies at 10 meters or less, and includes high-G maneuvering in flight toward the target. The Chinese are trying to enter the market, but their FL-7 supersonic air-to-surface anti-ship missile has only a 30-kilometer range.

Naval Mines

Expeditionary operations can only be sustained through sea transport of equipment, supplies, and personnel. In addition to traditional naval and land mines, a new category of anti-invasion mines specifically targeting landing craft and vehicles is being actively marketed. In terms of availability, variety, cost-effectiveness, ease of deployment, and potential impact on joint expeditionary warfare, mines are among the most attractive weapons available to any country determined to prevent U.S. naval forces from achieving sea control and power projection ashore. Because today's expeditionary forces have limited capabilities to deal with mines, they constitute a genuine asymmetric threat in the littorals. The number of countries with mines, mining assets, mine manufacturing capabilities, and the intent to export mines has grown significantly in the last decade. The types, sophistication, and lethality of the mines available on the world market are rapidly increasing. This has been compounded by the availability of ex-Soviet bloc expertise in mining technology and employment on the world market.

Sensor and Fuze Technology

While the contact-fuzed M-08 mine remains deadly, current generations of mines add sophisticated magnetic, acoustic, or pressure sensors as well as electronic logic circuits to give each munition a target discrimination and counter-countermeasure capability. Fuzing, which arms and fires only after the right combination of sensor input is received, makes spoofing (causing the fuze to activate on deceptive signals) and clearing modern mines difficult. The development of a new fuze or fuze subsystem can, at little cost, make existing mines more survivable and effective. The nearly infinite combinations of sensors will create problems for mine countermeasure efforts. The technology of multi-sensor fuzes and logic circuits is within the capability of a large number of potential mine developers and manufacturers.

Stealth Mines

Employing bottom mines has long been the easiest way to hide mines from mine countermeasure efforts. As detection capability has increased, mines that incorporate a number of different detection avoidance

measures are being manufactured. Nonmetallic casings, oddly-shaped casings (non-cylindrical), anechoic coatings (special coatings which absorb or diffuse sonar signals), and casings that promote self-burial into the sea floor are all means used to avoid detection which will be marketed in the next 10 years. These mines are most effective in the shallower waters associated with littoral regions.

Mobile Mines

Mobile mines are mines launched from a submarine or other platform, and then travel to a designated point under their own power. This technique provides the launch platform with an extended standoff distance and a degree of deniability.

The SMDM, a mobile mine offered by Russia, is marketed for export as an efficient, highly sweep-resistant weapon for use against surface ships and submarines in constrained coastal waters that may be inaccessible to conventional mine laying platforms. The SMDM combines a bottom-influence mine with a torpedo to provide a considerable standoff capability. These systems, in conjunction with a stockpile that at one time reached hundreds of thousands of mines, present a potentially formidable mine proliferation threat.

Rising Mines

An ominous trend in mine warfare is to turn the mine itself into a remote weapons launch platform. The Russian MSHM and Chinese EM-52 mines are able to deploy a torpedo against a selected target. Further development of encapsulated munitions technology logically will lead to the development of mines able to launch explosive packages above the water surface. These mines could target air cushion vehicles (ACVs) and helicopters used in mine sweeping operations, and give every minefield a self-protection capability.

Coastal Defense

Commercially available weapons and technology have improved significantly. Of particular interest are systems applicable to coastal defense with enhancements in intelligence, accuracy, propulsion, range, warhead lethality, seeker technology, and stealth technology. The use of GPS on ASCMs is a tactically remarkable development

Mineclearing Technology.

that enables a missile to fly in an indirect pattern to the target, making it difficult to track and defend against.

In the future, coastal defense C4I systems can be expected to provide integrated command and control over coastal defense systems, including minefields, anti-ship missile batteries, artillery batteries, and air defense systems. An example of this technology is the Finnish Integrated Coastal Defense C4I System, which is designed to enhance defensive firepower against sea invasion. It can engage all surface targets and even helicopter air assault formations using dedicated, fixed, coastal artillery batteries; mobile and self-propelled artillery units; and anti-ship missile batteries. The next logical step is to incorporate coastal minefield defense and air defense systems into this architecture and create a comprehensive, overlapping coastal defense network.

Coastal Defense Missiles

Anti-ship missiles developed for naval use are widely adapted to the coastal defense role. Families of short-, medium-, and long-range missiles are available. Weapons like the RBS17 exemplify short-range missiles, and are critical to defeating the assault phase of an amphibious operation. A derivative of the U.S. HELLFIRE laser-guided missile, it is man-portable and in service in Sweden. Medium-range missiles such as the Exocet, Silkworm, Seersucker, and Harpoon, are the standard coastal defense missiles today; how-

ever, longer-range missiles, such as the Progress fired from the SS-C-1B REDUT Coastal Defense Missile System, which advertises ranges out to 270 kilometers, have entered the marketplace.

A trend in coastal defense systems is the use of supercavitating underwater missiles (torpedoes launched from land- or ship-based systems and reach speeds of more than 200 knots). The Russians have reportedly sold 40 Shkval supercavitating torpedoes to the Chinese. In the mid-term we can expect to see supercavitating technology proliferated to threat countries. This technology, coupled with the right fire control systems, will significantly enhance overall coastal defense capabilities.

Coastal Defense Artillery

Numerous gun systems optimized for coastal defense are being marketed. These include mobile gun systems and fixed-site armored turret guns. Coastal defense guns are becoming increasingly mobile, have organic target acquisition capabilities, and frequently are tied to inertial or satellite navigation systems to optimize shoot-and-scoot operation. When traditional field artillery, missiles, and other large caliber weapon systems are included, comprehensive coverage of littoral minefields, beaches, and maritime approaches is possible. Most of the states of interest identified in the appendix of this document that have littoral areas are assessed to have fixed, coastal gun batteries, supplemented by mobile artillery (towed or self-propelled). The proliferation of these systems and the projected improvements are addressed in the Firepower portion of this assessment.

The increased range, reduced set-up time, and improved targeting ability combine to make mobile artillery a greater threat in future foreign coastal defense missions. Land-based artillery, missiles, and rockets will, in general, continue to out-range naval guns, and will be capable of delivering conventional high explosives, dual-purpose improved conventional munitions, weapons of mass destruction, mines, or precision-guided munitions (PGMs). PGMs will be deployed widely. Guidance other than semi-active laser will allow for an increase in engagement ranges and accuracy. These improved guidance systems will include infrared, millimeter wave, and acoustic.

Small Attack Boats

A trend among littoral navies is the use of small attack boats, favored for their speed, affordability, and maneuverability, as well as versatility in incorporating various lethal weapon suites. Common to these platforms would be the use of ASCM, signature reduction techniques, and automated systems. Typical signature reduction techniques include hull shaping, suppressed exhaust, infrared (IR) suppression coating, non-metallic hull, and camouflage. A variety of boats already have some of all of these features. Of concern to the Marines would be the Chinese C-14 catamaran, North Korean TIR, PEYKAAP, and semi-submersible TAEDONG series torpedo boats. An example of a non-state group that develops and uses low-observable craft is the Liberation Tigers of Tamil Eelam (LTTE), of Sri Lanka.

A new generation of optically guided ASCM is being developed for use on even smaller platforms. Representative of this development is the Chinese construction of compact, high-speed C-14 catamarans, equipped with FL-10 ASCM, as well as the construction of FL-10 ASCM for Iran.

Anti-Landing Mines

The Russian PDM-series mines were specifically designed to target landing craft and vehicles in or near the surf zone. Historically, these mines are not technically sophisticated, being activated by tiltrod or contact horn, but because of their area of deployment they are difficult to counter and will pose a significant threat to any amphibious operation. The potential for upgrading a fuzing system to incorporate electronic discriminators to enhance a mine's effectiveness and survivability is currently significant. Bulgaria, Poland, and China have marketed the next generation of anti-landing mines using influence fuzes. Foreign efforts are focused on bringing a greater sophistication to surf-zone minefields. Systems are available that remotely arm/disarm minefields in the surf-zone, thus allowing commercial shipping to continue in an area already mined, and allow small-boat counterattack through areas denied to/protected from U.S. amphibious forces.

Given the current high level of interest in coastal defense systems, the use of innovative means to disrupt U.S. amphibious operations in the future is a strong possibility.

FIREPOWER

Whether measured in terms of range or lethality, using combined arms operations will continue to give the United States superiority of firepower against any enemy throughout the period of this estimate. Conventional military powers will focus on improving the effectiveness of their armor systems, as opposed to production of newer tanks and armored fighting vehicles. Likewise, increased threat from artillery systems will derive primarily from the improvements in ammunition. An exception will be an increase in the number and caliber of Multiple Rocket Launch Systems (MRLS). Improvements in the penetration capability of RPGs and armor-piercing rounds present a significant threat to state and non-state actors.

Toward the end of the time frame of this estimate, scientific advancements in the field of propellants and explosives will begin to affect the firepower of potential adversaries. Technologically advanced countries will be able to field systems with significantly greater ranges and explosive capability. Widespread proliferation of these systems will likely not take place until the 2015-2025 time frame, though some of these scientific developments will be realized in the increasing lethality of IEDs and more capable RPGs.

Indirect Fire

Artillery will be more self-contained and mobile, and capable of quickly changing positions with minimal setup times, with much-improved complementary RSTA capabilities. Tube artillery will remain the backbone of infantry fire support through the next decade for countries with declining defense budgets. Nations developing new artillery capabilities will primarily focus their efforts on acquiring rocket artillery or MRLS, which can deliver larger quantities of munitions more rapidly than other systems, and also offer greater range and increased payload over traditional tube artillery. With enhanced projectiles, MRL accuracy is equivalent to tube artillery. For both tube artillery and MRLS, features such as modular reload, improved chassis, and onboard fire control systems have increased their lethality and appeal.

Tube Artillery

Improvements in artillery capability will be primarily in ammunition and target acquisition systems. Some target acquisition systems have increased the systems' capability in a coastal defense role. The Russian BEREG 130-mm coastal defense system is a complex of vehicles and shelters that is completely self-sufficient for up to 7 days. Its gun directors reportedly make the system effective against targets moving at up to 200 kilometers per hour at ranges in excess of 20 kilometers, while tracking four targets simultaneously. The Chinese CF905 coastal defense system, with its X-band phased array radar, can be slaved to a 155-mm howitzer, 130-mm field gun, and 122-mm MLRS to engage naval targets as far as 40 kilometers away.

Multiple Rocket Launcher Systems

Simple to design, manufacture, and use, MRLS give any force a massive strike capability against multiple targets and areas with a high density of fire. Expected improvements in payload, accuracy, range, fire control, and rate of fire further enhance the lethality and usefulness of this type of weapon. Rockets are now available with numerous types of warheads and ranges up to 70 kilometers. The world is saturated with 122-mm systems, and the trend is to upgrade and modify these systems. Larger systems with increased range and payload are also being developed. Several new systems have been fielded in the 240-mm and greater range. The North Korean 240-mm MRLS, the Iranian 240-mm MRLS, and the Russian 300-mm Smerch are notable examples of fielded systems, while the Chinese have recently offered their own version of the Smerch, the A100 300-mm MRLS, for open purchase.

Mortars

Infantry mortar support is likely to experience resurgence in the next decade because today's projectiles have greatly enhanced performance and much of the world's armed forces are occupied with low-intensity conflict. The British, terminally guided Merlin and Swedish Strix projectiles offer fire-and-forget, anti-

armor capability. The guidance of these projectiles places the ordnance into a top-attack mode against the armored vehicle's weakest areas.

Projectiles

Trends in conventional munitions development will comprise improved fragmentation steels, more brisant explosives, controlled fragmentation, proximity fuzing, and controllable orientation of the munition at impact. Concurrent functionality improvements consist of better submunitions, and improved fuzing and propelling charges. These improvements will provide the capability to efficiently engage multiple types of targets with fewer types of munitions. Improved conventional munitions (ICM) will continue to proliferate. Improvements in proximity and multi-option fuzing will continue to enhance functionality by allowing multiple targeting options for targets. Modular propelling charges will continue to allow for increased range as well as lower tube wear, allowing for functional improvements for the overall system.

Conventional munitions are projected to become more aerodynamically efficient and to employ more brisant explosives. Conventional munitions also will have improved cluster munitions for increased effects against targets. Using conventional propellants and advanced projectiles, fielded tube artillery can reach ranges greater than 42 kilometers. Advances in gun technology are expected to have less effect on artillery effectiveness than improvements and innovations in projectile intelligence. Adding seekers and fuzing to projectiles can transform “dumb” rounds into “smart,” artillery-delivered, high-precision munitions (ADHPM). This development has begun in earnest in five or six countries. Terminally homing, laser-guided munitions are the most accessible ADHPM worldwide, with Russia providing almost all the designs and expertise in this category.

Advances in projectile design and seeker technology are expected to further increase the accuracy and jamming resistance of the artillery system. To counter certain types of EO countermeasures and for better targeting, countries will likely develop or purchase munitions with multi-sensor seekers. Course-corrected munitions will provide an unparalleled capability to engage all types of targets, from armored vehicles to dismounted troops, with 5 to 20 times less ammunition than is required using conventional projectiles. These projectiles require no target signature, and work by reducing the substantial dispersion inherent in indirect fire artillery. These munitions incorporate guidance from inertial, GPS, or ground-based tracking devices and correct the flight of the projectile to the calculated flight path. Course corrected munitions are fielded in 155-mm cannon and 122-mm, 220-mm, 227-mm, and 300-mm rockets. In addition, course correction fuzes will be available that will reduce dispersion of conventional projectiles by 60 to 70 percent.

Semi-active, Laser-guided Projectiles

The most common guidance method will be semi-active laser (SAL) guidance. At least 14 countries have fielded laser-guided projectiles, and at least 10 others are expected to follow suit by 2010. Newly developed ADHPM will contain submunitions that distribute fragmentation over a wider area than conventional projectiles and will provide a light anti-armor capability.

Laser-guided projectiles will be available in calibers from 98 mm to 240 mm for cannons, mortars, and rockets. China and Russia will not only be the major source of these munitions, but also the technology exporters. Most of these munitions will have fragmentation-high-explosive warheads, highly lethal against unarmored or lightly armored vehicles, and possibly effective against heavily armored vehicles. By 2010, UAVs equipped with laser designators are expected to increase the effective range of these munitions by 20 to 25 kilometers.

Infrared-Guided Projectiles

Homing on the heat emissions of the target, infrared-guided projectiles are accurate and have the advantage of being fire-and-forget. IR sensors will be used on sensor-fuzed submunitions. IR guidance systems are common in missiles, but their application to artillery projectiles is still in development. An exception is the Swedish/French BONUS (BOfor NUtating Submunition) projectile, which is a 155-mm cargo round that carries two sensor-fuzed, anti-armor munitions. After the submunitions are ejected from the projectile, wings unfold to stabilize each munition as it descends over

the target area. A two-color IR sensor acquires targets that are subsequently attacked on their top surface by an explosively formed projectile warhead.

Radar Seekers and Fuzing Projectiles

Millimeter wave (MMW) sensors for sensor-fuzed submunitions in both Ka- and W-bands have already been fielded and will proliferate during the period of interest. A few advanced seekers for terminal-homing munitions will be fielded in the period of interest, primarily in France, Germany, and Russia, and could find a variety of potential buyers.

Anti-armor Weapons

Guns

The placement of large caliber, such as 100-mm and 105-mm, guns on infantry fighting vehicles and light armored vehicles is indicative of the trend to give all combat echelons an anti-armor capability. The Russian 125-mm Sprut-B smoothbore antitank gun exemplifies the upgrading of simple, dual-purpose, low-cost systems for greater combat effectiveness. Dedicated antitank guns, as well as tank main guns will use kinetic energy projectiles and, although the 120-mm gun system will replace many 105-mm systems on armored vehicles, it will not be fielded in quantities as great as 125-mm systems, which have similar capabilities.

Anti-tank Guided Missiles

Most technological advances for anti-tank guided missile (ATGM) systems will involve incremental improvements of currently operational systems. For the mid-term, technological innovations will include deployment of automatic target tracking and fully fire-and-forget guidance systems, fiber-optic systems, improved target-acquisition and night vision systems, and hardening of the systems against countermeasures. Certain ATGM warheads are capable of penetrating the thickest armor a tank can physically carry, and explosive reactive armor can also be defeated. Many ATGMs are equipped with thermal imaging systems to allow night combat under adverse weather conditions. Western countries are currently producing fire-and-forget systems or ones with active seekers capable of discriminating targets. Current developmental systems will be fielded with the capability to penetrate 1,000 millimeters of rolled homogenous armor, countermeasure resistant guidance systems, and the ability to select attack profiles to more effectively engage the target.

ATGMs have a longer lethal range relative to that of other direct-fire weapons. The KORNET will be one of several widely proliferated Russian-designed ATGMs in 2010. A laser-guided system with an integrated thermal imager, it has a range of 3.5 kilometers. SPIKE is an Israeli-designed ATGM with a charge-coupled device seeker, a fiber-optic link, and a range of around 4 kilometers; it is expected to be widely proliferated by 2010. Because of the fiber-optic link, SPIKE-type ATGMs are capable of being used in the indirect-fire (i.e., non-line-of-sight) mode. Remotely controlled ATGM systems have already been developed and fielded, and are likely to be used by insurgent or irregular forces or by regular forces in conjunction with anti-tank mines.

Munitions Development

Overflight anti-tank munitions include tube and rocket artillery-launched munitions, drones, and aircraft-launched, stand-off weapons employing either sensor-fuzed or terminally guided munitions to attack the relatively weak upper armor of the tank and infantry fighting vehicles (IFV). New materials technology (e.g. functional gradient material, depleted uranium) in combination with new processing techniques that give unique properties (explosive processing, combustion synthesis) will enhance penetration in developmental systems. Russia has fielded munitions with depleted uranium liners.

Systems capable of defeating first-generation explosive reactive armor (ERA) without degrading the base penetration have been fielded in Russia. The Former Yugoslav Republic of Macedonia (FYROM) has been able to develop, manufacture, and market effective antitank weapons. Its 120-mm RBR disposable rocket launcher is one example of a system that matches Western performance standards (penetration of the standard NATO heavy tank target or 2 meters of reinforced concrete at 250 meters) being manufactured by a less developed country.

Fire Control Systems

To provide more accurate and responsive fires, the trend regarding fire control is toward automation of firing data and tactical data. Most countries will seek to fill this need through COTS computer hardware and commercial operating systems. The current trend of automated fire control systems (FCS) is currently relegated to cannons and rocket launchers.

Optical Devices

Small caliber weapons with enhancement devices, such as optical, electro optical (EO), and FCS designed to improve the firing accuracy of small arms, are a serious threat to the Marines. Optical systems (e.g., ring sights, aiming lights, and red-dot collimators) and certain types of EO devices (i.e. first- and second-generation image-intensifiers) are being used by elite forces and border troops of some countries now, and regular forces will be using these devices in large numbers in the short-term. After 2010, third-generation image intensifiers and thermal imagers will begin replacing the current systems and will become the standard. Infrared sensors and thermal imaging systems allow the user to see at longer ranges at night and also through many daytime battlefield obscurants like smoke, dust, or haze

Small Arms Fire and Protection

Many developing nations can manufacture small arms (assault rifles and machineguns) that are identical to those used by some of the world's best-equipped armies. Production of new systems by these and other countries, accompanied by a large inventory of older assault rifles and machineguns, has created a surplus of small arms on the international market. For essentially economic reasons, truly innovative solutions to the classic problems of reliability and recoil are unlikely to be adopted. Although research will continue into promising technologies, no breakthroughs are expected in the area of light, medium, and heavy machine guns and light cannons. Systems with incremental enhancements (rather than radical improvements) will continue to be a threat throughout the forecast period.

Rifles

The general development trend of assault rifles has been toward weapons of decreased size and weight. Continued efforts to increase probabilities of hit and kill will lead to system integration of sighting devices, ammunition selection, and training support.

The sniper capabilities of many countries will increase during the forecast period. By the beginning of the mid-term, sniper weapons will become a significant threat. An increased proliferation and use of anti-materiel sniper weapons is also anticipated, using 20mm and higher caliber sniper weapons and advanced electro-optics systems to target lightly armored vehicles. Minute-of-angle and sub-minute-of-angle accuracy are the benchmarks of the modern sniper rifle; most systems have performance characteristics similar to those of the Mauser Model SR 93. Future soft-target, long-range interdiction weapon development may mimic the performance of the.409 Chey/Tak that exhibits minute-of-angle accuracy to more than 2,500 meters.

Ammunition

Small caliber ammunition has decreased in size over the last few decades. Older, heavier caliber systems (e.g., 7.62x39-mm) will continue to be encountered throughout the study period and beyond. The use of armor-piercing bullets against both materiel and human targets will become commonplace by 2010. Other significant developments in small-caliber ammunition include case-less rounds; a 5.7x28-mm cartridge with a dense plastic core that can penetrate steel helmets or body armor at a range of 150 meters; sabot, high-penetration, small caliber rounds; and special-use, subsonic, and suppressed ammunition. Armor piercing rounds in 5.45x39-mm, 7.62x39-mm, and 7.62x54R calibers are prevalent and their use by threat entities will continue to expand throughout the forecast period.

Counter-Small Arms Technology

Individual Body Armor

Ceramic materials are the most ballistically efficient materials for defeating high velocity, small arms projectiles, especially armor piercing ammunition. Drawbacks in the use of ceramics for body-armor applications

include high cost and an overall decrease in soldier mobility resulting from the lack of flexibility inherent in these materials. However, several body armor development firms have developed prototypes of flexible ceramic armor. Several models incorporating Kevlar, fiberglass, silicon carbide, carbide ceramic, or other materials, are already commercially available. Advances in textile technology have contributed to the development of highly effective, lightweight body armor that will be available to developing countries and terrorist organizations during the forecast period.

MANEUVER DOMINANCE

The United States will retain superior maneuver capability over potential adversaries throughout the period of this estimate. Potential adversaries are unlikely to compete with the United States in the production of tanks and armored fighting vehicles designed to outmaneuver and engage U.S. forces. Similarly, the production and proliferation of advanced helicopters, including attack helicopters, is unlikely to challenge U.S. maneuver dominance. However, both state and non-state actors have learned to avoid or surrender areas where U.S. forces have a significant advantage. In terms of military systems and technology, advances in foreign electro-optic technology provide adversaries with increasing capability to detect and engage U.S. systems at night and at greater ranges. Reports of the successful use of IEDs in Iraq will doubtlessly increase use of these weapons against U.S. forces. The use of IEDs, anti-tank mines, and remotely controlled anti-armor weapons will be accompanied with tactics designed to draw U.S. forces into urban areas. In urban areas, these attacks can be combined with increasingly lethal RPGs, small arms using AP rounds, and concentrated small arms fire in short-range, violent, and often lethal ambushes.

Armored Vehicles

Worldwide tank production is at a historically low level and is expected to remain far below cold war levels. Main battle tank (MBT) development is a costly venture and most countries do not have the research and development budget for new MBT designs. However, fire control system upgrades will increase the lethality of the MBT, while technology focuses on defeating anti-armor weapons.

Many families of explosive reactive armors are marketed to protect tanks and armored personnel carriers. All work on a common principle: the incoming round detonates an explosive sandwiched between two metal plates applied over the existing armor; the plates expand outward, dissipating the power of the incoming round. Developments include increasingly modular packages, flame-resistant explosives that are impervious to ignition by small arms fire, and hardening of the outer panel to break up or deflect long-rod penetrators.

Several active systems are already fielded in limited quantities. An example is the Russian DROZD system, which detects incoming round using millimeter wave radar and destroys it with a directed explosive charge. Another Russian system, the Shtora-1, emits infrared signals or obscurants to defeat the incoming ATGM. Future technological developments will seek alternative ways to jam, spoof, or destroy the guidance systems of incoming munitions.

Rotary-wing Aircraft

The integration of rotary-wing platforms into the battlefield will continue on a limited basis, delivering air-to-air as well as air-to-ground munitions from land and shipboard bases. Advanced attack helicopters, such as the Russian Kamov Ka-52 HOKUM B, will proliferate in limited numbers, and present challenges to modern ground forces.

Significant expansion of the rotary-wing flight envelope will involve the adaptation of tilt-wing technology. This technology will come into low-rate production within the estimate period. Non-traditional producers (such as South Africa) may also demonstrate their ability to produce rotary-wing aircraft on a technological par with many traditional producers. Although the purchase of advanced rotary-wing aircraft will yield an advantage against regional adversaries, obtaining a sufficient number to affect a conventional conflict with U.S. forces would require a great expenditure and would require a greater investment in mobile air defense and fixed-wing combat capability to protect them.

Improvised Explosive Devices

IEDs will continue to be a main concern to Marine Corps forces deployed to conflict areas throughout the world. As reports of successful attacks against the U.S. Marines Corps in Afghanistan and Iraq continue, U.S. adversaries will be encouraged to conduct similar attacks.

As terrorist and insurgents continue to share technology and techniques through the use of standardized manuals, mobile training teams, established training camps, and the internet, the threat of IEDs will continue to migrate from one terrorist group to the next. Due to the exchange of this information on global scale, IED firing devices, homemade explosive mixtures (HME), and tactics will continue to be perfected, thereby increasing the overall lethality and complexity of these attacks.

Improvements to IEDs can be expected throughout the time frame of this estimate. Adversaries will respond to increased force protection measures and counter-IED technology by trying to improve IED lethality and dependability with enhanced primary explosive charges or increasing overall explosive payload size, which produces increased blast damage.

In the mid-term, attempts to increase the overall lethality of IEDs using smaller amounts of explosives and surgically attacking a target may become a much larger threat. Anti-armor IEDs being encountered within Afghanistan and Iraq are designed to specifically target armor assets through the use of shape charges, improvised claymore mines, and improvised explosively formed penetrators. As this technology develops, the need to use large amounts of explosive force will be replaced by these less-cumbersome, more lethal devices.

IED Explosive Types

Historically, most IEDs encountered by civilian security forces and military units have contained homemade explosives (HME) as the main explosive charge. In Afghanistan and Iraq however, HME use is minimal, and modified military ordnance items are incorporated into IEDs as the main explosive charge.

Due to the relative ease with which these materials can now be obtained in countries with large military ordnance stockpiles, their continued use as the main explosive charge has become more common than that of HME mixtures. Countries without large stockpiles, or whose ordnance is more tightly controlled than that of Afghanistan and Iraq, will continue to see primarily HME mixtures used as the main explosive charge.

Landmine Demonstrated Capability

The Austrian APM and AVM series of mines are made in a prismatic, reinforced-plastic case containing a plastic explosive charge. A two-sensor fuze is available for the AVM series; the first detects moving targets and the second detonates the mine once its speed and range is determined. The mine can remain active from 3 to 60 days and automatically selects targets moving in a column, targeting any of eight passing vehicles out to 50 meters from the mine. The AVM may also be effective against helicopters.

Mine Warfare

Landmines are affordable weapons to everyone from from large, well-equipped armies to stateless organizations. Indiscriminate marketing practices allow potential adversaries to readily obtain and employ these munitions in significant numbers against U.S. forces. Landmine use will continue.

Virtually every possible technology has been used in conjunction with landmines and landmine sensors. However, this research and production activity has been limited to developed nations, where the upgrading of landmine stocks has always been the priority. Sensor systems for AP mines include seismic, impedance, IR, motion, vibration, acoustic, light, pressure, pressure-release, and trip line systems. Future developments will expand the types of targets and the ranges at which they can be engaged.

Off-route Mines

Off-route mines are systems that are emplaced along avenues of approach, main supply routes, and lines of communication to attack mounted and dismounted units from a standoff location as they maneuver through the battle space. The next generation of off-route mines will be omni-directional; the wide area

mines will have a self-guiding, top-attack munition, directional warhead, or other projectile capable of engaging targets 360 degrees. Currently, only the United States and United Kingdom have prototypes, however, the technology to develop and produce this type of mine is within the capability of countries now producing off-route mines.

Anti-helicopter Mines

Anti-helicopter mines (AHMs) are the next technological step in restricting mobility. The mine consists of a sensor and a munition; current designs incorporate a passive detection system (acoustic or electro-optic), which then triggers an active detection system (millimeter wave radar), which in turn triggers the detonation of mines that project shrapnel into the air. In addition to the threat of state-manufactured AHMs, some non-state actors have employed improvised, anti-helicopter IEDs to some effect. AHM systems may see limited proliferation during the time frame of this estimate, but will not be the primary threat to rotary-wing aviation. AHMs would primarily be used in defense of likely LHZs, and would be subject to electronic countermeasures, to include spoofing and jamming. From 2005 to 2015 period the main technological threat to helicopters will be from man-portable air defense systems (MANPADs), while the most proliferated and employed threat will be from small arms fire and RPGs launched at hovering helicopters.

Camouflage, Concealment, and Deception

Camouflage, concealment, and deception (CC&D) involve multiple technologies and techniques that make the target undetectable to the sensor, unrecognizable to the viewer, or change the appearance of an object. The increased lethality of precision-guided munitions makes CC&D critical to survivability on the modern battlefield. Although improvements in CC&D will affect U.S. direct fire and ADHPM capabilities, the greatest effect will likely be on the ability of the United States to translate air dominance into successes in the ground campaign.

Camouflage

The display of U.S. sensor capabilities during Operation DESERT STORM increased worldwide interest in

Donkey cart used to conceal an MRL.

effective camouflage. Some paints, coatings, and nets are common. The simplest camouflage, a disruptive paint scheme, can reduce detection ranges by 30 percent. Paints and coatings are able to absorb or diffuse different frequencies of the electromagnetic spectrum, thereby defeating reconnaissance and targeting sensors. As new ranges of frequencies are adapted to RSTA sensors and guidance systems, these frequencies are targeted by new camouflage systems. England, France, Sweden, and South Africa are leading developers and exporters of camouflage systems.

Concealment

Concealment is gaining popularity, particularly by countries with weapon systems and research and development programs that need to be concealed and/or protected. Concealment techniques can take many forms, to include using natural terrain, existing buildings, other man-made structures, or underground facilities.

Decoys and Mockups

The development of higher performance sensors and the proliferation of sensors have led decoy manufactures to develop high-fidelity decoys and mock-ups. Decoys may soon include mechanisms that counter sensors operating in the radar, mid-IR, far-IR, and/or a combination of these bands.

Obscurants

There are four main mechanisms for obscurants to reduce contrast: scattering, absorption, reflection, and radiance. A combination of these methods may be present in a single obscurant. For instance, the parti-

cles in a black cloud will both absorb and scatter light. The light that is absorbed may later be reradiated at a different wavelength.

Most suspected and known obscurants included in foreign military inventories are derived from World War I and World War II technology, and many have not changed significantly since World War II. These agents are effective in defeating the visible and near-IR bands of the electromagnetic spectrum and, in sufficient quantities, can seriously degrade or defeat the mid- and far-IR bands as well. In most cases the amount of agent required to do this would be difficult to support logistically. Large-area smoke generators used in rear areas are a possible exception.

AIR DOMINANCE

The United States will be able to maintain air superiority in any conflict throughout the period of this estimate. However, the ability to sustain air dominance may be challenged in the later time frame of this estimate (2010-2015) in certain regions where countries are pursuing acquisition of advanced fighter aircraft. A greater concern to Marine Corps operations will be the systems, strategy, and tactics designed to mitigate the impact of U.S. air superiority and air dominance. From a systems perspective, increasing air defense capability and use of camouflage and decoys will reduce the effectiveness of U.S. close-air support. Strategically and tactically, increased use of underground facilities and tactical placement of military assets in urban or difficult-to-target areas will impede U.S. air power effectiveness against military infrastructure.

Fixed-wing Platforms

Few countries have both the resources and the desire to equip their air forces with the most current generations of aircraft within the next decade. However, many will bolster their existing force structures by acquiring systems from a global marketplace that have significantly greater capabilities. As a result, the Marine Corps will face adversaries in the future who may be qualitatively inferior, but are nonetheless significantly more capable than they are today.

Two concurrent trends, multinational production of new aircraft and widespread upgrading of existing airframes, will dominate the fixed-wing aviation arena. In addition to aircraft co-production, the number of nations involved in the licensed production, as well as the rebuilding and refurbishing of aircraft, will increase. Within the aircraft subsystem technology field, some emerging nations (in industrial terms) could evolve into production leaders. Those nations that currently have the capability to design, test, and produce indigenous aircraft systems will likely continue to retain and expand this capability.

High-performance Aircraft

Economically developed countries, industrializing states, and countries with regional ambitions will pursue acquisition of the most advanced aircraft. The most demanding projected midrange threat is approximated by a developed Su-37 fitted with thrust-vectored engines, electronically scanned radar, and armed with ramjet-powered derivatives of the Vympel R-77 (NATO AA-12 Adder) missile.

Less-developed countries will concentrate on squeezing the best performance possible out of their existing systems. Thousands of airframes, whether U.S.-manufactured F-5s or ex-Soviet MiG-21s, will continue in service throughout the period of this document. Myriad upgrade packages are being offered for these platforms, allowing users to improve system performance to nearly state-of-the-art overall through upgrades to the engines, electronics, avionics, or weapon systems.

Low-performance Aircraft

Utilitarian concerns will lead some countries to concentrate on subsonic jet aircraft or trainers that have a dual role, or are optimized for ground attack or counterinsurgency work. New stand-off weapons, if adapted to these platforms, will give them the reach and striking power of a much more sophisticated air force while limiting their maintenance and training requirements. For example, more than 500 Dassault/Dornier Alpha Jets were built as a combination trainer/close support aircraft, and bought by countries from Germany to Nigeria. These platforms can be armed with guns, rockets, bombs, air-to-air missiles, guided air-to-surface missiles, and reconnaissance pods.

Stand-off Weapons

Continued advances in stand-off weapons may degrade the importance of platform performance. As long as the basic platform can get within launch range, the sophisticated weapon will do the rest. GPS-aided munitions can provide unsophisticated platforms with a true, all-weather, stand-off, fire-and-forget capability. Adding propulsion to the basic munition further increases the stand-off range.

Air Defense Systems

In the next 10 years, sophisticated surface-to-air-missile (SAM) systems will proliferate. Moreover, the increased use of missiles with dual seekers and radar seekers with anti-jamming capabilities will reduce the effectiveness of U.S. SAM countermeasures. Most of these technological advances will be restricted to key nation-states, but proliferation to less technologically sophisticated nations or non-state actors cannot be ruled out. A greater threat in dealing with developing nations and non-state actors will be from the proliferation of MANPADS. Like other SAM systems, MANPADS will improve throughout the midrange in terms of increasing seeker range and sophistication.

Because of U.S. stealth aircraft success, air defense developers will pay particular attention to detecting and countering stealth technology. Technologically advanced countries are likely to employ radar systems with track-while-scan operation, planar antennas, pulse-Doppler radars, dual frequency (X/Ka) radar trackers, two- and three-dimensional radar systems, and low-power/low probability of intercept technology to obtain a comprehensive air defense picture. Air defense forces will also deploy sensors that can detect even difficult targets. In less-advanced countries, even as older systems proliferate, state and some non-state actors may employ some of this new technology.

Missile range and speed have the potential to expand significantly if new propulsion technology is widely fielded. Most nations with a missile industry are conducting research into ramjet and scramjet technology. This may permit missiles to achieve long-range and high maneuverability at speeds in excess of Mach 6. The French ASMP and the Russian X-31 missiles apply this technology today.

INFORMATION SUPERIORITY

Command, Control and Communications

During the 2005-2015 time frame, the most pronounced challenge to U.S. technological superiority will be in the area of information superiority. Developed nations will attempt to compete with U.S. information dominance by developing like systems and systems designed to degrade U.S. capability. State and non-state actors will attempt to frustrate U.S. information dominance by using COTS systems, low-technology systems, and adaptive tactics designed to counter U.S. capabilities.

Command, control and communications (C3) serves as a force multiplier by effectively coordinating forces through quickly communicating combat information, thereby allowing rapid decision-making. The major areas of concern from developed nations will be advancements in their integrated battlefield-area communications systems (IBACS) and other military systems. State and non-state actors will likely make use of advancements in civil infrastructure and COTS equipment, giving non-state actors an advanced C3 capability through the purchase of systems and services indistinguishable from those used by legitimate commercial and private entities.

IBACS

IBACS are integrated communication systems that offer a common transmission medium for voice, data, message, and other communication traffic. IBACS transform communications links into a grid architecture that provides higher peak capacity. More than 35 countries have acquired IBACS and several others are considering acquiring them. IBACS provide improved survivability of C3 networks by multiple switching nodes to form a grid with multiple transmission paths between nodes. The grid architecture guarantees robust network operation, since traffic can be routed around damaged or jammed nodes. The robust nature of IBACS will make it difficult for Marine forces to disrupt adversary C3 capabilities.

Cellular Systems

Many countries will install digital and analog cellular systems in preference to traditional copper or even fiber optic cable networks. Cell phones, personal data assistants (PDAs), and pagers, as well as traditionally non-computerized items such as games, cameras, or music players, are now functionally "converging" with computers and the internet. For example, individuals now have the ability to send images and geo-coordinates of persons and objects across CN in near real time with no more than their cell phones.

Military applications include adapting personal communications networks as part of a digital-battlefield communications network; physical reconfiguration with helmet-mounted headsets would be a reasonable modification. In theory, each combattant could be incorporated into a secure cellular phone network tied directly to the commercial phone system, which would reduce reliance on combat radio net systems.

Fast hopping frequency synthesizer module technology uses higher hopping rates to provide greater immunity to interference and lower probability of intercept for voice data and compressed video communications. Adaptive preprocessing and noise filtering permit operations in high noise levels. Cellular systems will allow any adversary to have an effective C3 capability using COTS cellular technology on civil networks. An attack on civil networks for the purpose of disrupting adversary C3 could be problematic for Marine forces.

Satellite Systems

Increased commercial demand for space-based services is driving the development of satellite technology, which in turn will provide easily obtainable, advanced services from communication and sensor C4ISR systems. Satellite communications will be readily available to anyone, providing instant and reliable communications at all levels of military, national, domestic, regional and global arenas. The following systems are expected to experience increased usage over the next 10 years: AceS, ARABSAT, ELLIPSO, ICO, ORBCOMM, Thuraya, IntelSat Inmarsat, Nanosatellites, VSAT, USAT. Some areas will establish regional SATCom systems, such as AceS and ARABSAT. VSAT will continue to be extensively used in areas where telecom infrastructure is not available or difficult to install, e.g. mountainous regions such as Afghanistan. Satellite systems, although more expensive than other communications, are well suited to adversary C3 functions. Since it is probable that an uninvolved third country may own the satellite system being used by an adversary, any attack on the system would be unacceptable; an adversary would therefore be able to operate with impunity.

Trunk Mobile Radio

Trunk mobile radio (TMR) is primarily used by public safety and police organizations. However, these systems are inexpensive and easy to use. The two main divisions of trunk mobile radio are PMR and PAMR. The simplest example of TMR is the "walkie-talkie" push-to-talk system. The most common standards are: TETRA, iDEN and TETRAPOL. These systems can be easily adapted to adversary C3 functions. Its ability to be camouflaged among legitimate users and the ease of establishing TMR will make it difficult for Marines to counter this capability.

Over-the-horizon Communication Systems

Many existing over-the-horizon (OTH) technologies will continue to be used, since they have proven reliable. Technology improvements are expected to allow OTH communications to be easier and less expensive to implement, and at the same time increase usable bandwidth. Despite its low data rate, HF will remain a cost effective, virtually indestructible means of communications. HF offers a wide range of operating characteristics under software control and ease of incorporating LPI capabilities. The most likely OTH technologies that will be used are; automatic link establishment, meteor burst communications and troposcatter communications. OTH allows an adversary long-haul communications for C3 that will be difficult for Marines to counter.

Line-of-sight Communication Systems

Line-of-sight (LOS) communications are generally used for all types of civil and military communications. Advancements in the use and capability of LOS systems with advanced waveforms will occur in the next 10 years. High data rate requirements will drive the

development of terrestrial microwave, digital microwave, and millimeter-wave communication systems. Higher hop rates can be expected as LOS communications go above UHF. These systems can be highly directional and difficult to exploit. Marine forces will find it difficult to effect adversary C3 activities using these systems.

Emerging Technology

Greater acceptance and standardization of digital communications technology will ultimately simplify battlefield communications. The distinctions between hand-held voice radio, digital multipath modes, and high-rate data transfer links will blur and ultimately disappear. Military circuit-switched communication networks will adapt to the multiservice, multimedia world of the commercial sector. Further developments are possible in pulse-code modulation, delta modulation, and asynchronous transfer mode standards. The result will be a new generation of high-bit rate, low-error rate transmission systems that will support the desired seamless interface.

Improved control of digital communications will provide the capability for positive control of integrated, automated C3 systems with their significantly increased communications bandwidth requirements. Fiber optics will provide a high volume of secure communications that will greatly enhance C3 protection. Alternate developments may include systems that operate in nontraditional frequency ranges (for instance, ultraviolet light) and intentionally short-range communications.

Other technology expected to make gains in the next 10 years includes Ultra-Wideband Communications, free space optics, orbiting metropolitan wireless communications, micro/nano-satellite systems and software defined radios. Marine EW equipment must evolve if information dominance can be maintained.

Open Architecture Systems

Increased use of open architectures (OAs) in military C4ISR systems is accelerating foreign advancement in military capability of rapid and accurate dissemination of combat relevant information. Using a blend of interconnected commercial, civil, and military communications, military forces can transmit voice, data, or video among sensors, computers, command authorities, and combat units.

OA systems are easily installed, allow rapid technology insertion, and reduce reliance on single equipment sources at lower costs than proprietary designs. Because OAs integrate sensors, combat management systems, communications, and weapons, OA-based systems are ideally suited for all military C4ISR applications, and, in fact, are produced by some Western countries for export.

OAs allow potential adversaries to integrate both imported and indigenous components and leverage commercial technology to their benefit. Effective use of OA technology and architectures should allow any power to rapidly achieve and maintain advanced C4ISR capabilities, such as multi-sensor data fusion, computerized command decision aids, common situation awareness, and coordinated target engagement. System capabilities can be greatly increased without any outward indication of the change, creating a potential for underestimating the capability of a threat system. These capabilities could allow quicker reaction times against threat weapons or platforms and improve the effectiveness of multi-axis responses. The increased prevalence of these advancements will likely challenge future U.S. dominance over foreign militaries.

Wireless Network Technology

Eventually, most computer systems will be connected to the internet. Most systems are physically connected to fixed networks with cables. Fixed network systems will likely be nearly obsolete in 10 years. A wireless system can be installed in significantly less time and at substantial savings. Wireless technology includes: cordless telephones, fixed wireless local loops, wireless private automatic branch, and wireless local area networks (W-LANs). W-LANs can transmit over RF, laser, directed infrared or diffused IR technology; RF is expected to be the most widely used. Several W-LAN standards, which are expected to continue into the next 10 years, include: IEEE 802.X, 802.11a/g, 802.11b, Bluetooth, and European HiprLAN 2.

INTELLIGENCE SYSTEMS

Global Positioning System

Future navigational GPS will be miniaturized, digitized, and integrated with inertial navigation systems (INS) to provide reliability and redundancy. These systems will be a tremendous combat multiplier, not only improving navigation capability, but also aiding command and control, weapons delivery and guidance, sensor emplacement, intelligence functions, and rescue missions. Miniaturized and inexpensive integrated INS/GPS will be found in most sensors, weapon systems, and munitions.

Electronic Warfare Support Systems

The future of electronic warfare support is digital and integrated. Advances in electronic and platform sophistication provide significant electronic support measure (ESM) capabilities. Performance upgrades are measured in order of magnitude: a radar warning receiver can now produce data equivalent to an older ESM suite, and a new ESM suite provides signals intelligence (SIGINT)-quality data. The proliferation of recently developed signal-processing software with COTS hardware could have a major effect on upgrading ESM capabilities. Compact and inexpensive airborne SIGINT systems can relay sensor information from landing sites to operators on the ground hundreds of kilometers away. Automatic direction-finding using single-site-location techniques will eliminate the need for several stations and highly trained operators to perform triangulation. Marine forces must maintain awareness of the possibility that emissions may be monitored, potentially allowing an adversary enough advance information so he may choose his own method of engagement.

INCREASING CAPABILITIES

Strategic Reconnaissance and Surveillance

Numerous countries are establishing or expanding their ability to monitor their littoral regions, particularly their claimed 200-nautical-mile exclusive economic zone. These monitoring systems, even if deployed primarily for commercial or law enforcement purposes, serve as de facto reconnaissance and surveillance systems. While low cost systems may not match the technological superiority of advanced country systems, they will be sufficient for national security needs. Naval expeditionary forces will be easily detectable by these assets.

Space-based Platforms

Some countries have or are pursuing a space-launch capability, giving them the potential for orbiting a reconnaissance satellite. Commercially available remote sensing assets include the EADS Astrium's Infoterra, French SPOT series, U.S. LANDSAT multispectral imagery and Spacing Imaging, ImageSat International Space, Canadian RADARSAT images, and Russian satellite photography.

In many cases, commercially available earth observation satellites will meet a country's intelligence collection requirements. Canada's RADARSAT program, a commercial synthetic aperture radar satellite, has many advertised applications, one of which is open-ocean fisheries monitoring at 10-meter resolution. European and Asian countries will pursue military reconnaissance programs to avoid dependence upon either the United States or Russia for intelligence information during periods of crisis. These capabilities will allow any adversary access to accurate geospatial information providing critical information on Marine location. Countering these capabilities may be complicated, since uninvolved third parties will own many of the assets.

Manned Airborne Platforms

Airborne littoral surveillance will most commonly consist of commercial airframes modified to carry various sensor systems. Active and passive systems will be used for detection, identification, tracking, cuing, and possible targeting of airborne and maritime contacts. Such systems would be able to handle near-real time collection, digital electro-optical imagery, and electronic data transmission. Signals intelligence packages and other less-sophisticated but capable systems can be routinely installed on long-endurance commercial airframes.

Unmanned Vehicles

The worldwide use of unmanned aerial vehicle (UAV) systems for tactical RSTA will continue to expand in terms of both development activity and fielding of systems. Potential adversaries may develop or procure highly advanced electronic attack and guided missile carrying systems. UAVs do not need to be high-tech to be a threat; Hizballah successfully flew a camera-mounted drone over Israel.

Unmanned surface and underwater vehicles (USV, UUV) will also play a role in targeting emitters and surface/sub-surface platforms, early warning, and use as countermeasures and decoys. These robotic systems have the advantages of being flexible in time-sensitive targeting, are expendable, and have greater sustained battle presence.

Hundreds of different types of UAVs are either employed or in development; there are currently 50 developer countries. While many are strictly low-endurance tactical systems, the success of the U.S. Predator system over Afghanistan and Bosnia demonstrated the UAV's potential for long-endurance, high altitude missions. For many countries' littoral monitoring missions, operating a Predator-like UAV would be more effective in terms of cost, training, maintenance, and performance than a manned system. Because of the low cost and commercial availability and versatility, these systems will continue to proliferate in number and capability. UAVs are also becoming stealthier, with RCSs as low as -30db.

Most UAVs are multi mission-capable and designed to accept a variety of mission payloads. Steady advances will occur in the integration of multispectral sensor technology to improve detection, recognition, and identification capabilities that will enhance target acquisition applications. Less than 1 percent of the cost of a typical standoff jammer, a UAV offers an inexpensive option to manned systems. UAVs have the potential to be used as weapon platform, some with sufficient capacity to be converted into a basic cruise missile carrying various warheads, including a WMD warhead.

Electro-optics

Image intensifier-based devices, thermal imagers, laser rangefinders, and laser target designators have proven effective in battlefield environments. Today many of these technologies are available through proliferation and the dual-use nature of the image intensifier devices. In the mid-term, technological advances will lead to the proliferation and the reduction in cost of more advanced devices – making them available to state and possibly non-state actors. Advances will also lead to smaller, lighter systems that can be integrated into a wider variety of platforms, such as UAVs, or allow more capability on a given platform, such as the individual warfighter. Having an image intensifier and thermal sensor on the same platform will provide a multi-spectral capability that is more difficult to counter.

Russia, China, middle-eastern, and Western countries have programs to develop laser range finders (LRFs). Low cost LRFs and more capable surveyor type LRFs are commercially available at sporting goods, department stores, or industrial supply houses. These rangefinders are immediately usable in military applications. State and non-state actors have LRFs today.

Russia, China, middle-eastern, and Western countries have programs to develop laser target designators (LTDs), which require the associated munitions, and are not generally considered dual-use systems. This specific application of LTDs serves to limit proliferation to non-state actors. Improvements in the laser area (uncooled systems, more sensitive laser detector technology, and more efficient laser materials) will lead to smaller, lighter systems that will allow integration on more platforms.

Passive image intensifier devices that will give state and non-state actors a night-operating capability are widely available. Russia, China, middle-eastern, and Western countries have programs to develop image intensifier-based night vision systems. Commercial and military night rifle sights, night vision goggles, and intensified cameras are available at retail stores and over the internet. Commercial LRFs are available with an integrated image intensifying system - providing a nighttime ranging capability. Active night vision systems (near infrared cameras operating with near infrared illuminators–light emitting diodes or laser diodes) are widely available for surveillance applications. Marines can expect to encounter image intensifier-based night sights. Technology like electron-

bombarded, charge-coupled devices (EBCCD) that can be expected in the midterm will increase the proliferation of the night vision capability.

Mid-wave and Long-wave thermal imagers are being developed for commercial and military applications. Commercial applications include fire fighters or factory maintenance. Handheld commercial thermal imagers are available. In the near- and the mid-term, these types of systems may be too expensive for wide proliferation among non-state actors. Many state actors have thermal imager development programs and are fielding thermal imagers today for surveillance and fire control applications. Advances in uncooled detectors and focal plane arrays will lead to lower cost, smaller and ultimately widely proliferated thermal imagers. Future improvements include large-format focal plane arrays, more sensitive arrays, and multi-color arrays.

COUNTERMEASURES to U.S. CAPABILITIES

State and non-state actors will have increased capability to disrupt U.S. C4ISR capabilities in the form of electronic jamming and direct attacks on U.S. sensors, computer network attack (CNA) and computer network exploitation (CNE) of our networked systems, and technological limitations to U.S. human intelligence (HUMINT) capabilities.

Directed Energy Weapons

Directed energy weapons include lasers, radiofrequency weapons, and particle beam weapons. High-energy lasers will transform the battlefield in the far-term, and will challenge the U.S. ability to maintain awareness of the battlespace.

Laser Weapons

Military application of laser technology is well established. The proliferation of laser devices on the battlefield significantly threatens unprotected sensors and human eyes, regardless of the laser's intended use. Low energy laser weapons can affect specific function of a target without physically destroying it. Low energy lasers are also used to detect optical devices using retro-reflection. Commercial lasers that can be easily adapted to military applications are widely available with various degrees of energy and wavelength. High-energy lasers can be used to attack the same range of targets but are designed to inflict a hard-kill or structural damage on the target.

High-energy laser weapons programs have been reported in several countries. The Russians are offering a truck-mounted, high-energy laser system. Lasers that can shoot down aircraft are available and it may be feasible to combine them with targeting systems that can engage aircraft. Proliferation of laser technology is expected to accelerate in the next 10 years.

Radio-frequency Weapons

Radiofrequency (RF) weapons use intense pulses of RF energy to disrupt or damage the electronic components of a target. State and non-state actors have expressed interest in RF weapons, and vulnerability of systems such as television and radio transmitters, telephone networks, computers, and automotive engines. RF weapons are designed to inflict a hard-kill, or structural damage upon the target.

Electronic Attack Systems

The counter/counter-countermeasures relationship between emitters and EW receivers and jammers is expected to continue. Currently, low-probability intercept (LPI) techniques have a slight edge against electronic attack and electronic support systems. LPI is not one particular technique, but rather it is the use of various methods and techniques to reduce the ability of an opponent to intercept or degrade a signal. Continuous development of complex wave forms, sophisticated encryption schemes, higher frequencies and other LPI techniques will constantly challenge Marine Corps capabilities to execute an electronic attack (EA). To affect an adversary's ability to conduct well-coordinated warfare, one must affect an adversary's command and control.

GPS Jamming

Most information, encryption, targeting, location, and navigation systems depend, sometimes exclusively, on GPS. Many adversaries are either developing or purchasing capabilities to defeat GPS usage. Attacks on GPS can take the form of jamming, delayed re-broadcasting or spoofing. Marines must be aware of GPS vulnerability to manipulation by adversaries.

Electro-optic Countermeasures

Recognizing U.S. military dependency on electro-optic systems, including precision-guided munitions, imagers, direct view optics, etc., many countries are focused on developing countermeasures. Electro-optic (EO) guided-precision weapons include laser-guided munitions, semiautomatic command-to-line-of-sight missiles, television-guided munitions, heat seekers, and more advanced terrain- and target-recognition weapons. All systems that depend on optics will be subject to electro-optic countermeasures (EOCMs). This includes land, airborne and space-based systems. New EOCM devices have been promoted at arms shows and some have been fielded in limited quantities. The near-term should see more rapid manufacture and deployment of EOCMs already developed. In future conflicts, optic systems will not be as effective, since many countries will have developed and fielded EOCMs to detect and counter them. Marine forces should avoid dependency on EO sensors.

Computer Network Operations

During the time frame of this estimate, market-driven changes to information technology, to include increases in computing power, convergence of technology around digital, IP- (or IP-successor-) based communication networks, and the increasing use of CN in society, will have led to an environment in which most electronic devices will have some level of interaction across the internet. An increasing percentage of the COTS CN components available in the United States will be designed, produced, and assembled outside U.S. borders. Software and hardware will be increasingly designed and produced by non-U.S. entities, and control of (or visibility into) software design cycles will become increasingly difficult. U.S. planners should anticipate and guard against CNA and CNE.

The object of CNA is to cause a specific effect on the functioning of an information system to modify processes, access, or data. Adversary nations, transnational groups, or even individuals might choose to conduct CNA. Such activities could range in scope and complexity from a hacker employing a simple tool designed to change, destroy, or manipulate data, to a strategic weapon meant to create confusion, distrust, and/or disruption as part of a larger attack. Commonly encountered types of CNA include the following:

- Exploitation of specific software vulnerabilities (scripts, exploits);
- Identification of open access points (retained default passwords);
- Brute force attacks (repeated guessing of passwords);
- Cracking (decryption of encrypted password files);
- Denial of service or distributed denial of service attacks; and/or
- Domain name server cache poisoning.

Unlike CNA, which seeks to change the processing of, or access to data, the object of CNE is to obtain the data or network architecture itself. Possible targets of CNE span a broad range from encrypted passwords (ideal for later 'cracking') to documents containing trade secrets, to the credit card numbers of unsuspecting consumers. Packet traffic flowing across a network may be of as much interest as memory contents, and "sniffing" programs have been developed to facilitate the exploitation of both wired and wireless network traffic. In most cases, a CN exploiter seeks to remain undetected for as long as possible to maximize opportunities to obtain additional data. CNE may be combined with forms of CNA to provide the initial access, or to conceal or destroy traces of that access. Tools to facilitate CNE, available openly in the commercial market and online, include 'stumblers,' 'sniffers,' and 'rootkits,' which respectively seek access points, observe data in transit, and hijack the root-level privileges to conceal CNE from authorized users.

While the specific techniques may vary, all of the current tactics of CNA and CNE are likely to persist into the future. As a result, the race between hackers and system designers, software developers, and users will continue. In most cases, employing appropriate TTPs to address known vulnerabilities (proper configuration, network monitoring, regular update of anti-virus software) will mitigate most threats. Nonetheless, risk of novel attack combinations, vulnerabilities, or human error will remain.

Biometrics

Biometrics are the use of human characteristics to establish or verify the identity of individuals. Biometric tech-

nology is highly effective and is expected to continue to improve, becoming more reliable and more resistant to spoofing. As biometric databases proliferate, maintaining security of that information will become difficult. Compromise of this data could provide an adversary with detailed biometric information. Personnel attempting to operate covertly may be specifically identified upon entry into a country without knowing it.

Section 4:
REGIONAL ASSESSMENT

Predicting the future of specific regions, nation states or even organizations is a difficult undertaking, if not impossible. Political, economic and demographic factors weigh heavily toward driving instability, all of which have the potential to impact military response. Each of these three factors contains variables that will define, and complicate, the broad spectrum of challenges facing future operations' planners.

This section is not predictive, but rather, highlights the issues central to creating conflict that could potentially affect U.S. interests in a particular region requiring a military response.

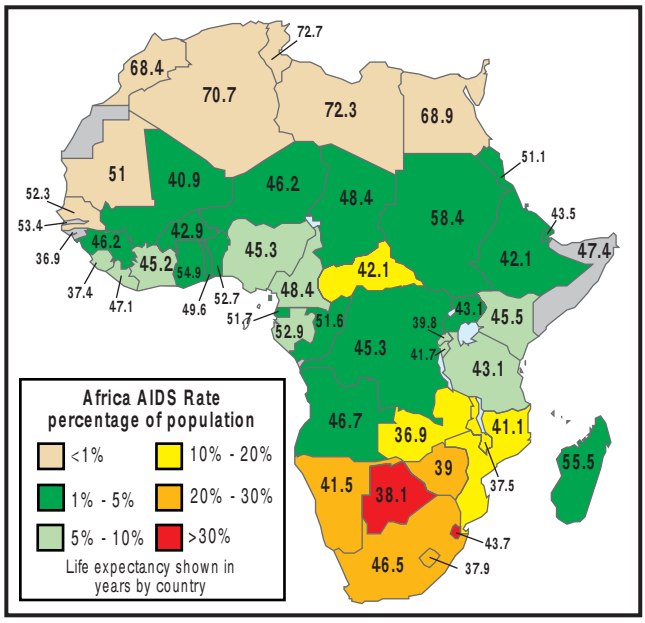
The Regional Assessment addresses specific transnational issues in six regions (and four sub-regions within Asia) that MCIA envisions will potentially shape the region's security environment and possibly impact the global security environment. "Potential Wildcards" depict possible events that could have effects on regional and/or global activities (such as another attack similar to those of 11 September 2001).

AFRICA

Marred by instability, poverty, and ethnic tension, Africa is a concern. While recovering from colonialism, extreme ethnic diversity, and corrupt governance have prevented the continent from sharing the global economic progress of the last 15 years. Nowhere else have the economic benefits from globalization been so lacking. Economically, Africa is in a class of its own, due primarily to the following:

- Of the world's 20 poorest countries, 19 are African.
- GDP for the continent is only 2 percent of the world's GDP; roughly equivalent to South Korea's.
- Of billions of U.S. dollars in private investment capital (which fuels globalization), only 1 percent reaches sub-Saharan Africa.

Africa's demographic statistics are equally dismal. It has the 30 countries with the highest infant mortality rate and some of the lowest life expectancy rates in the world. Half of Africa's population is younger than 16, and nearly 70 percent is younger than 30.



Africa's AIDS-infected Populations.

The effects of HIV and AIDS challenge Sub-Saharan Africa. Sub-Saharan Africa has 10 percent of the world's population, but is home to more than 60 percent of all people living with HIV. Prostitution, lack of education, and poor governance have helped propagate the disease. According to UNICEF estimates, Sub-Saharan Africa will have 20 million AIDS orphans in the year 2010. AIDS is affecting the population and potential development. It strikes mostly those of wage-earning age. With diminishing immune systems, debilitating diseases once under control, such as malaria and tuberculosis, are resurgent. If AIDS is not checked, it could make Africa much poorer, as people who do not expect to live long, invest less in their futures.

AIDS also affects education. People stricken with AIDS are less likely to send their children to school. A study in Ivory Coast found that households afflicted by AIDS halved their spending on education. Huge numbers of children lose their parents and often their teachers. Women comprise 75 percent of HIV positive

adults; this has created instability in the population as traditional families, the core of the culture, are decimated, and children are forced to look for other forms of authority. This has increased the child soldier and youth gang populations. AIDS also complicates peace support operations because military contingents from many Sub-Saharan African nations have incredibly high rates of infection and are restricted from participating in peacekeeping missions. Many of the continent's economies and militaries have been crippled by the spread of the disease. Further economic decline could allow extremists to exert influence.

Most African economies rely on being a passive supplier of commodities to the global market. Today, Africa provides more than 15 percent of U.S. oil imports, which is expected to rise to 25 percent in the next decade as new oil fields come into production. Little of this money reaches the population, due to its corrupt governments. Oil funds have fueled coup attempts and regional violence. Instead of being a resource, African oil too often fuels corruption and oppression, creating civil strife.

Conflict and instability still overwhelm much of Africa. Recent events in Darfur, Sudan have illustrated the potential ultra violent ethnic conflict outside of the traditional Christian-Muslim discord. Genocide in Darfur results from Muslim-on-Muslim ethnic identities and social–economic factors. These types of flashpoints crisscross Africa with minorities that usually go unnoticed by the West.

Small and light arms are broadly disseminated in African crises regions; that is a key factor in constant regional instability. These weapons have fueled a cycle of conflict in certain regions, such as central and western Africa. DROC continues to recover from a 5-year civil war that left 3 million dead and embroiled most of its neighbors. Cross-border populations only encourage this regional instability, as fighters who have made peace in one country may go fight in another for economic reasons. Liberia, Sierra Leone, and the Ivory Coast are all affected by this social trend.

Child soldiers are a concern. Children must be integrated into the social fold through education and employment opportunities. Without a strong government to provide structure, education, and a viable economy, these children view fighting as the only means to obtain necessities.

These regions are getting help with stabilization. African countries, particularly Nigeria, have become more active in peacekeeping, as the demand for peacekeepers continues to rise. Last year, the UN and the African Union deployed more than 50,000 troops to countries such as Eritrea, Sierra Leone, DROC, and Liberia. However, troop discipline is poor and stories of abuses by peacekeepers may undermine future missions.

Islamic terrorist activity in sub-Saharan Africa will likely increase. The region has porous borders, unstable and corrupt governments, vast unpopulated areas, and substantial Islamic populations. Elements of Islamic terrorist organizations may use sub-Saharan African nations as recruiting centers, training grounds, safe havens, and mission planning sites. International terrorists have targeted sub-Saharan Africa for attacks in Kenya and Tanzania. Somalia's lack of national government makes it a potential home for Islamic terrorism. There is also a high risk that Africa's raw materials, such as diamonds, gold, and columbite tantalite (coltan) could be hijacked by terrorists. Increased U.S. aid and cooperation with counter terrorism efforts may help mitigate these circumstances to a degree, but they will not eliminate them.

One effect globalization is having on Africa is in communication systems. Cell phone subscriber growth in several sub-Saharan African countries exceeded 150 percent last year, and there are now 8 mobile phones for every 100 people in Africa, up from 3 in 2001. For many this is their first telephone. This growing technology could have social implications. Whether or not this has a positive effect is still in question. However cellular technology will provide some of the needed infrastructure for Africa to grow economically.

Africa has an alarming list of instability factors. Over the next 10 to 15 years, Africa's political, economic, and social environment will lead to significant Marine Corps involvement. Marines will conduct the spectrum of missions, from military training and humanitarian assistance to larger scale counter-terrorism nd peace enforcement missions. Africa's decaying infrastructure, complex cultural composition, and harsh physical envi-

ronment will significantly challenge future Marine Corps operations.

Potential Wildcards

- Re-igniting the war in DROC, central Africa or west Africa;
- Widespread genocide within a country; and
- Rapid growth of Islamic terrorist groups.

ASIA

South Asia

Most of the regional threat issues affecting south Asia revolve around India and its neighbors. As India strives to benefit from globalization and entice global investors, the government will try to create regional stability. This will not be easy. India is poor and diverse; by some estimates, it has the world's second largest Muslim population, which is fueling ideologically driven violence in many areas. There is hope in an unlikely place: Kashmir.

Many speculate that the most dangerous flashpoint in the world is the conflict between Pakistan and India over the disputed Kashmir, since both countries are nuclear powers. However, both sides seem to agree that fighting over Kashmir is hurting them financially. India and Pakistan need economic growth to quell internal problems more than they can benefit by taking a hard-line stand on Kashmir.

Pakistan has regained its economic footing; however, its last surge against India in 2002 depleted its treasury. Pakistan acknowledges that war with a country that has almost 10 times its economy and 7 times the population does not serve its long-term interests. Pakistan needs the economic growth and its military to fight extremists within its own borders. India is also feeling economic restraints. While vastly stronger than its Pakistani rival, India is attempting to maintain high GDP growth and compete with China to attract foreign investment.

India's integration into the U.S. economy through outsourced call centers and software support has led to a relative economic boom. Reliant on direct U.S. investment, India has come to value stability for its economic growth. During the 2002 standoff in Pakistan, businessmen and software companies registered concerns that threat of a nuclear exchange deters the companies they want to attract. Both sides backed down, apparently finding greater threats to and interests for their countries than Kashmir. However, India still believes Pakistan's secret service supports terrorists who carry out attacks in India territory. Progress could be erased overnight should there be a change of Pakistan leadership.

Internally, India experiences both insurgent and extremist violence, much of which has ties to the region. India has a worsening terrorist problem in its northeast. The seven states of the region are home to more than 200 ethnic groups. This has created uprisings with varying demands. One, the United Liberation Front of Assam (ULFA), seeks independence for the state of Assam. Another, the National Democratic Front of Bodoland, is fighting a war within a war for a homeland for the Bodo people in Assam. India accuses other neighbors—Myanmar and especially Bangladesh—of harboring terrorists. Some accuse Bangladesh of deliberately fuelling the conflicts, as its government has become increasingly influenced by extremist Islamist groups. India is also concerned with the forced expulsions of minorities from Bangladesh into India. Both sides have placed paramilitary forces on the border.

Nepal faces the possibility of falling to Maoist rebels; India also perceives a threat. India has about 20 Indian Maoist, or "Naxalite" insurgent groups. Of its 593 districts, 157 are now affected in some measure by Naxalism — 102 of these were added to the list recently, inferring that the movement may be growing. India believes that these groups have strong links with their Nepali counterparts. More significant than any practical support, however, would be the ideological encouragement of a Maoist victory in Nepal.

India knows the only way to counter these external threats influencing its population is to provide economic opportunity. Its growth in the 1990s was impressive but uneven. Compared with China, India lags. Thirty-five percent of Indians live on less than US$1 a day, compared with 17 percent of Chinese. Some 47 percent of India's under-5-year-old population is underweight, compared with 10 percent in China. Infant mortality is 65 per 1,000 in India against

30 in China; life expectancy at birth is 63 in India, 71 in China; and adult literacy is 57 percent in India, and 91 percent in China. India is still home to a quarter of the world's undernourished population.

India will continue to increase its regional influence. China is a prime motivation behind this strategy. India will continue to be concerned about China's rapid military modernization, increasing regional influence, and growing need for natural resources. Potentially, China could present a threat to India's interest in south Asia.

Two key aspects of this "great power" strategy are its naval modernization and nuclear programs. Hoping to achieve a blue-water naval capability over the next ten years, India recently undertook a robust program of naval modernization. The Indian Navy decommissioned a number of older ships, purchased a Russian aircraft carrier, and received its first, indigenously produced ship. Until de-nuclearization of the P-5 members, in accordance with the Nuclear Non-Proliferation Treaty, India will continue to develop and maintain a nuclear deterrent.

India's growth will create new challenges to the world (such as greater resource demand). It will also have a regional effect that is difficult to predict. India's relations with its neighbors illustrate a region that is in flux and unstable.

Potential Wildcards

- Assassination of Musharraf and/or overthrow/ change of the Pakistani government;
- Unexpected economic downturn within India;
- Bangladesh moving to more extremist Islamist views; and
- Conflict between India and Pakistan over Kashmir region.

Southeast Asia

Southeast Asia should not be underestimated in U.S. interests in the near term. The economic importance of southeast Asia could be seen as the world's "choke point." The narrow Strait of Malacca is the world's second-busiest waterway after the Strait of Dover in Europe. Every day, a quarter of world trade, including half of all sea shipments of oil bound for eastern Asia and two-thirds of global shipments of liquefied natural gas, passes through this strait. This alone makes the region vital to all of the major Asian economies and the world economy. Unfortunately, the region is also home to a worrisome transnational terrorism trend.

The Muslim populations highlighted in the map "Muslim Populations in Southeast Asia" have significant extremist populations that have shown a willingness to target Western interests. In many respects, the extremist groups in this region have degraded borders to create an Islamic network that has challenged authorities confined to national borders. The region's geography makes any sort of border control nearly impossible. Across southeast Asia are thousands of remote islands and expanses of jungles ideal for extremist groups to hide and train. The population is also alienated by issues such as economic collapse (Indonesia), corruption, and minority discrimination (Thailand and the Philippines), making the population susceptible to extremism. National separatist movements and insurgent groups are already destabilizing certain regions.

Central to this network is the region's international group Jemaah Islamiyah (JI). While experts believe it was not formally created until the early 1990s, JI began as an Islamist movement closely connected to a small number of Islamic extremist schools in Indonesia, most

Muslim Populations in Southeast Asia.

notably, a village in Central Java. Persecution in the 1970s and 1980s caused the leaders to relocate in neighboring Malaysia and Singapore. Abu Bakar Bashir and Abdullah Sungkar, JI leaders, were arrested and imprisoned in Indonesia as part of a crackdown on radical groups. Bashir fled to Malaysia in 1982. JI's leadership trained in Afghanistan over a 10-year-period from 1985-1995 and this had a huge influence on shaping their world view.

Islamic fundamentalists from southern Thailand to the Philippines are increasingly active after decades of muted conflict. In Thailand's four southernmost provinces, where the population is predominantly Muslim, the younger generation of the 31-year-old Pattani United Liberation Organization (PULO) is becoming more inspired by Indonesian and Arab militants. Philippine Separatist Islamic groups have hosted terror-training camps for militant groups from Indonesia and Malaysia for at least 7 years. While reforms have progressed toward undercutting extremists, danger of instability persists.

China's growing regional power is palpable. In the next 5-10 years, China will extend its regional economic and diplomatic influence. Most countries in southeast Asia see China not only an economic threat, but an economic opportunity. A recent Thai banking survey showed that 76 percent of respondents considered China to be Thailand's closest friend; only 9 percent chose the United States. In Laos, Burma, and parts of Cambodia, businessmen are making China's Renminbi yuan the region's second reserve currency; the U.S. dollar is the primary currency. Implications of this new influence may have significant long-term effects.

Potential Wildcards

- Islamist membership surges due to a population shock (economic collapse or natural disaster); and
- Military or terrorist event in the Strait of Malacca.

East Asia

China's influence in trade and diplomacy has grown throughout east Asia in the last decade. A high priority for China, it is expected that this trend of cultivating economic and diplomatic relations will continue, with China's reach expanding beyond the region over the next ten years. In addition, China's rapid military modernization has caused concern for its neighbors. It is likely that China's regional clout will grow due to its expanding economic, diplomatic and military power. At the same time, it is likely that the east Asian region will seek to contain some of China's expanding presence to protect its interests.

As part of its strategy to unify Taiwan with the mainland, China fostered a closer economic relationship with Taiwan. As a result, there is an immense amount of official and unofficial economic activity between China and Taiwan. Hundreds of thousands of Taiwans now live and work in China, where the island's companies have invested an estimated US$100 billion. Two-way trade has grown more than ten-fold, reaching US$61 billion last year; China is now Taiwan's largest export destination. Despite a growing economic relationship, friction remains between the two countries with issue of Taiwan independence being the main contentious issue. China's military modernization, Chen Shui-bian's pro-independence agenda, a rise in "Taiwanese" ethnic identity, and the possibility of U.S. involvement in a cross-strait conflict, all contribute to a complex and potentially volatile environment.

China's relationship with Japan is also defined by deepening economic ties and periods of tension. In 3 of the last 4 years, Japan has been China's biggest trading partner. Last year, China became Japan's biggest trading partner. Japanese businesses employ one million Chinese through foreign investment. In 2004, China received US$6.25 billion in direct foreign investment from Japan. However, China's diplomatic relationship with Japan has not been as positive. Spring 2005 was a particularly tense period as the decision by the Japanese Prime Minister Koizumi to continue with visits to the Yasukuni War Shrine invoked mass protests within China against Japan. This incident highlights one of the most contentious issues between China and Japan: historical animosity over Japanese war crimes during WW II. Japan is concerned with China's rapid military modernization. Similarly, China is concerned with Japan's tightening security relationship with the United States. Adding to Chinese concern over Japan's tightening security relationship with the U.S., in a joint statement with the United States, Japan declared that Taiwan is a mutual

security concern. An additional area of friction is the Senkaku/Diayutai islands dispute. These islands straddle a key SLOC, may possess natural resources and would expand fishing areas.

Equally complex, the Koreas present another dilemma for China. China's economic and diplomatic relationship has also significantly grown with South Korea. China's position on North Korea is complex. While China does not want North Korea to attain a nuclear capability, she does not want North Korea to collapse either. A divided Korean peninsula is in China's short to mid-term interest for the following reasons: massive flow of refugees over its border; a disruption in its trade with South Korea; and the potential of an expanded U.S. presence on the peninsula. Through the six-party talks, North Korea presents an opportunity for China to increase its diplomatic clout. It is likely that China will continue supporting North Korea with economic aid while working to reign in its nuclear aspirations.

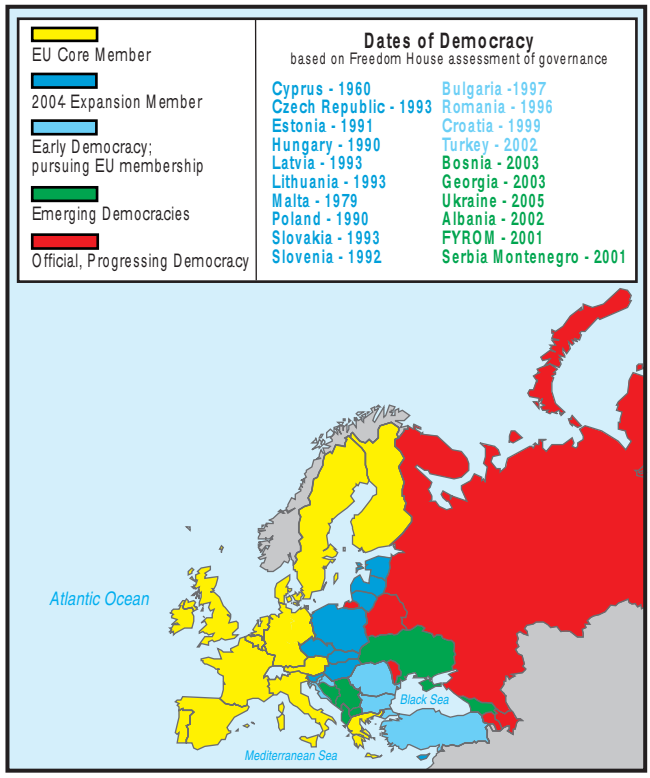
As China becomes more closely integrated with the region, an economic crisis or massive political instability within China could have dire consequences for east Asia. The potential for these scenarios exists over the next 10 years. Accordingly, there is a sense among the countries of east Asia that while relations with China are important, relations with the United States also need to be fostered, as well. Inspired in part by China's program of military modernization, there seems to be a certain level of mistrust of China among east Asian countries. Ultimately, this perception may hinder China's aspirations in the region.

Potential Wildcards

- An economic downturn destabilizes China;
- Chinese attack on Taiwan;
- Collapse of North Korea; and
- North Korea takes an offensive action.

EUROPE

Europe in the mid term will struggle with new democracies, shifting demographics, and the war on terrorism. How Europe handles these three issues will determine what kind of ally and force Europe will be.



European Democracies/EU Membership.

Since 1989, democracy has swept eastward through the region. The European Union (EU) has expanded from the original 15 to 25 members with another 10 countries hoping to join. From the beginning, countries such as Poland, Slovakia, Lithuania, and Romania have moved to reform, inspired by the prospects of EU membership. With some exceptions, the prospect of joining a stable, peaceful economic zone has encouraged good governance across central Europe. In the first days of the Ukrainian uprising, there was talk of EU membership. However, populations in western Europe are beginning to rethink this expansion. Without prospects of a greater EU, democracies that have yet to emerge or establish a foothold (like Albania) may lose the impetus for reform.

If western Europe pulls back, it will be due to its changing population. For the past 50 years, the United States and the nations of western Europe have been characterized as rich countries, sharing the same basic demographic features: stable populations, low and declining birth rates, increasing elderly population. In the 1980s, however, the two sides began to diverge.

The U.S. 2000 census illustrated that the population of the United States and western Europe are on very different paths. The United States' birth rate is rising, while western Europe's is falling. United States' immigration outstrips Europe's and its immigrant population has a higher birth rate than native-born Americans. The United States' population will soon be getting younger; Europe's is aging.

Behind this change lie demographic patterns with policy implications. The percentage of children in Europe's population is declining as the population ages. In 1985, United States and Europe had more or less the same proportion of the population younger than 14 years of age (around 20 percent). By 2020, the proportion of children in western Europe will have slumped to 13.7 percent. In the United States it will still be 18.6 percent. This may have long-term effects for European society, economy, and defense. Citizens see their generous social safety net being unwound by globalization when they need it most. Competition from younger, less financially stable eastern European countries may be less attractive. These realities will affect not just expansion, but also future security.

Europe's Muslim population is growing. Although many Americans misunderstand and are far-removed from Islam, its presence is more prevalent in European countries. The 15 million Muslim citizens of the EU (five times as many as live in the United States) are becoming a political force. Nearly two-thirds of this population resides in France and Germany. This demographic may help explain the notable difference between continental Europe's stance on the Middle East and that of the United States.

Europe's Muslims are transplants from various countries, who display diverse religious tendencies, but share one common denominator with the Muslim world: their sympathy for the Palestinians. Unlike most of their Middle Eastern counterparts, growing numbers of European Muslims can vote in legitimate elections. These outcomes affect European policy toward the United States and the Middle East.

Europe's failure to fully and carefully integrate immigrants into their society has created a cultural clash. Further, terrorist attacks in Spain and hate crimes in the Netherlands have rattled European perceptions of Islam and their own commitments to liberal immigration policies. While politically, the EU is forced to take notice of the Muslim minority, Europeans may turn more inward and defensive versus the American policy to act offensively. U.S. counter terrorism policy may put increasing pressures on the transatlantic alliance.

Potential Wildcards

- 1,000+ casualty terrorist event in the EU changes its perspective on offensive operations;
- Persistent small Islamic attacks create widespread anti-Islamic movements in the EU reinforcing perceptions of a clash of civilizations with the West; and
- Tightening of EU membership stalls democratic movement in Belarus, Ukraine, and the Caucasus.

EURASIA

Peaceful revolutions in Georgia and Ukraine have shown Eurasia that democracy is possible. However, the region has a volatile mix of valuable resources, bad governance, and Islamic extremism. Much of the instability in Central Asia and the Caucasus is the result of the break up of the Soviet Union and the legacy of Soviet policy that dispersed ethnic groups across borders to prevent secessionist movements. Governments in the region are largely authoritarian, and generally demonstrate little interest in improving overall living conditions of its citizens. Declining government services have decreased living standards. Additionally, disputes over oil reserves in the Caspian Basin have created competing political and economic interests in the region. The growing youth population, drug trade, and rise in insurgent groups may also contribute to creating an atmosphere ripe for conflict. U.S. military presence is likely to increase in the region to assist in containing terrorist operations that may spill over from Afghanistan and Iraq.

The most significant success in the region has been the completion of the Baku-Tbilisi-Ceyhan oil pipeline from the Caspian Sea to the Mediterranean through Azerbaijan, Georgia, and Turkey. This is seen as one of the most important oil pipelines in the world because it links the West to the newly discovered Kashagan oil field off the coast of Kazakhstan. Kashagan is the largest oil field discovery in the past 20 years.

Another central Asian threat comes from a mixture of despotic leadership and expanding trans-regional terrorist movements. Heavy-handed dictatorships in Uzbekistan, Turkmenistan, and Tajikistan may be encouraging Islamic movements that use popular discontent to further their ambitions. The remnants of the Islamic Movement of Uzbekistan (IMU), an al Qa'ida affiliate, have been the most dangerous. Much of the group's support was killed in Afghanistan; however, the IMU will likely regroup in the near term. The remaining IMU faction has been linked with other regional groups such as the Mujahidin of Central Asia Group, led by former IMU members. Many of the members graduated from the same training camps in Tajikistan, Pakistan, and Afghanistan before 11 September 2001. Another fundamentalist Islamic movement, the Hizb ut-Tahrir al-Islami (TB), seeks implementation of pure Islamic doctrine and the creation of an Islamic caliphate in Central Asia. By one estimate there are more than 10,000 followers in the region. Several local governments have banned the organization and jailed many of its adherents.

While these authoritarian regimes concern the United States, China has encouraged partnership with these governments though the Shanghai Cooperation Organization (or SCO). Crackdown on extremists helped cut the ties that China's Muslim Xingjian population had to the region. China has also made significant moves to secure resources across the region, including in Kazakhstan and Uzbekistan.

All of these factors contribute to Russia's power decline in Europe and central Asia. Moscow still attempts to influence it, though it is losing power. Russia will continue to pursue its development of a heavy-handed, centrally controlled democracy. Demographic pressures and the population decline in Russia may undermine its potential as a nation.

Potential Wildcards

- Increased competition for oil creates friction;
- Central Asia is destabilized by revolutions and Islamic extremism; and
- Aging authoritarian regimes clash with globally connected democratic movements

LATIN AMERICA and the CARIBBEAN

Latin America's corruption, crime, income disparity, and economic reform will continue to challenge its governments. Globalization has also made many in the population apprehensive. Financial collapses of Mexico and Argentina in the last 10 years have made populations wary of what many see as the American system. Ultimately, improving civil-military relations, governance, and creating economic growth will be key to maintaining stability.

Poor governance across Latin America has made its population desperate for change. These feelings have created a significant political trend. In South America, many are voting old-line conservative parties out and granting power to untested leftist parties and outsider political figures. In Mexico, a leftist party that has never governed nationally leads the polls in the 2006 presidential race. With the exception of Venezuela, these new governments are not taking extreme economic measures (such as nationalization) and appear to be progressing toward democracy. However, many reflect growing Latin American attitudes of suspicion toward the United States because many of the old parties had been supported by the United States.

The U.S. labor market is one of the most important assets to Latin America. The economic influence of migrants (legal and illegal) is undeniable. The Inter-American Development Bank estimates that migrants sent more than US$45 billion to Latin America and the Caribbean last year, exceeding foreign investment and official development assistance for the third year in a row. Mexico received some US$17 billion in remittances, almost twice what it received 4 years ago. Immigration is the lifeblood of many hometowns across the region. Smuggling (humans, materials, and drugs) is a lucrative business. However, this growing black market and its associated crime is threatening to undermine many Latin American countries.

The newest threat to Latin America stability comes from an unlikely source: youth gangs. Although estimates vary, experts believe that there are now nearly 100,000 gang members across Central America and Mexico. In 2003, the United States deported more than 2,100 immigrants from the Dominican Republic with

criminal records and nearly 2,000 from El Salvador. The U.S. government does not track how many of these criminal deportees are gang members, but many Latin American states see a connection and report gangs are now one of the biggest threats to their national security. The countries that receive the deportees are usually ill equipped to handle the large number of returning gang members. In 2003, Honduras, El Salvador, Guatemala, Panama, and Mexico agreed to work together to find solutions to the challenges gangs pose. Gangs, such as Mara Salvatrucha -13 (MS-13) which has had hundreds of members deported, continue to illegally migrate back and forth, often carrying goods or people.

Many fear that gangs are now linked with drug cartels. Gangs such as MS-13 have been implicated in massacres that authorities describe as a means of intimidation by drug cartels from Colombia and Mexico. Officials suspect that the youth gangs are now acting as professional killers and couriers for the drug cartels. If true, an alliance between the desperate, populous Central American youth gangs with the power and wealth of the drug cartels would be significant. This may mean that Honduras, one of the poorest countries in the Americas, would fall to criminal syndicates.

The Latin American drug trade into the United States will continue to center around Columbia and Mexico. Numerous smaller cartels and independent traffickers have replaced the large Medellin and Cali cartels, complicating efforts to reduce trafficking because these groups work in teams of 10 to 20, adopt conservative lifestyles, and use legitimate businesses as fronts. As of mid-1998, the Colombian police counted some 43 independent trafficking groups. In Mexico, the drug trade is beginning to undermine the legitimacy of the state. Increasing drug violence, much of it near the U.S. border, coupled with increasing evidence of government corruption has worried Mexico's elite. Mexico's growing lawlessness and key role in smuggling illegal goods and humans into the United States, makes it a growing national security problem. It is only a matter of time before terrorists use these corridors to come into the country.

International Islamic terrorism has a presence in Latin America. The tri-border area (the region where Argentina, Brazil, and Paraguay meet) is an unlikely area for future planned operations for several reasons. The economy of this tri-border area is dominated by smuggling contraband, pirating music/software, and laundering money from cocaine sales. Much of this illicit money has been used to support anti-Western terrorist groups throughout the world, including Hizballah and HAMAS. Because of this, operatives are careful not to attract too much attention. Argentinian officials believe that planners may have moved to the remote jungles of Brazil; to Brazil's financial capital, Sao Paulo; and west, to the free-trade zone of Iquique in Chile's northern desert.

Terrorism is a concern for Latin American countries. However, domestic terrorism is more related to crime and insurgencies than international *jihad*. Bombing campaigns in Bogota and gang-related massacres in Honduras were intended to create fear and intimidation. This type of terrorism is used to cast doubt on the legitimacy of the state, and will continue to be the most dangerous form of warfare to Latin American governments.

Relations between the United States and Venezuela have been deteriorating. President Hugo Chavez blames the United States for the coup attempt against him in August 2002. Chavez's alleged support of FARC insurgents and ties to Cuban dictator Fidel Castro have further strained relations. Venezuela is vital to world energy markets; it holds the largest proven oil reserves in the Western Hemisphere (77.7 billion barrels) and ranks fifth in the world. Oil accounts for about half the government revenues, and the United States is the single largest consumer of Venezuelan petroleum. President Chavez's efforts to nationalize and his proposed land reform are only possible with the income of higher gas prices. Without oil income, Chavez actions would be economically devastating.

Venezuela is also becoming an agent of instability in the region. In Venezuela, the Chavez administration has created paramilitary groups called the Bolivarian Circles. They are used to repress the opposition and serve as watchdogs of his movement. These groups routinely threaten, beat, and kill political opponents. In addition, Venezuelan officials are accused of providing operational support to FARC elements operating along the Colombia-Venezuela border and ignoring their

presence in Venezuela. Venezuela's recent order of 100,000 AK-47s has made many nervous. Bolivia was thrown into chaos by radical protesters, who want the country's gas industry nationalized. The United States believes that elements of Bolivia's opposition are supported and financed by Venezuela's government.

However, instability affects not just those countries related to Venezuela. In April 2005, Ecuador's president was deposed by congress amid growing protests, and in Haiti a UN mission is struggling to organize an election amid gang warfare and kidnappings. Insurgencies continue to threaten Colombia.

Marines can expect to support counter drug and insurgency efforts to foster strong democracies in the region. With its poor governance and corruption, Latin America will continue to face challenges of crime and poverty.

Potential Wildcards

- Growing crime gangs destabilize Central America; and
- Homeland terrorist attacks conducted with LATAM criminal assistance.

MIDDLE EAST and NORTH AFRICA

Although U.S. interests in the Middle East include oil and terrorism, it will likely be the issue of governance that defines the future stability of the region. It is not a good time to be an autocrat in the Middle East. Since the colonial period, kings and "national liberation" parties that took power have clung ruthlessly to office. This power is now effectively under attack from all sides.

Muslim extremists, spurred by the GWOT, are clamoring to gain Islamic states; while an increasing youth population, disenfranchised with stagnant economies and empowered by access to satellite television, cell phones and the internet have grown increasingly restless. Middle East governments, notably Saudi Arabia, Egypt, Iran, and Syria will continue to experience increasing internal challenges to their authority. Economic stagnation, government corruption, and poor human rights records will continue to characterize regional governments. Leaders do not want to lose power by introducing democracy. The United States and its Arab allies therefore will struggle in a sort of reform bargaining. Most of the region's autocratic governments, from the Arabian Gulf to Morocco, are now publicly supporting some means of political reform and democracy while straining in private to ensure that their version of democracy denies the people a means to dispose of the current leadership. This tension will likely create unexpected changes in governments that the United States cannot predict.

Frustration has arisen from dissatisfaction with the region's political economy over the past 30 years. Today, 20 percent unemployment or more is common. In Kuwait, Qatar, and UAE, per capita GDP has declined over the last 3 decades. Much of this stagnation is a result of overreliance on oil and a population explosion. Sixty percent or more of the Middle East's population is younger than 30. In the Gulf States, 43 percent of the population is younger than 15. Many of the young have turned their backs on the secular beliefs of their parents, since much of the modernization in the 1970s and 1980s failed to deliver economic benefits. These frustrations have highlighted the Islamic population's struggle to find its place in the era of globalization while creating an unpredictable backlash against modernity. Ironically, the tools of globalization have empowered this movement.

Nowhere else has global communication had such an effect on the power structure of a region. It is not lost on many that the satellite stations, such as Al-Jazeera, speaks more for the average person in the region than any government. The population of the Middle East can transmit ideas uncensored for the first time though web journals, home pages, and text messaging. Much of this will be anti-American.

The U.S. image in the Middle East is poor. Widespread beliefs that the reason for the invasion of Iraq was driven by oil from the onset, along with images from Abu Ghraib prison have significantly undermined future U.S. credibility with the population. Websites and satellite television have endlessly compared the images of the United States in Iraq with the other inflammatory issue in the region, Israeli military operations in Gaza and the West Bank. As such, new future

governments or regimes may keep their distance from the United States in the short term.

The security environment in Iraq is too dynamic to predict at this point. However, many will analyze the lessons of U.S. intelligence gathering and guerilla warfare tactics for the next 10-15 years. Failure to find WMD in Iraq will have a negative effect on future counter proliferation actions; the main beneficiaries of this failure will be Iran and North Korea. Due to extensive and detailed media coverage of the Iraq war, many countries are closely studying U.S. opposition tactics.

Iraq is also important to neighboring Iran and Syria as it is seen as a means to check U.S. power in the region. While neither country would like to see Iraq fall into civil war, both see benefits in the U.S. military being engaged in a prolonged battle against insurgencies. Both countries believe that if Iraq becomes peaceful, U.S. forces will then move to overthrow their regimes.

Iraq will also have a significant effect on the countries that are now seeing their populations join the insurgency against the United States. Jihadists, who come home from Iraq, will likely use their new skills to attack their own governments. This was the experience of Jihadists returning from fighting Soviets in Afghanistan. Governments of Syria, the Gulf states, and Saudi Arabia will have to face extremists who will attempt to continue their campaign at home, creating instability in already weakened regimes. The impact from Iraq will affect the political landscape for generations.

Regionally, Iran's power has strengthened as the Shi'a have been liberated in neighboring Iraq, and Iran-supported Hizballah has shown itself as a power player in post-Syria Lebanon. However, perceived threats from the United States will lead Iran to continue its nuclear program. To complete the program, Iran needs time. Open provocation with the United States is unlikely, thus, deterring Iran from continued funding and direct support to terrorist groups will remain difficult. Whether Israel will allow another regional nuclear power is questionable. However, public outcry from a unilateral Israeli strike against Iranian nuclear sites could create instability in the region.

Iran has a strong undercurrent of support for Western ideals. Any crisis, such as an earthquake or a major terror attack in Tehran, could create a massive desire to look to the West. However, any perceived hint of United States intent to overthrow the government would destroy pro-American sentiment instantaneously. Any change of government would have implications with Shi'a populations across the region.

Lebanon will continue its slow road to democracy. The recent evacuation of Syria (see Countries of Interest) from Lebanon has inspired many in the region. However, elections in 2005 gave a strong showing of a pro-Syrian presidential candidate shocked many who thought Lebanon would reject any Syrian influence. While he was ultimately defeated by a coalition, it is clear that Syria is not through influencing Lebanese political life.

No issue is more divisive in the Middle East than the Israel-Palestinian conflict. Israel's unilateral pullout from Gaza and consolidation of West Bank settlements with security walls may ease security problems. However, Israel will face strong internal dissent that might undermine that plan. The death of Arafat has opened a new path toward a two-state solution. With successful Palestinian elections, the Middle East peace process took its first steps in 5 years. However after 4 years of *Intifida* and Arafat's complete mismanagement of Palestinian funds, the Palestinian authority (PA) is still dangerously weak. The lawlessness in the territories during the *Intifida* created several armed factions that will not be co-opted easily.

The prospect of a Palestinian civil war should not be ruled out. Religious parties, such as the terrorist group HAMAS could gain power due to an image of not succumbing to corruption and being a provider of social services where the PA could not. With Israel pulling out of Gaza, HAMAS' stronghold, this will be the first time HAMAS will have the opportunity to legitimately hold political power. However, Gaza is distinct as being one of the world's most densely populated places and 75 percent of its population is younger than 30; governing Gaza could be difficult. If HAMAS is successful, it will likely strengthen religious parties in the West Bank. Some experts worry

that if HAMAS can take control in Gaza, religious movements might spread back into Egypt.

In the Gulf, Saudi Arabia poses the most significant risk to the United States economy and homeland. Saudi oil has given the kingdom influence both regionally and internationally. The United States had serious concerns with the Saudi population after 11 September 2001. Researchers and academic terrorist analysts have questioned if jihadists leaving Saudi Arabia for Iraq resemble the makeup of the 15 hijackers of 11 September 2001. If this is true, Saudi Arabia continues to have a problem exporting violent extremists from its middle class, which threatens not just the region, but the world as well.

Potential Wildcards

- Civil war in Iraq;
- Stable, sovereign democracy in Iraq;
- Revolution in Iran;
- Possible Israeli unilateral response to Iran nuclear program; and
- Saudi Arabia falling into extremist hands.

Appendix:
STATES OF INTEREST

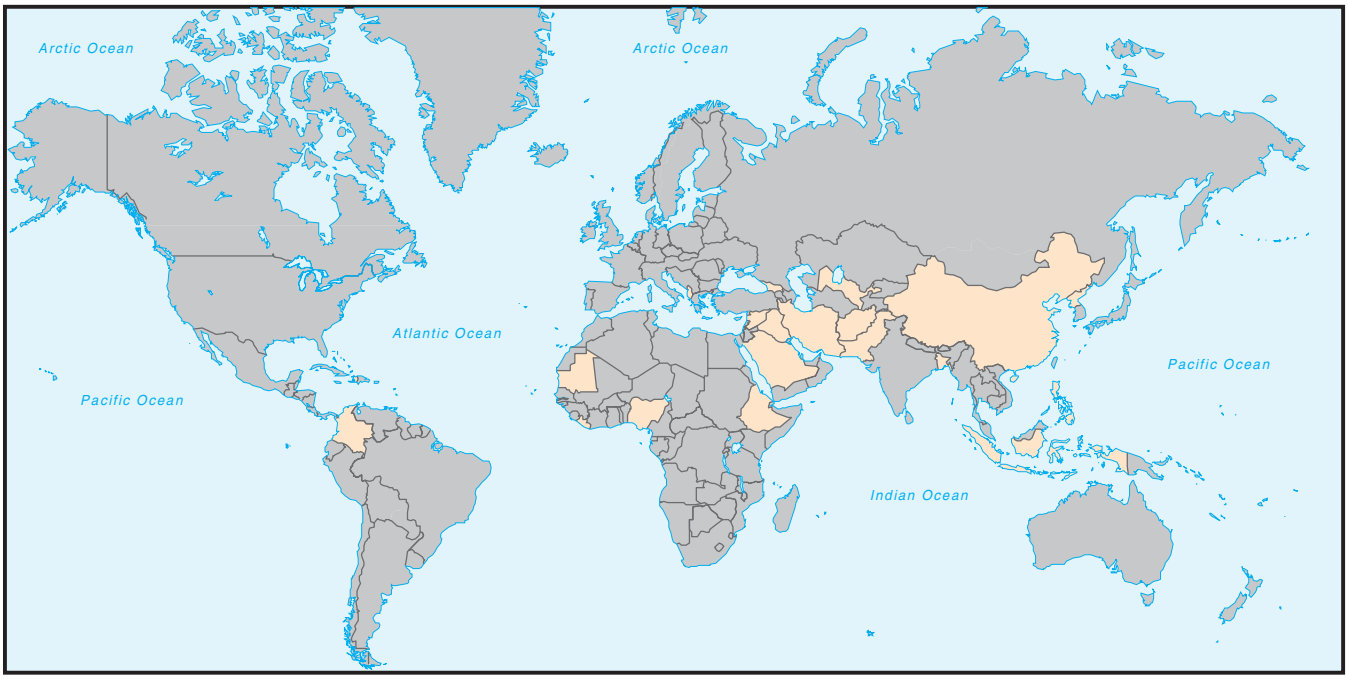
As the United States engages in the Global War on Terrorism, the U.S. Marine Corps engages in a spectrum on conflict. As illustrated by the major regional contingencies to which Marines have responded in Afghanistan and Iraq, to the more traditional humanitarian operations conducted in southeast Asia for tsunami relief, the Marine Corps must be prepared to respond to an array of contingencies.

The following pages list the 20 states of interest that represent a wide range of potential future security challenges for the Marine Corps. There are two components to each summary: a country write-up and a liklihood ranking of six Marine Corps missions. The country write-ups highlight the cultural, demographic, economic and political challenges facing many states and regions. The mission liklihood rankings are depicted by color-coded icons (quantitatively analyzed and ranked). These icons represent mission likelihood, based on an independent, data-driven methodology that assessed the conditions for possible Marine intervention or assistance in the selected countries.

Each country discussed in this section is a concern to the Marine Corps with regard to that region's stability; they are also illustrative of the previously addressed instability factors. Each country write-up highlights the issues that MCIA analysts believe are creating growing concerns within each state, and in many cases, symptomatic of the region. This section is intended to provide a more specific look at some of the issues highlighted in the regional assessment. Independent of the analyst write-up, each country was quantitatively analyzed and indexed to judge the likelihood of Marine Corps missions, specifically:

- Major Regional Contingencies,
- Counterinsurgency Operations,
- Combating Terrorism,
- Non-combatant Evacuation Operations,
- Humanitarian Operations, and
- Peacekeeping Operations.

In creating the liklihood ranking, the following methodology was employed to determine the likelihood

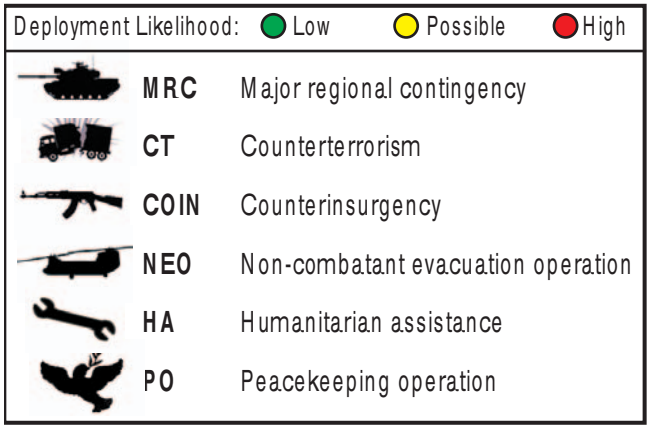


States of Interest

that U.S. Marines will be participating in each potential mission:

- A quantitative analysis, based on a survey data set, helped create a predictive index that ranked the likelihood of Marine Corps mission requirements for each country.
- An analysis of political considerations not captured by the quantitative index was incorporated.

A three-color system is used in this section to symbolize the relative likelihood of a mission type to be required: red (likely), yellow (possible), green (low). These indicators are meant as a secondary assessment outside of the analysis used in the text.

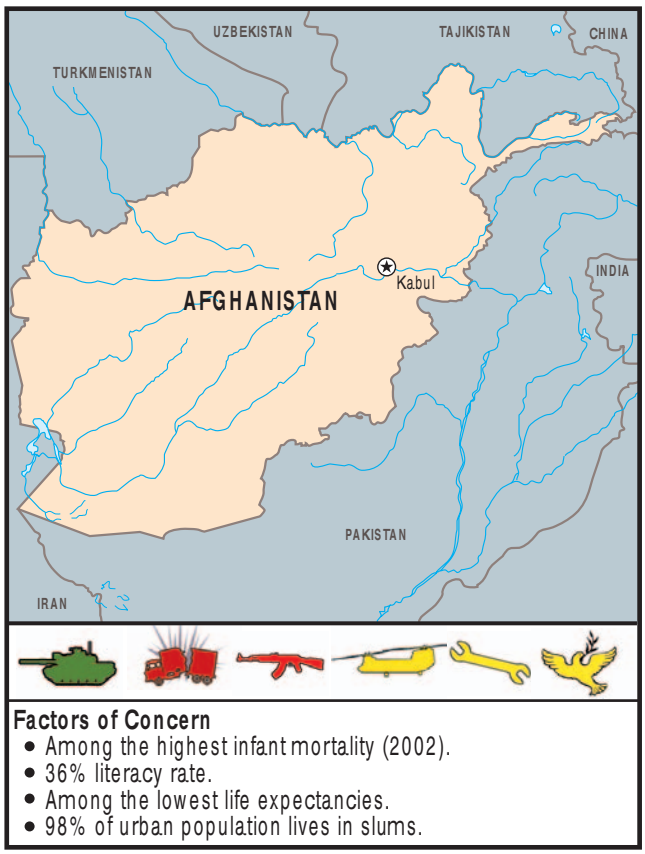


AFGHANISTAN

Afghanistan is supported by a combination of Western aid and Western drug use. While its population has made significant strides in creating a new government, decades of war and internal conflict have heavily damaged the infrastructure and left an abundance of small arms and explosives in the country. Warlords maintain substantial — and now constitutionally guaranteed — political influence over the central government; even though their military influence is waning due to the growing Afghan National Army. Nevertheless, insurgents are still actively targeting soldiers, aid workers and counter narcotic activities where possible. Afghanistan may be marginally better off than it was under the Taliban government, but Kabul still relies on external support.

The priority challenge to Afghanistan is drugs. As the world's top heroin producer, few elements of its society are not influenced by some aspect of the drug trade. Criminal networks have supplanted the agriculture system with poppy-based opiates and heroin, and the drug trade is intimately connected to the financing of the insurgency and terrorism. While poppy cultivation is down significantly this year, analysts remain skeptical that this indicates any long-term change. Many attribute the drop to new, inexperienced poppy farmers planting in unfavorable soil and in places too remote and inaccessible, even for drug traffickers. The drop could also be a form of market manipulation to create higher street prices. Afghani opium buyers are known for being savvy at manipulating the market in the past. While the Afghan government has progressed in its counterdrug effort, it must still balance internal economic realities with external counterdrug demands.

Drug funding allows warlords to finance personal and ethnic patronage networks without giving credit to the government. In the 3 years since the Taliban's demise, many people have been barely touched by the central government, and are instead exposed to factional violence, drug lords, and bandits. Nascent democratic institutions are still fragile, and their success depends on the survival and effectiveness of President Karzai. Any transition from Karzai leadership would be difficult, and his unexpected death could be catastrophic. Ethnic tensions still threaten Afghanistan's power



structure and could cripple the future national assembly, as well as slow progress toward becoming a pro-Western democracy.

In addition to internal ethnic discord, tensions persist with neighboring Pakistan and Iran. Many who live in the historically ungoverned Pakistan territory bordering Afghanistan are ethnically and religiously sympathetic to the Taliban and terrorists, for whom they provide a safe haven. This concerns the leadership in Kabul. At the same time, Afghanistan's historical claims to a greater "Pashtunistan" hamper improved relations with Pakistan.

The Afghan government cannot function without international humanitarian and coalition military assistance. However, this might become a liability as the government attempts to assert its control. In general, Afghans support the U.S.-led presence in the country, but are beginning to protest and campaign for troop withdrawal. The challenges for Afghanistan will be to remain stable, lessen its Western dependency, and continue to reject extremism.

ALBANIA

As Europe's poorest and least-developed nation, Albania has rampant corruption, a weak central government, and a failing infrastructure. Over the past 10 years, Albania has endured state failure, extreme poverty, and widespread violence. Although it has not experienced the ethnic conflict that undermined the rest of the Balkans, Albania continues to lag far behind its European neighbors.

Albania's economy failed in 1997, when thousands of Albanians lost their savings in fraudulent investment schemes. This led to public anger and rioting that caused the complete breakdown of Albanian society. A multinational military deployed to restore order, but successive weak governments failed to address Albania's problems.

Conditions worsened in 1998, when fighting between Serbs and ethnic Albanians broke out in neighboring Kosovo. The conflict resulted with millions of refugees fleeing to Albania, the Former Republic of Macedonia, and other states. The unresolved status of Kosovo has contributed to the instability in Albania.

The government has sought to reduce violent crime and spur economic activity and trade. Albania's economy has been growing at a reasonable rate. Inflation has declined considerably in the last few years and the Albanian currency has become fairly stable. Despite this progress, Albania's economic system is falling further behind the rest of the region.

The lack of economic opportunity has created a robust black market, with links to Russian and Balkan crime groups, making the country a hub of criminal activity in Europe. Albanian syndicates control a sophisticated smuggling channel that transports people, heroin, and cigarettes. The country's porous borders and sea routes to Italy (only 50 miles at the narrowest point) have caused all of Europe to focus on strengthening Albania's security and stability.

Albania must resolve its internal issues to have any chance at political and economic prosperity. Future flare-ups in Kosovo or Macedonia have the potential to drag Albania into chaos. While Albania will continue to make limited economic progress, it will remain Europe's weakest link.

Factors of Concern

- 25% lives in poverty.
- 18% has continuous electricity.
- One in six households has running water.

BANGLADESH

Bangladesh is often associated with natural disasters. Poverty, extreme population density, and Bangladesh's low elevation has made it susceptible to massive natural disasters that have required U.S. military humanitarian assistance and extensive international development aid. Bangladesh will likely continue to require humanitarian assistance.

In addition to concerns about natural disasters, many are troubled by the rise of radical Islam in Bangladesh. Bangladesh's moderate and secular traditions are being eroded through divisive governance. The government is dominated by two competing political dynasties with no history of peaceful transition. Animosities between these two parties have led to misuse of government power and government ineffectiveness, which has created a power vacuum, being filled by strengthening Islamic parties, particularly in the neglected countryside.

Religious opposition outside the two political dynasties is granted instant legitimacy. Bangladeshis often accept a religious identity and reject secular politics that are proving ineffective. Experts warn that this is the most dynamic catalyst for change in Bangladesh.

These trends led to fears that al Qa'ida's influence is growing in Bangladesh. While public evidence of direct al Qa'ida links is scarce, Bangladesh has shown tolerance to radical views. Two hard-line Islamic groups are members of the current coalition government. These parties support the Taliban and run Islamic religious schools in Bangladesh that encourage extremism and support for al Qa'ida. Both parties have links to the militant group, the Harakat-ul-Jihadi-al-Islami - Bangladesh (HUJI-B). HUJI-B was formed in 1992, allegedly with financial support from Usama bin Ladin. The group has an estimated 15,000 followers and reportedly recruits members from students of Bangladesh's more than 60,000 madrasahs (school for teaching Islamic theology).

Fazlul Rahman, leader of the *Jihad* Movement of Bangladesh was one reportedly of the five signatories of bin Ladin's 1998 fatwa, calling for *jihad* against the

Factors of Concern

- 40% literacy rate.
- 91% of renewable water resources originate outside the country.
- Highest population density in the world.

Jews and crusaders. Though few, these groups have had strong effects. The current coalition government, is unlikely to crack down too greatly on these movements for fear of initiating a transition to opposition rule, brought about by a minority, but decisive Islamic Party political influence.

The powerful urban middle-class resents the fundamentalists and dismisses them as irrelevant, and the government, which is heavily dependent on foreign aid, tries to contain the extremists to avoid upsetting relations with Japan and other powerful donor countries. However, Bangladesh's weak and incompetent government will continue to attract Islamic radicals from across Asia who seek training and refuge. Without action this could destabilize an already weak state.

CHINA

China presents a dilemma for the United States in that it must be viewed as both an economic partner and potential security concern. China's future course as either a partner or an adversary will largely be determined by the evolution of its nationalism and political-economic system. Global involvement will play a key role in both of these areas.

Nationalism is an intrinsic part of China's political and economic development. China's leadership uses economic growth as one of its primary levers of influence over the Chinese public. Without continued growth, the regime's stability and legitimacy would be threatened. Apart from an economic downturn causing internal unrest, there is an additional scenario that could interfere with the regime's ability to maintain economic health. China's current political-economic system is a delicate mixture of free-market capitalism, authoritarianism and socialism. Eventually, China's leadership will be forced to reconcile its restrictive political system with an open economic system; the reconciliation could be gradual and peaceful or abrupt and disruptive. The push and pull of an increasingly varied set of interests within Chinese society will, to a large extent, determine the pace of this process. Although many Chinese are benefiting from economic growth, there is a growing segment of Chinese society that feels disenfranchised.

Should economic growth stall, Chinese leadership will likely rely on nationalism to maintain control. Despite the political regime's efforts, communism has been undermined by capitalism. Along with increased economic wealth, there has been a rise in ethnic group identification and religious expression, as well as sparks of political expression. The sense that China will inevitably ascend to world-power status is another component of modern-day Chinese nationalism.

Chinese leadership uses nationalism surrounding Taiwan's reunification as another lever of influence. The legitimacy of the regime rests on its ability to reunify Taiwan with the mainland. In the view of the Chinese, reunification will optimally be achieved through

peaceful means. A forcible reunification would cause severe economic and diplomatic repercussions for China. If Taiwan's leadership were to declare independence, however, China would likely use military force against Taiwan. Given the significance that both the leadership and populace attach to reunification, the regime would be compelled to force Taiwan capitulation through any means necessary. An alternative scenario for using force against Taiwan is that China launches an attack to bolster nationalism in the face of massive internal unrest.

In the event of a cross-strait crisis, the United States would be faced with a potentially lethal Chinese military threat. Since the late 1990s, the Chinese have sought to modernize the People's Liberation Army (PLA) through a variety of means; acquiring more technologically advanced and mobile weaponry, developing an indigenous defense industrial base, a reevaluation of doctrine, a streamlining of the military, and improved professional military education. Most importantly, a fair mount of this modernization effort is geared toward exploiting potential U.S. vulnerabili-

ties. While China will face a number of stumbling blocks, it is expected that China's military modernization effort will grow, resulting in a force that is more capable and technologically sophisticated by 2015.

Globalization will, to a large extent, continue to drive China's actions internally and externally. In response to the demands of globalization, China's society and political system may become more open and transparent. Externally, China will likely continue to foster regional and global relationships.

COLOMBIA

Colombia is among the 10 most dangerous nations in the world. Its on-going civil war between the government, two leftist insurgent groups, and a growing paramilitary organization provide devastating numbers: 2 million refugees; 3,000 kidnappings per year (a world record); and more than 40,000 people murdered. Colombia's civil war is causing spillover into several neighboring countries, as well as the United States. While Colombia is afflicted by corruption, poverty, and a legacy of colonialism, the intense violence that Colombia experiences is funded by a drug economy that provides more opportunity to the rural poor than does the state.

Drug production is a driver for corruption and violence, and threatens to undermine the state. Colombia is the top supplier of cocaine to the world; 90 percent of U.S. cocaine comes from Colombia. Many in Colombia, from politicians to insurgents, are associated with drugs and its profits. Although official estimates of coca cultivation have fallen and the number of seizures has risen over the last 5 years, prices continue to decrease in Europe and the United States as worldwide demand grows. Improvements in logistics, productivity, and new growing areas may have compensated for aggressive eradication programs.

Drug trafficking has merged with the nearly 40-year-old civil war between insurgents, paramilitary groups, and the government. Of the three main warring groups, the Revolutionary Armed Forces of Colombia (FARC) is the oldest, largest, best-funded, and most internationally recognized and supported insurgent organization in Latin America. While its 17,000 members declare a

communist ideology, in practice, FARC has become a hybrid rebel/narco crime syndicate that challenges the definition of traditional insurgencies in Latin America. Its leftist ideals (and crime cash flow) has made it a regional actor with ties to indigenous dissidents in Bolivia, Ecuador, Peru, Paraguay, and direct government ties with Cuba and Venezuela. The FARC even has an international committee that travels to various countries to recruit, solicit aid, promote its cause, and widen its tactical knowledge. More than 65 percent of the FARC's funding is from drug cultivation and trade.

Bogotá's inability to stabilize the country has led to significant population displacements. Colombia's civil war has caused more than 2 million citizens to become

refugees. Human rights reports suggest that about 1,000 Colombians a day are forced to leave their homes and lands to save their lives. While many of these are internally displaced refugees, the porous borders with Ecuador, Venezuela, Peru, Brazil, and Panama, are attracting illegal crossings at an alarming rate. The poorer countries of Ecuador and Panama, whose chronic political and economic problems, coupled with their inability to police their borders, are especially vulnerable to increased economic and political instability caused by the influx of refugees.

Unless Bogotá quells corruption and strengthens government services, Colombia will lack needed legitimacy and its population will look to the drug economy for support and opportunity.

ETHIOPIA

Ethiopia is one of the most diverse countries, both geographically and culturally, in its region. Its population is exposed to ethnic and regional conflict, as well as crippling humanitarian problems.

Ethiopia is the only country in the Horn of Africa that borders every other Horn of Africa country. The numerous ethnic groups combined with porous cross-border relations has resulted in a complex mix of religions and identities. Ethiopia is evenly divided between Christians and Muslims; relations between the groups have generally been cordial. The government discourages religious extremism, but religious-ethnic tensions may be one failed-government away.

Significant cultural, political, and historical differences exist between highland peoples, who live in the heartland, and lowland peoples, who live in the southern and western parts of Ethiopia. To prevent the collapse of the state, a national party was created in which regime-sponsored regional ethnic parties are subordinate. Prime Minister Meles has promoted a policy of ethnic federalism to decrease ethnic tensions by delegating significant powers to 10 semi-autonomous regional, ethnically based, administrative regions with the hypothetical right of secession. Such decentralization might strengthen separatist groups such as the Oromo Liberation Front (OLF) and the ethnic Somali Ogaden National Liberation Front (ONLF) who have

violently championed their self-determination. However, even with this planned decentralization, succession groups will continue to be brutally suppressed.

Ethiopia has been susceptible to multiple terrorist attacks. Al-Ittihad al Islamiya (AIAI), a Somalia-based terrorist group determined to unite the Ogaden region of Ethiopia with Somalia, has been active in the country since the mid-1990s. AIAI, along with the indigenous insurgent groups OLF and ONLF, have carried out kidnappings, assassination attempts, mining of roads, and bombings of bars, hotels, and public buildings. While Ethiopia appears to have remained free from terrorist attacks instigated by Middle Eastern terrorist groups, suspected AIAI ties with al Qa'ida could lead to Middle Eastern group activity in the country.

Although terrorism is the focus of U.S. attention, the AIDS epidemic is of greater concern to most Ethiopians. Ethiopia, usually identified with famine, has the third highest number of HIV/AIDS infected people in

the world. An estimated 3 million adults are infected with HIV, with almost half these cases in the capital, Addis Ababa. Since 2001, 1.2 million Ethiopian children have lost a mother, father, or both. It is an overwhelming problem for a poor country with a primitive health care system and large population. AIDS will decimate key government and business elite, undermining growth and discouraging foreign investment. Conflict has only contributed to the spread of the disease in Ethiopia.

Ethnic strife, constant humanitarian crisis, and economic quagmires characterize not just Ethiopia, but the region as well. If basic quality-of-life issues are not addressed, Ethiopia, and many of its neighbors, will remain instable.

GEORGIA

Though Georgia has an ideal geography, climate, and natural resources, it has a history of centuries of conflict due to its religious and ethnic diversity. Its population is a mixture of ethnic backgrounds of people who have been dominated, at one time or another, by the Persians, Arabs, Turks, or the Russian empire. This has created multiple separatist regions with ties to regional actors. These factors establish a basis for future instability.

Many Georgians are prone to xenophobic attitudes, perhaps due to the country's repressed, violent history. Its rural mountainous regions are dangerous and its environment is harsh. The populace has existed as isolated clan societies for centuries. Conflicts between villages and travelers are violent and common.

Georgia is a developing democratic country that lacks democratic tradition. Its repressed past as a former Soviet republic is a major obstacle. Inadequate law enforcement has contributed to a rise in corruption and organized crime in government and non-government environments. In addition, economic conditions for Georgian citizens are worsening, causing additional pressure on the government.

Recent events have brought Georgia to the forefront of the Global War on Terrorism. The isolated Pankisi Gorge, located in northern Georgia, has historically

Factors of Concern

- Population declines an average of 1.04% annually (since 1992).
- Black market comprises 68% of economy.
- Russia will withdraw its troops/equipment from two bases in 2008.

been a safe haven for al Qa'ida-linked extremists using the porous borders to flee nearby Chechnya. The Russians have threatened to send forces into Georgian territory to flush out the Chechen insurgents, increasing regional instability. An ill equipped and undertrained Georgian military is unable to meet this challenge. Coupled with poor borders and contemptuous attitudes from the local population, controlling these areas has proven to be a failing effort.

Georgia's government has been too weak to establish territorial sovereignty. Separatist regions prohibit unification. In addition, outside countries, such as Russia, have impeded Georgia's progression toward political consolidation. This has economically affected Georgia and the region as needed pipelines for Caspian Sea oil are held up or reconsidered.

With new leadership and a close friendship with the United States, Many Georgians are hopeful. However, regional conflict and cultural differences will likely keep Georgia and the region from stabilizing soon.

HAITI

Haiti is a Caribbean country with West African problems. Most of its population can trace its roots to Africa. Everyday life revolves around a culture and history that resembles more the African continent than Haiti's Latin American neighbors. Its demographics and development also resemble Africa's. Measurements of poverty, youth population, and life expectancy all rank Haiti with most of Africa, in the lowest quarter of countries; this is true of no other Latin American/Caribbean country.

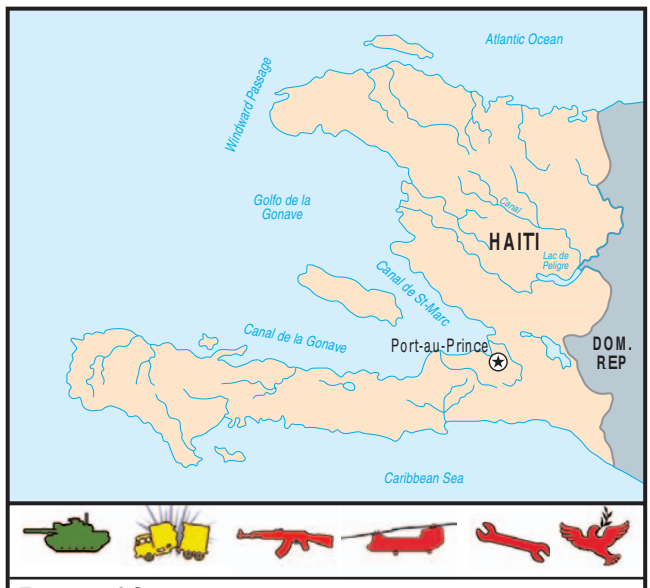
Improving Haitian life has proven nearly insurmountable. In the past 10 years, U.S. forces have intervened twice and spent roughly US$1.4 billion in nonmilitary aid, to little effect. Due to Haiti's seemingly perpetual crises, the possibility of U.S. force intervention and/or humanitarian aid to Haiti is highly likely.

Since gaining its independence in 1804, Haiti has been in political ruin. The Caribbean nation has lacked a functioning democratic government for the past 6 years. Coups and cronyism are the norm in Haiti, and these self-defeating traditions will likely persist. In March 2004, rebel groups, protestors, and opposition leaders removed then-President Jean-Bertrand Aristide from office in a rebellious change of government. True democracy will likely elude Haiti for decades.

Haiti security situation is chaotic. Armed gangs/rebels and former military groups control several of the capital's sprawling slums without fear of repercussions. The National Police is incapable of providing a safe and secure environment for its people.

Haiti is prone to violent hurricanes and earthquakes, which devastate the island's already poor infrastructure and have killed thousands. Overpopulation has led to deforestation, leaving the population vulnerable to the effects of flooding and mud slides.

Due to its numerous problems, Haiti will not likely find its economic footing regardless of how much aid the world pumps into the economy. External aid is essential in helping Haiti's future economical development, but is a hindrance to becoming a self-sustaining society. However, without external financial and military assistance, Haiti will remain in economic ruin.

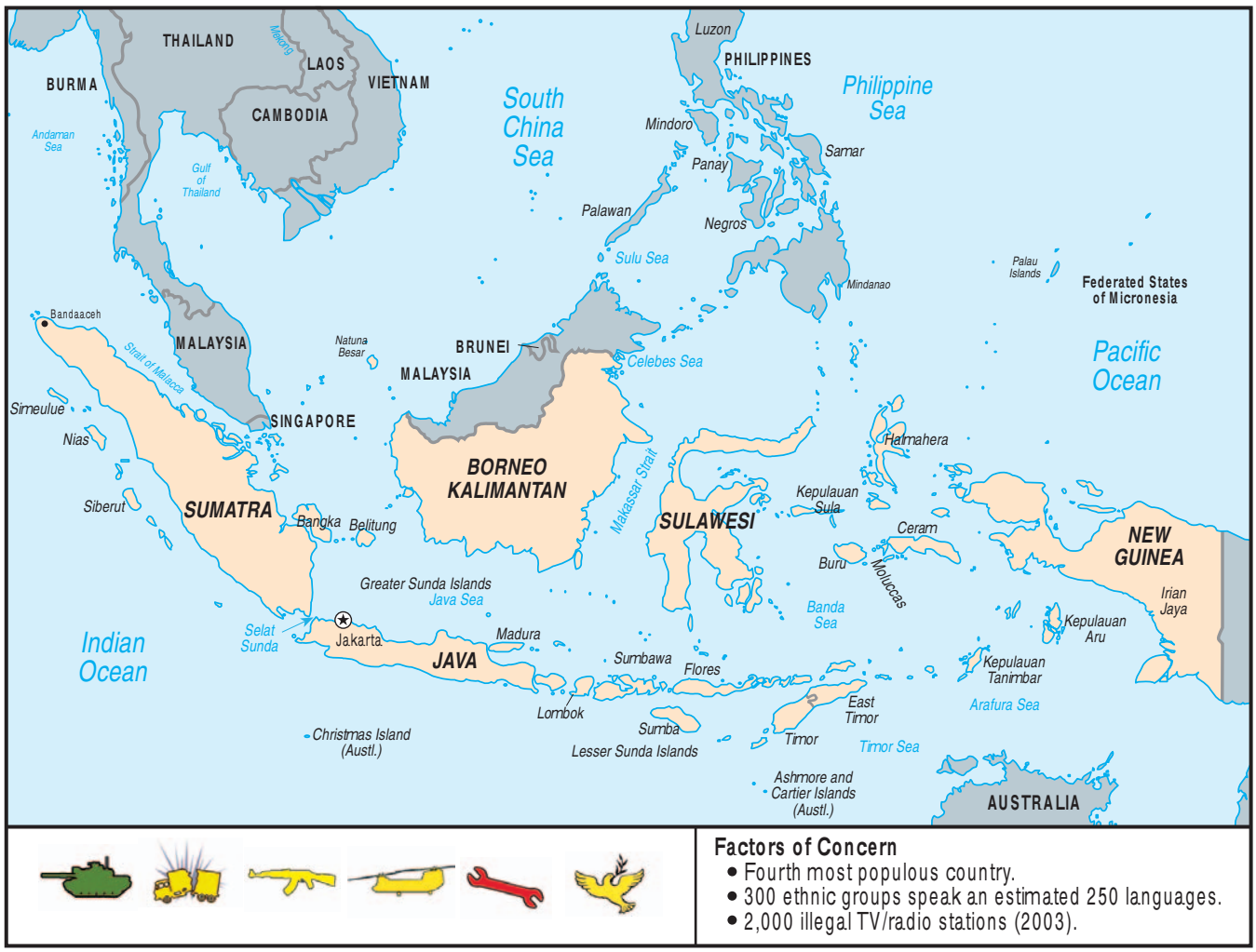


Factors of Concern
- 86% of urban population lives in slums.
- 73% is under 30 years-old.
- 75% of population lives on less the US$2 per day.

INDONESIA

The archipelago of Indonesia does not lend itself to easy governance or security. The country stretches for 5,200 kilometers (3,200 miles) from west to east—further than from Los Angeles to New York, or from London to Baghdad. The archipelago contains more than 17,500 islands. This makes border control next to impossible. While the country is predominantly Muslim (the largest Islamic population in the world), Indonesia is home to myriad ethnic identities who speak several different languages. Quality of life varies radically across the archipelago. Some provinces have average incomes 12 times higher than others. Life expectancy can vary by 13 years from one island to the next. The population is transitioning to a democracy while it recovers from economic collapse.

Over the past 6 years, Indonesia has undergone a remarkable transformation from near-dictatorship to democracy. Despite this, Indonesians have little to show for it. Since the economic collapse in 1996 and the movement to democracy in 1998, Indonesia has benefited from only half the growth rate it averaged



Factors of Concern

- Fourth most populous country.
- 300 ethnic groups speak an estimated 250 languages.
- 2,000 illegal TV/radio stations (2003).

under dictatorship. At the same time, the unemployment rate has nearly doubled. Economists estimate that another 30 percent of the workforce is underemployed. These figures are climbing steadily as some 2 million young Indonesians enter the job market yearly.

The newly emerging democracy has not yet thoroughly overcome the traditions of corruption and ineffectiveness. This feeling that progress has stalled is leading many, once secular, young Indonesians to radicalize, and some liberal Muslims to turn orthodox. Indonesia's social environment is ripe for recruitment by non-state insurgent/terrorist groups who promise opportunities the state failed to deliver. Violent groups (such as separatists in Aceh and Jemaah Islamiyaah), use the population's economic, political, and social frustrations to support their antigovernment agenda.

If democracy fails, an ill-governed and impoverished Indonesia might inevitably export terrorism, piracy, pollution, instability, and illegal immigrants to its neighbors. It would also disrupt shipping in the Strait of Malacca, a transit point for a quarter of the world's seaborne trade.

IRAN

The government of Iran feels threatened. Internally, calls for economic and social reform are increasing despite the efforts by the government to improve the economy. Externally, the United States and its allies hem in Iran. The defeat of the Saddam Hussein's regime removed a threat to Iran, but replaced it with a subtle, more powerful threat in the form of a fledgling democracy. The strengthening democratic government

Factors of Concern

- 52% of those aged 15-29 could be unemployed by 2007.
- 1.3 million refugees.
- 10% has access to the Internet.

in Afghanistan similarly threatens the Iranian conservatives by serving as an example of the possibilities of democracy. The West is also pressuring Iran's allies, like Syria. Surrounded and almost completely isolated, Iran is digging in, expecting to be the next U.S. target. However, Tehran has a more immediate problem — the survival of its theocratic governance.

Demographically, Iran is a young country. In a population of 70 million, most (two-thirds) are younger than 35 and, of those, almost half are younger than 14. Though the economy grew 6 percent in 2003, unemployment remains a problem. Sixteen percent of the people is officially unemployed, though the real figure may be higher. At about 17 percent, inflation is rising faster than wages. Though necessities, such as bread and potatoes, are heavily subsidized, many of the urban poor, whose monthly minimum wage is around $12, are in dire situations. It remains to be seen how long a small group of aging clerics can impose its will for a radical state on a predominantly educated society where 70 percent of the population has no memory of the 1979 Islamic revolution.

Maintaining regime legitimacy is, and will continue to be, a problem. The 2004 elections resulted in a victory for the conservatives, after the Council of Guardians disqualified most of the reformers. As a result, only half of Iranians voted in the election, while not much more than a quarter of those in Tehran (population 8 million) turned out. In contrast, the 2000 election had a 70 percent turnout. Western diplomats estimate that barely 15 percent of Iranians still support the ruling order and a lifetime-appointed Supreme Leader.

Global communications are also affecting the population. Unlike the Arab Middle East, who are seeing change led by Gulf State media channels, Iranians are being bombarded by Farsi programming from the world's largest Iranian community outside of Iran: Los Angeles. The Iranians have also embraced the Internet with online web logs (or blogs). From only a handful in 2001, there are now an estimated 75,000 blogs; Farsi is now the fourth most popular language for keeping online journals. Such journals have been key in organizing everything from earthquake relief to the 2003 student protests. In a state that routinely shuts down papers and journals, this forum for anonymous online discussion has made the clerics understandably nervous and has created its own crackdown movement.

Whether secular or theocratic, Iranians are united in their desire for the country to be acknowledged as a leading power, even *the* leading power, in the area. Nuclear ambitions fit into this goal. With Pakistan, India, and Israel all being nuclear powers, Iran sees it insulting that the world believes Persians' should not be allowed to have nuclear weapons. The clerics also see it as the only means to deter a U.S. invasion and buy some time to undermine internal dissent. However, it would be a mistake to believe that nuclear ambitions would evaporate with the removal of the clerics. Nuclear weapons are not an Islamic goal but an Iranian goal.

Currently, the government opposition seems to be stalled. High oil prices have allowed the cleric class to buy off enough critics or send them abroad. If the price of oil dipped significantly, for example into the US$20 range, anger and frustration would likely again bring people out on the street. However, growing disillusion and knowledge of opportunities online may overwhelm the influence of petrodollars. The clerics who rule from the revolution know that their power might die by a revolution.

IRAQ

The outcome of war in Iraq will affect the region for generations. Creating a stable and sovereign Iraq will be a challenge for Baghdad's new leaders. The newly forming government must establish a successful election process, combat terrorism, form a military, address Kurdish autonomy issues, and serve as a central front for jihadists fighting the United States and the West. Iraq must rebuild itself from the ground-up including its own national identity. Today, the new government is struggling to include all ethnic/religious entities, address each of their key points of interest and maintain the political structure. These difficulties are compounded by factions that are not always concerned with the best interests of the country. This precarious process of rebuilding basic governance while fighting a bloody insurgency will likely keep Iraq fractured and unable to assert its full sovereignty.

A weak central government is in the Kurds' best interest. Kurds will exploit their current position as the second largest voting bloc in the Transitional National Assembly, to maximize leverage for their own agenda. The Kurds have not given up on autonomous control of a greater Kurdistan in northern Iraq and possibly areas of Iran, Turkey, and Syria. Kurdish autonomy in northern Iraq can lead to conflict with one or several of these countries, particularly Turkey.

The Sunnis may accept their minority status, renounce their claim to hegemony, isolate the more extremist and terrorist elements in their midst, and cooperate with both the Shiites and the Kurds in the rebuilding of Iraq. Equally as likely, however, the Sunnis will continue using violence and make the formation of a legitimate, cohesive Iraqi body an unobtainable goal.

The need for security will ultimately spur ethnic cooperation and determine the outcome of Iraq. The Iraqi security forces must first be able to maintain internal security to assure the population that they can defend against insurgency and terrorism. The Sunni-led insurgency has so far shown exceptional resilience, frustrating both Coalition and Iraqi authorities. The Shi'ite population has relied on the fledging government for security; however, it is unclear how long this will last.

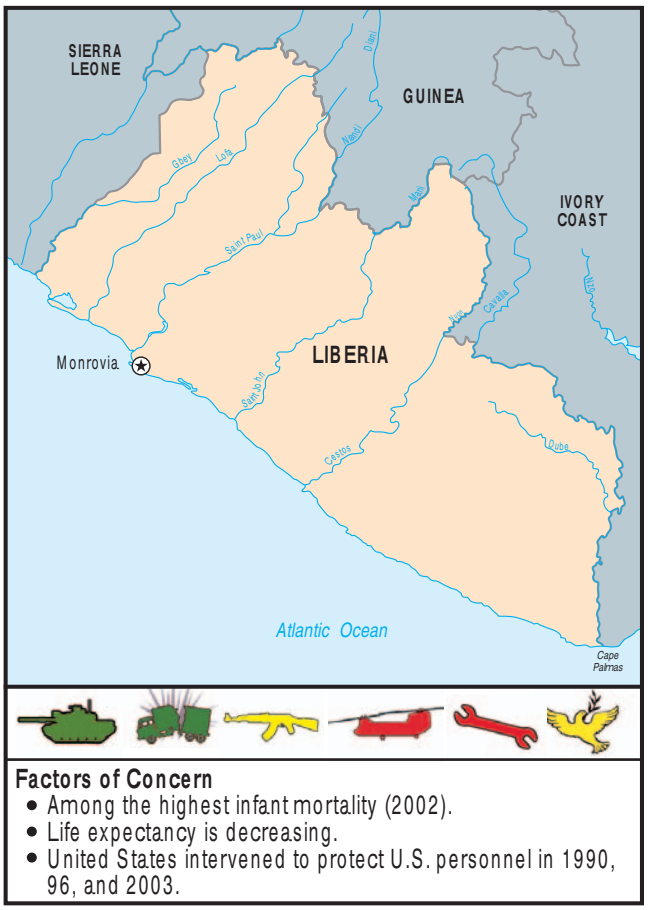
Widespread Shi'ite on Sunni violence has been avoided so far due to quiet cleric support of the elections and leadership from Najaf. If cleric support shifts, Shi'ite militias could spiral the country into civil war over resources and past grievances. Foreign intervention and massive aid assistance are no guarantee of future stability.

Even if security is achieved, Iraq will need to protect itself from neighbors ready to influence its politics. Potential long-term U.S. basing will be highly unpopular with many Iraqis and the region. In the short term, oil resources will likely distort Iraq's economic development and be a source of internal corruption.

LIBERIA

Liberia is at peace, for now, ending 14 years of civil war in 2003. Africa analysts wonder how long Liberia can remain calm. The fundamental flaws that pushed Liberia into failure persist and threaten not just the country's progress, but the region's as well.

Over the past few decades, Liberia has been in constant turmoil and its conflict has affected neighboring states. U.S. Marines have deployed to the country several



Factors of Concern

- Among the highest infant mortality (2002).
- Life expectancy is decreasing.
- United States intervened to protect U.S. personnel in 1990, 96, and 2003.

times to evacuate Americans, provide humanitarian assistance, and help African peacekeepers.

Liberia is rich in resources. However, its wealth has not been used to improve the lives of its citizens. Proceeds from the country's rubber, iron ore, exotic timber, diamonds, and expansive merchant ship registry have been funneled into the bank accounts of Liberia's elite. Charles Taylor, the notorious former president, referred to these national assets as his pepper bushes: always there for the picking. Unparalleled corruption remains systemic to the population, not just the politicians.

Years of bloody tribal conflict have pitted the country's 17 ethnic groups, in various combinations, against each other. They will continue to cling to these old rivalries until new national institutions emerge. Tribal violence will increase as different groups jockey for power. The prolonged fighting has created a population of brutal fighters that will be hard to reintegrate in the long term. Despite an extensive UN peacekeeping mission, young Liberian soldiers with few peacetime skills, remain a threat to the greater region.

War has also created a refugee problem. The latest fighting caused a torrent of refugees to overwhelm Monrovia. A city of 250,000 in 1993, its population grew to more than 1.5 million by 2005, creating a quagmire of squalor, crime, corruption, and ethnic violence. Further instability will likely push more people into Monrovia, a city already at the breaking point.

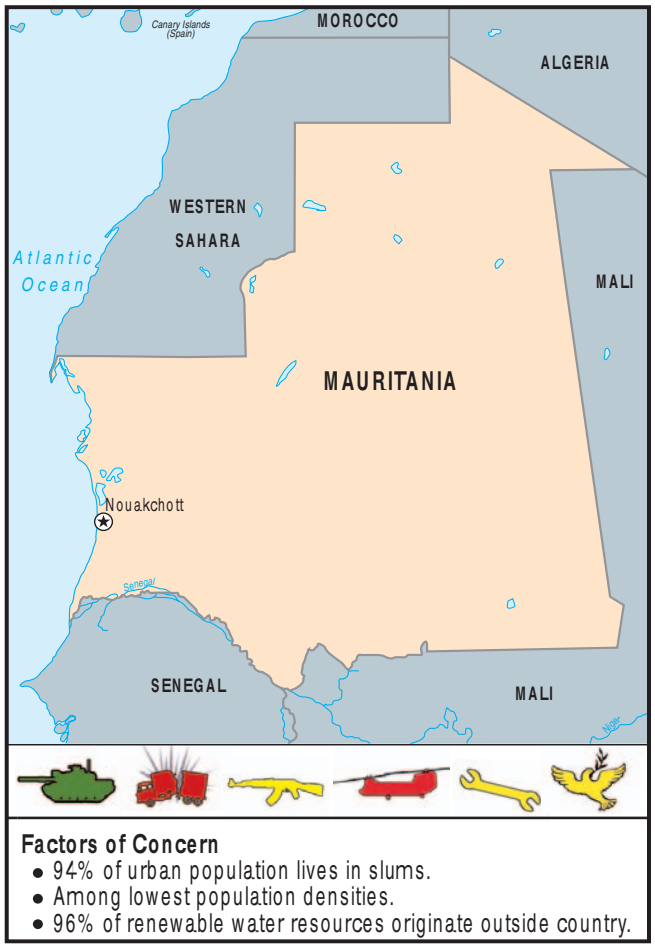
Conflict threatens Liberia's chances at stability. A democratic government has yet to be elected. Roads are still impassable when it rains. Hospitals and schools are in ruins. Sanctions on diamond and timber exports have yet to be lifted. Soldiers have yet to be demobilized. Former rebels have yet to be reintegrated. The populace continues to rely on UN peacekeepers and international aid workers for protection and basic needs.

MAURITANIA

The Global War on Terrorism has made Mauritania a new ally of United States. However, with three coup attempts in the last 2 years, Mauritania's support may be brief. Mauritania's instability can be attributed to an unpopular leader, economic hardships, and ethnic tensions. Each of these factors ensures that terrorists will continue to use Mauritania as a safe haven.

The autocratic government that has brought Mauritania closer to the West could fall at any moment. Mauritania's president has traded his public support for a friendship with the United States and Israel. The angry Muslim population and disgruntled military show no signs of forgiving President Taya; more coup attempts will likely occur. The next president will most likely be more radical and less cooperative in the Global War on Terrorism.

Mauritania's instability is a result of economic stagnation. A combination of a lack of economic diversity, governmental corruption, high unemployment, increasing poverty rates, urbanization, and transforming arable land to desert have made Mauritania one of the world's poorest countries. Mauritania's capital, Nouakchott, was originally built for 30,000 people and



Factors of Concern
- 94% of urban population lives in slums.
- Among lowest population densities.
- 96% of renewable water resources originate outside country.

now houses almost a million, many of whom live in dire poverty. Due to Mauritania's harsh desert climate, thousands of people who once were able to live off the land are now forced to move to overcrowded urban areas where they often have no place to live and no money. While oil was discovered offshore in 2001, profits will likely go directly to the country's elite, exacerbating the divide between the rich and poor. With little hope for a prosperous future, Mauritanians could turn to extreme Islam and violent opposition that threatens much of the region.

The strict hierarchy between ethnic groups affects all aspects of Mauritanian society. A person's education level, profession, political beliefs, and income primarily stem from ethnic and tribal affiliations. Mauritania straddles a cultural divide between North Africa and sub-Saharan Africa. Political opposition, community violence, and coup attempts have been fueled by this ethnic discontent.

While the government has been focused on its internal problems, terrorists have used Mauritania for fund-raising, smuggling, and recruiting. Vast amounts of uninhabited land, porous borders, and a relatively small and under-equipped military have made the country a safe haven for terrorists. The United States' has helped train Mauritanians to combat terrorism through the Trans-Sahel Counter Terrorism Initiative. Despite this assistance, economic, political, and ethnic problems will continue and probably increase, placing Mauritania on the verge of turmoil.

NIGERIA

Blessed with fertile soil, an abundance of oil, and a huge, energetic, talented population, Nigeria should be a picture of Africa's success. Instead it is one of the poorer countries and teeters on the edge of ethnic and religious conflict while the state plunders resources completely unchecked.

Oil supports and destroys Nigeria. Nigeria supplies 10 percent of the oil consumed in the United States – slightly less than countries like Venezuela, Saudi

Factors of Concern
- Largest population in Africa.
- Lagos among the world's 5 largest cities.
- 79% of urban population lives in slums.

Arabia, Mexico, and Canada- making it also important to U.S. interests. Since 1970, Nigeria has received US$280 billion in oil revenues. Through economic mismanagement, graft, and theft, this vast fortune has been squandered. Like many African countries, Nigeria borrowed billions against future commodities revenues, putting itself deeply in debt. Nigerians are, on average, poorer today than when oil was discovered. The effects of oil money and poor governance have undermined domestic industries, making Nigeria almost completely (95 percent) dependent on oil.

Nigerian society is complex with ethnic, religious, and political groups competing for wealth, land, and power. The country is home to at least 250 ethnic groups, many of whom clash regularly. Getting rich however, is a uniting goal. Most Nigerians lack a sense of national identity or civic pride. Even Nigerians don't trust one another. Harsh economic realities have turned Nigerian cities into labyrinths of overcrowded streets affected by crime, disease, pollution, and ethnic violence. Resulting corruption and overcrowding have crippled municipal services. Firms wanting to set up in Nigeria must bring their own infrastructure.

Despite all this, Nigeria has become an essential regional power. Its military is an effective peacekeeping force, having deployed soldiers to Liberia, Sierra Leone, and Sudan. Developments in Nigeria, whether good or bad, political or economic, will echo throughout the region. Nigeria plays a lead role in increasingly important African regional organizations such as Economic Community of West African States (ECOWAS) and the African Union (AU).

Nigeria will continue to be a concern to the United States over the next decade as its economic significance, social problems, and regional influence increase. The country will continue to gradually deteriorate from the within. As the state decays, Islamic extremism will gain more of a foothold. However, its strong, somewhat democratic, federal government, in partnership with its capable military, should keep the country moving forward.

NORTH KOREA

Technically, North Korea it is still at war with South Korea. The survival of its leadership is dependent on the isolation of its people. For more than 6 decades, the population has been taught to worship the Kim family and despise America, Japan and South Korea, the scapegoats for all the country's woes. Any undermining of North Korea's leadership may have disastrous effects for the state. However, North Korea's attempts to retain power may only be delaying the inevitable.

North Koreans are the most isolated population in the world. However, an indigenous population of some 2 million ethnic Koreans live in China along the 877-mile border and provides glimpses to the outside world that could eventually be destabilizing. A collapse of Kim family rule could cause a significant number of refugees

Factors of Concern

- China supplies half of Korea s energy and a third of its food supplies.
- North Korea decreased its energy consumption by 45% from 1990 to 2002.

to flee to neighboring countries. If this were to happen, U.S. forces could be called on to help with rebuilding and stabilizing efforts.

The contrasts across the Demilitarized Zone are stark. Average GDP per person in South Korea is at least 19 times that of a North Korean. Given these huge differences, the South Korean government wants to reunify the peninsula gradually, starting with economic measures that they hope will influence North Koreans.

It is unlikely the North Korean government would accept reform efforts that could end with reunification under South Korea. The solution to North Korea's problems seems obvious: join the international community like other former communist countries, by abandoning the counter-productive policies of self-reliance and militarism. A significant change in course poses a direct threat to the Kim regime, however, for it implies something is wrong in a country where the leadership is considered infallible. It would require Kim Jong Il to renounce socialism, the *Juche* (self reliance) ideology, and the legacy of his father Kim Il Sung (the "Eternal President"). In other words, resolving North Korea's crises requires that the Kim regime dismantle the foundation of its political legitimacy. Economic reform would inevitably lead North Koreans to realize that their closed world is not the socialist workers' paradise their leadership has long extolled. Should North Koreans glimpse the affluence of their southern brethren, loyalty and support for Kim Jong Il would crumble.

The longer North Korea remains unchanged the more difficult it will be to adapt its population to the outside world. North Korea requires nuclear proliferation and other provoking military actions to extort economic and humanitarian aid. Politically, opening up to market reform is not an option. North Korea's only economic assets are nuclear and missile technology, which it trades for hard currency. Its aid-based strategy, however, will eventually strain the patience of its benefactors. At any time, North Korea could lash out with a significant arsenal of conventional and unconventional force capability.

PAKISTAN

Prior to the attacks on the United States on 11 September 2001, Pakistan's coups and nuclear testing had resulted in sanctions that were ravaging an already devastated economy and further weakening its military capability. Pakistan's potential value to the United States increased significantly. Pakistan's support for the war on terrorism has been rewarded with billions of dollars in debt relief. Sanctions were removed and Pakistan's GDP was jump-started. Military assistance poured in. However, Islamabad is walking a tightrope between Pakistan's population and the international community, which could affect future stability.

Factors of Concern

- 32% lives in poverty.
- 68% under 30 years-old.
- 76% of renewable water resources originate outside country.
- 3 million refugees.

The new direction of Musharraf's government has detractors in its own ranks. While he is despised by Islamic extremists, his rule has unintentionally led to their increased influence. Through a quarter of a century of intermittent military rule, Pakistan's generals have nurtured the Islamists and their ideology of *jihad*. This provided them with a useful auxiliary force in Afghanistan and Kashmir. But Musharraf has gone further. In his efforts to create a viable and functioning democracy by eliminating corrupt secular party leaders, he inadvertently set conditions for unprecedented cohesion of Islamic Parties and their subsequent electoral gains. Musharraf has succeeded in relegating the Islamists to the opposition by securing a slight majority among a broad multi-party coalition in the national assembly. However, the Islamic parties gained control of two of Pakistan's four provinces. While they only represent 11 percent of the vote, their newly found political influence has challenged the secular, elite class that usually controls Pakistani politics.

While Islamabad's pragmatic reconciliation with the West and India is in the best interest of Pakistan, its population disagrees. Musharraf needs Western support and realizes the futility of major combat with an Indian economy seven times the size of Pakistan's. Pakistani citizens do not support the U.S.-led GWOT, but they do support the government's backing of an anti-India insurgency in Kashmir. The government knows that there is significant internal discord among the five major ethnic groups, who are unified only by the government's pro-Islamic legitimacy. Reconciling current foreign policy commitments that are in conflict with the domestic populace will be the greatest source of future instability.

Pakistan has a long way to go if it is to recover from more than 5 decades of a poorly functioning democracy with sporadic military rule. Terrorist organizations continues to recruit foot soldiers easily from Pakistan's underserved poor, who are dissatisfied with lack of social services (filled instead by religious parties) and ineffective governance. For the first time, the Musharraf government has made inroads into previously lawless tribal agencies on the Afghan border, but much of the territory is still available as sanctuary to terrorist and insurgent fighters.

Musharraf has moved Pakistan back into the mainstream of international society but may have strengthened Islamic parties in the process. Repeated assassination attempts invite efforts to refocus Islamabad overnight. Further, any U.S. homeland terrorist attack based out of Pakistan would also place extreme pressure on Islamabad that may not sustain domestic support. With such uncertainty, Pakistan's new path features strong obstacles.

PHILIPPINES

The population of the Philippines is almost 91 percent Christian. Over the past few years, the Philippine economy has grown at a steady clip and its stock market seems to have moved toward recovery from the 1997 Asian financial collapse. However, this recent economic growth has yet to be translated to the 5 percent Muslim minority isolated by a geographic separation and historical discrimination. It is this reality that will make this region a continued hotspot in the Global War on Terrorism.

The government is in financial crisis. Interest payments on the national debt account for a third of all public spending. The budget deficit, despite much belt-tightening, came in at 3.9 percent of GDP last year. Taxes are not being effectively collected. The government will not be able get itself on solid financial footing for the next 3 to 5 years. With the state coffers empty, the Philippines has a weak central government that is corrupt and haphazard in distribution of services. The small, Muslim population is uniquely affected by these problems.

The Philippine economy is marked by inequalities: in ownership of assets, in income, in levels of technology, in production, and in the geographic concentration of activity. The National Capital Region (NCR), the region centered on Manila, contains 14 percent of the population and produces one-third of GDP. Income per head in 2001 in the NCR, the richest region, was almost nine times that of the poorest region (the four provinces forming the Muslim autonomous region in Mindanao). An even greater disparity is evident nationwide between the richest and poorest households. In 2000, the richest 10 percent of the population had an income 23 times that of the poorest 10 percent. These statistics point to a dangerous divide between rural and urban and in the case of Mindanao, Muslim and Christian.

Factors of Concern
- 46% lives on less than US$2 per day.
- 60% of population is urban.
- 50% of GDP controlled by 15 families.

The Muslim population is disadvantaged in terms of political and economic opportunities. Such families perpetuate this influence by building elaborate patronage networks that function much as political parties do elsewhere. Any minority has a hard time creating the necessary political machinery needed to work within this system. Under this type of system corruption flourishes, while minority political and ethnic opposition must look to other venues to express opposition.

Without political voice, radical groups have inroads to exploit tensions and create a public support base for their terrorist/insurgent activities. Such groups have continued to survive the government's aggressive counter-terrorism efforts by establishing support networks throughout Mindanao, and attracting financial and operational support from transnational terrorist groups and international donors.

Manila is attempting to pacify the Muslim regions; however, funding and resources are limited. Without effective economic and political reform, the Philippines will continue to struggle against terrorism.

SAUDI ARABIA

President Franklin D. Roosevelt cemented a relationship with the Saudi leadership that has lasted for three generations based on a need for oil. Internally, the Al Saud dynasty's monopoly of power has meant that during the 20th century, successive kings have concentrated on modernization and on developing the country's role as a regional power, while holding the title as protector of the two holiest Muslim sites. However, the Saudi population sees a region reforming, while their monarch maintains nearly total con-

Factors of Concern
- 87% lives in urban areas.
- World's largest oil producer.
- 2 million people make annual pilgrimage to Mecca.

trol of the government. Simmering resentment has created internal security concerns, stressing the current government structure.

Saudi Arabia's long-term struggle to maintain internal stability of the kingdom requires more than counterterrorism. Saudi Arabia's population explosion is having a major impact on its economy. Demographic pressures along with low oil prices caused the Saudi economy to increased by only 1.6 percent annually between 1990 and 2000, while growth in the country's population grew at an annual rate of 2.7 percent during that time frame. A well educated and entitled middle class was left with unexpected economic pressure; it also has the potential to become a danger not just to the monarchy but a catalyst for global terror.

The monarchy has responded in unprecedented efforts to create jobs for tens of thousands of unemployed Saudis. The government has started an ambitious project called "Saudization." The aim of the project is to shrink the country's inflated expatriate workforce, eventually replacing it with Saudi nationals. The mismatch between the job skills of Saudi graduates and the needs of the private job market at all levels remains one of the principal obstacles to economic diversification and development; 4.6 million non-Saudis are employed in the economy. However, Saudi Arabia's Bedouin heritage, in which manual work is not honorable, implies that the program may fail. With oil prices rising continuously (analysts believe the kingdom breaks even at US$22) Riyadh can literally buy time.

In early February 2005, Saudi Arabia took a small step toward democracy, as men in and around the capital voted in the kingdom's first municipal election. Although the vote excluded women, it was the first in the country that largely conformed to international standards. The elections may lead to further reforms to the Saudi royal family's absolute monarchy.

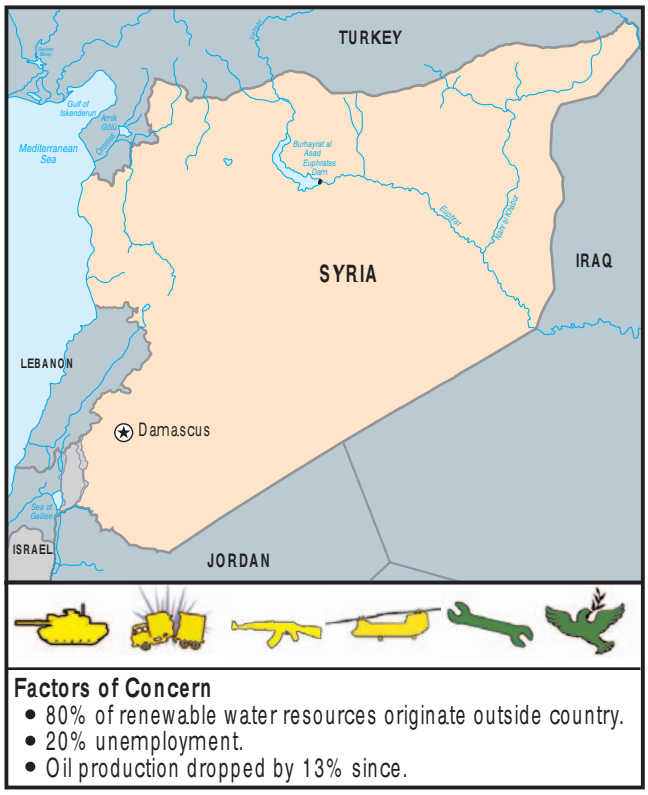
Predictions of the house of Saud's fall have not been realized. But with a quarter of the world's oil reserves and the religious center of Islam in the country, unexpected failure of Saudi Arabia would be catastrophic to both the global economy and the Global War on Terrorism. While Saudi stability has defied critics, reforms and transitions can create change that carries risk for the world.

SYRIA

Syria is a country under a lot of pressure. Pressure comes from Lebanon, where Syria's troops were forced out by an international consensus spurred by popular protests. Pressure comes from Syrians being able to see U.S. coalition troops across its Iraqi border. Pressure is coming from a young dictator who many believe has yet to fully take control of the country.

Like neighboring Jordan, Syria is ruled by a minority. President Bashar Assad comes from the Alawi, which faces a 90 percent Sunni majority. Domestically, President Assad is considered a weak president who falters under pressure. His is systematically removing internal threats from key positions within Syria's government; however, many of these key personnel are influential and have loyal followers. Tribal loyalty is more important than national loyalty throughout the country.

President Assad is losing respect and confidence from the military because it is under funded. Syria caved to international pressure to withdraw troops from Leba-



Factors of Concern

- 80% of renewable water resources originate outside country.
- 20% unemployment.
- Oil production dropped by 13% since.

non. Syria lacks a plan to reintegrate the troops and it will be hard to absorb them into a weak economy.

Syria's prospects for long-term growth appear bleak. U.S. sanctions imposed on Syria have made the economic situation worse. Economic pressures from the loss of oil revenues, population growth, and uncertainty over the future of neighboring Iraq, have seriously strained Syria's politics and made its population restless. The Iraqi conflict has the potential to radicalize Syrian Islamist extremists who may use this as an opportunity to target Syria's secular government and disrupt the country's stability. The movement toward Iraqi Kurdish independence may encourage Syria's Kurdish population to demand greater political participation in Syria. While Assad has attempted to please all factions in Syria, emboldened groups could eventually lead to conflict.

President Assad continues Syria's commitment to regain the Golan Heights from Israel. The Israelis see little strategic need to vacate and have refused to leave based on Syria's support for international terrorism. Syria is in an increasingly precarious position between U.S.-supported Israel and U.S./Coalition-occupied Iraq. Syria also appears increasingly isolated from the rest of the Arab nations.

Syria has looked to old friends through increased bilateral agreements with Iran and improved Pakistani technology transfers. There is speculation that Russian surface-to-air missile purchases and recent chemical weapons tests signal that the country is anticipating a potential invasion by U.S./Coalition forces. It is likely that the Syrian government will try to wait until the pressure subsides.

UZBEKISTAN

Once an obscure outpost of the Soviet empire, Uzbekistan now stands as a critical location in the Global War on Terrorism. Located in the heart of Central Asia, north of Afghanistan, Uzbekistan presents a dangerous mix of authoritarian rule and rising Islamic fundamentalism. A porous border, a rampant opium trade, and high-level governmental corruption all add to Uzbekistan's instability.

Despite these deep-seated issues, Uzbekistan sees itself as a regional power. It is at the geographic center of the region and has the largest population: 25 million out of 57 million in the five Central Asian states. Regional relations are not ideal; some Uzbeks regard the Kazakhs and Kirgiz as their cultural inferiors. A large population of Uzbeks live in neighboring Kyrgyzstan and Tajikistan, where they are discriminated against openly. In addition to cultural issues, economic issues are also a point of contention with Uzbekistan and its neighbors. The country's biggest problem, however, may be internal.

Uzbekistan's impoverished population is ruled by a secular government that harshly suppresses any opposition. Numerous Islamic terrorist groups, such as the Islamic Movement of Uzbekistan (IMU), are finding willing recruits among Uzbekistan's disenfranchised. Fundamentalist Islamic movement centers in the country's densely populated Ferghana Valley, which also juts into and influences Tajikistan and Kyrgyzstan. The Islam followed in the valley is the highly conservative Wahhabi sect of Sunni Islam, which has ties to fundamentalist groups in Afghanistan and the Middle East. Future conflict in Uzbekistan is likely in the Ferghana Valley.

Reform or regime change will likely come in a violent revolution. Uzbekistan is a tribal-based society where connections to its ancient Turkic-Mongolian heritage remain strong. Western concepts, such as freedom of speech and freedom of association, are still foreign and threatening to Uzbekistan's leaders. Regional democratic reforms and exposure to global issues will increase. As a result, friction will occur when the region's Islamic and increasing secular population demand rights and freedoms from a leadership steeped in 14th century political and cultural traditions. If Uzbekistan's government were to fall to extremist forces, its central geography and significant population would have implications across the region.