STRATEGY RESEARCH PROJECT

HUMANITARIAN DEMINING POLICY

BY

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ABSTRACT

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The United States has made significant progress in halting the proliferation of landmines and in demining twenty-five of the world's most landmine-threatened countries. U.S. policy of controlling landmines and promoting humanitarian demining remains consistent with the integrated strategic approach promulgated through the slogan "Shape, Respond, and Prepare Now". The complexity of humanitarian demining operations necessitates highly specialized approaches tailored to conditions found in each situation and region. However, study of successful demining operations following World War II, the Gulf War and the Cold War provides worthwhile lessons. The U.S. Humanitarian Demining Strategy and Demining 2010 Initiative describe the challenges posed by non-self-destructing antipersonnel landmines. To implement this strategy, the United States should consider adopting one or a combination of the following four humanitarian demining options: (1) use of military forces employing new technologies; (2) government funding for civilian contractors demining with traditional techniques; (3) provision of economic incentives for private investors to offset the added cost of developing opportunities in landmine-threatened areas; and (4) U.S. leadership and coordination of resources in international demining operations. This strategic study analyses these options and recommends a U.S. demining strategy for the first decade of the 21st Century.

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HUMANITARIAN DEMINING POLICY

World wide, 60 to 70 million landmines contaminate more than 60 countries on five continents. Annually, landmines kill or maim more than 25,000 people, mostly civilians, around the world.[1] Non-self-destructing antipersonnel landmines left in the ground after hostilities end adversely affect reconstruction; medical services; returns of refugees and displaced persons; economic recovery; environmental abatement; social and political reconciliation; and security and military concerns.[2] This aftermath of the indiscriminate use of landmines represents a threat to U.S. national interests and objectives.

U.S. humanitarian demining policy supports a strategy through global leadership and coordination that aims to rid the world of the threat of non-self-destructing antipersonnel landmines. With some adjustment in ways and means to implement this strategy, the United States can achieve its ends. Recommendations for improving demining programs include using military forces employing emerging demining technologies, providing government funding for civilian deminers using with traditional techniques, providing economic incentives for private investors to offset the costs of demining before development; and improving coordination of resources by the United States when dealing with other countries and organizations.

UNITED STATES POLICY

A National Security Strategy for a New Century (December 1999) outlines the shaping, responding, and preparing approach to advancing U.S. national interests.[3] An assessment of national interests leads to the United States' three core objectives – (1) to enhance America's security, (2) to bolster America's economic prosperity, and (3) to promote democracy and human rights abroad. Within these objective areas, U.S. national interests fall into three categories: (1) vital interests, (2) important national interests, and (3) humanitarian and other interests.[4] Eliminating the indiscriminate use of non-self-destructing antipersonnel landmines and eliminating the threat they pose to civilian populations benefits U.S. national security. Implementation of an effective demining policy requires measured application of all elements of national power – economic, diplomatic, informational, and military.

The strategy for enhancing security at home and abroad requires integrated approaches to shape the international environment and prepare for an uncertain future. To that end, the United States employs a range of tools to shape the international environment. One of those essential tools is arms control. Conventional arms control efforts include major steps taken by the United States, in the spirit of the Ottawa Convention, to ban antipersonnel landmines. At the

same time, the United States continues to meet its unique international obligations and to provide for security and safety of military forces deployed to potential crisis areas such as the Korean Peninsula. The United States has made significant progress by setting the example for international efforts to halt the proliferation of landmines and working simultaneously to demine some of the world's most landmine-threatened countries. The United States now supports humanitarian demining in 25 countries.[5]

In addition to setting the example for the world in many aspects of the conventional arms control efforts related to landmines, the United States has shown its commitment to eliminate the threat to civilians posed by indiscriminate use of non-self-destructing antipersonnel landmines. The United States "Demining 2010 Initiative" challenges the other nations of the world to improve humanitarian demining efforts in both effectiveness and efficiency of removal efforts. These humanitarian demining efforts also include landmine awareness education for local populations and landmine awareness training for peacekeepers deploying to regions with landmine threats.

U.S. policy to lead worldwide humanitarian demining efforts furthers our national military objectives to promote peace and stability. A more peaceful and stable world means a safer world for everyone – one free of the threat posed to civilians by non-self-destructing antipersonnel landmines left in place after armed conflicts end. The National Military Strategy of the United States of America – Shape, Respond, and Prepare Now: A Military Strategy for a New Era (September 1997) explains the military's role in support of the President's imperative of engagement, a strategic approach that recognizes that the United States must lead abroad in order to stay secure at home: "Peacetime military engagement encompasses all military activities involving other nations intended to shape the security environment in peacetime."[6]

The United States National Military Strategy outlines how U.S. Armed Forces advance national security through the application of the military component of national power. Controlling landmines and promoting humanitarian demining fit into the integrated approach described by the slogan "Shape, Respond, and Prepare Now". First, the United States should stay engaged worldwide to shape the international environment and thereby foster conditions favorable to America's security and its national interests. By supporting humanitarian demining efforts, the United States engages other countries and improves our relations with them. Second, the U.S. Armed Forces respond to crises across the full spectrum of conflict. The threat of residual landmines after hostilities end looms at virtually every current level of conflict encountered today. One task of conflict termination and post-combat operations includes humanitarian demining conducted in the formerly contested areas. Finally, the U.S. Military

must take steps to prepare now for uncertainties of the future. To maintain full spectrum dominance as described by Joint Vision 2010, the United States must leverage emerging technologies and combine them with the strengths of her military forces to give the nation its optimal military capability. The combination of America's people and technology can achieve effective international controls on antipersonnel landmines and improve humanitarian demining.

TERMINOLOGY

The language of landmines has evolved in recent years. Some confuse landmine clearing, landmine lifting, and minefield breaching with humanitarian demining. Terms such as "minesweepers" and "minesweeping" still appear in the Air University Library Index to Military Periodicals (AULIMP) as categories for indexing articles about humanitarian demining.[7] To clarify terms used in this paper, refer to the following definitions drawn primarily from the U.S. Department of State publication, "Hidden Killers 1998: The Global Landmine Crisis."[8]

Humanitarian Demining -- Any activity associated with ameliorating or eliminating the landmine problem and its effects in a host nation and providing assistance to and rehabilitating its victims. Typically, humanitarian demining consists of four activities: (1) landmine awareness, (2) landmine assessment and survey, (3) landmine clearance and (4) victim assistance. This definition is at variance with and more comprehensive than the United Nations definition of "demining", which addresses only the "aspects of landmine clearance."

Landmine Clearance -- Clearing an area of all landmines, unexploded ordnance (UXO), and improvised explosive devices (IED) to a predetermined standard (see clearance standards below). Also, referred to as the total elimination or neutralization of landmines from an area. An operation designed to clear or neutralize all landmines and obstacles from a route or area.

Landmine Clearance Standards -- The standards applied to clearance operations. In the United Nations, clearance is normally achieved to a standard of 100 percent with a tolerance of error of not more than 0.4 percent. (Most commonly, deminers in the field refer to the standard as "99.6 percent -- better than Ivory Soap © which is only 99 and 44/100 percent pure.")

Minefield Breaching -- Tactical operation conducted to reduce the obstacle effect of a minefield to allow an attacking force to pass. Intended only to open a lane or lanes through the minefield for tactical use, not to remove or neutralize all landmines or unexploded ordnance.

Mine Lifting -- Refers to operations conducted in Bosnia-Herzegovina by Former Warring Factions (FWF) or Entity Armed Forces (EAF) and monitored by Peace Implementation (IFOR) and, later, Stabilization Forces (SFOR) to remove landmines by following the minefield records

in accordance with the General Framework Agreement for Peace (GFAP), also known as the "Dayton Accords".

BACKGROUND

The U.S. refusal to sign the Ottawa accords has predictably caused a lot of confusion regarding U.S. landmine policy. This situation begs clarification.[9] On 26 September 1994, President Clinton called for the elimination of antipersonnel landmines at the United Nations General Assembly in New York. As the first world leader to take this step, he set into motion a worldwide effort that led to the Ottawa Convention, following which over 135 countries signed a ban on landmines in December 1997. However, concerns about national security, force protection, and defense of Korea led to a U.S. decision not to sign the treaty. The United States agreed to no longer use antipersonnel landmines outside Korea by 2003 and to have available militarily effective alternatives to antipersonnel landmines by 2006, thus opening the way to sign the treaty. Further, the United States continues to implement an accelerated program – The Demining 2010 Initiative -- begun in 1997 and planned through 2010. The United States leads the world in humanitarian demining by setting the example for other countries to follow. The United States "government has dedicated more than $250 million to humanitarian mine action over the past five years."[10] Even so, the 135 signatories insisted on an immediate ban, that the United States could not agree to.

HISTORICAL PRECEDENT

The complexity of humanitarian demining operations necessitates highly specialized approaches tailored to conditions found in each situation and region. However, study of recent, successful operations provides the opportunity to learn lessons from other's experiences and to avoid making similar mistakes. Successful operations also reassure observers and potential donors that, despite apparently countless challenges and difficulties, humanitarian demining can succeed in greatly reducing or eliminating the threat posed to civilian populations by non-self-destructing antipersonnel landmines and unexploded ordnance. In order to garner support for the ban on antipersonnel landmines, some supporters of the ban tended to inflate statistics and estimates.[11] Inaccuracy and inflation of statistics leads to a most unfortunate misconception that "mine clearance is an insoluble problem – a battle that can never be won."[12] So a sense of futility led to increased pessimism on the part of potential donors about the feasibility of humanitarian demining. Since the Ottawa Convention, estimates of the scope of the problem -- numbers of landmines and length of time needed to remove them -- have improved to more

realistic and attainable figures.[13] In fact, reliable estimates of the number of landmines contaminating the earth have recently dropped from one hundred million to sixty million. Despite this, some continue to cite the old inflated figure.

POST WORLD WAR II — GREAT BRITAIN

Removal of landmines following World War II in Western Europe quickly followed the end of hostilities. In Great Britain, for example, deminers removed millions of landmines emplaced in anticipation of the German invasion of the British home island that never came. The British experience reinforced the necessity of complete and accurate records for all emplaced landmines. By using the meticulous records of their minefields, the British deminers enjoyed a high level of confidence, safety, and ultimate success during landmine clearance operations. Lack of complete and accurate minefield records makes the humanitarian demining efforts significantly more time consuming and difficult. Humanitarian demining operations in Bosnia-Herzegovina suffer from this problem. Repeated military operations on the same sites challenge humanitarian deminers with the combination of many varieties of mines, unexploded ordnance, and improvised explosive devices that add considerably to the complexity and danger of demining.

POST GULF WAR – KUWAIT

Iraqi soldiers laid over six million landmines during their occupation of Kuwait. These minefields included not only non-self-destructing antitank and antipersonnel landmines, but also unexploded ordnance left over from both the air and ground phases of the fighting. In some of these densely laid minefields, a one-kilometer long section might contain over 5000 landmines. After Desert Storm, the Kuwaiti government contracted "the clearance task to seven of the nations that supported them during the Gulf War: the United States, the United Kingdom, France, Bangladesh, Pakistan, Egypt, and Turkey."[14] Bangladesh, Pakistan, and Egypt used military engineers, but the rest of the countries hired civilian contractors to the clear minefields. Interestingly, the United Kingdom provided military personnel to their contractor, Royal Ordnance, on a reimbursable basis. One unofficial estimate of the total cost of the clearance operations exceeded six hundred million dollars, or approximately one hundred dollars per landmine on average. Landmine clearance techniques in Kuwait evolved little from those used in the region after World War II – the probe and the electronic (magnetic) landmine detector. Some deminers tried experimental, mechanical mine clearance technology with mostly disappointing results. The landmine clearance operations in Kuwait have served as a training

ground for many current landmine clearers and landmine clearance managers. Unlike many other war-torn countries, the wealthy emirate of Kuwait could afford the costly landmine clearance expertise it needed to rid its territory of landmines and unexploded ordnance.

POST COLD WAR -- GERMANY

"Cold War tensions left nearly 1500 kilometers of barriers along the inner-German border separating East and West Germany and along the East German border with West Berlin."[15] As part of these barriers, the former German Democratic Republic emplaced at least 1.3 million antipersonnel landmines along the border. These landmines were laid with the intent to prevent defection of East Germans to the west, not as defensive measures. However, international pressure forced the German Democratic Republic to begin clearing its minefields in 1984. Within one year, the German Democratic Republic reported that their border troops had completed this landmine clearance task.

After reunification of East and West Germany, the border deactivation unit's staff engineers discovered discrepancies in the records of removal. Former East German border troops reported that they conducted the clearing operations "under strict time constraints."[16] Also, the East German authorities had never intended to open the border sectors to anyone but border guards, and still considered the areas hazardous. The German government estimated 555 kilometers as the original length of landmine hazard areas in 1991. By using careful landmine assessments and survey methods, the deminers persuaded the Minister of Defense to disregard areas laced only with wooden box landmines. These landmines had remained in the ground over 30 years and had deteriorated to the point of harmlessness. This reduced the hazardous areas to 202 kilometers in length.

Deminers used tillage with protected tractors and manual probing from dozer-mounted platforms to detect and remove landmines. These minefields consisted of only non-self-destructing antipersonnel landmines. The absence of unexploded ordnance and antitank landmines greatly simplified clearance techniques, allowing safe operation of lightly armored tractors and dozers. In spite of the relative simplicity of the clearance and the small number of mines, average clearing costs amounted to $100,000 per kilometer or $20,000 per landmine. The German Ministry of Defense successfully completed clearance operations by the end of 1995 and declared the former border areas safe.

ANALYSIS

The U.S. Humanitarian Demining Strategy and Demining 2010 Initiative address the challenges posed by non-self-destructing antipersonnel landmines. The analysis presented below considers these two statements using the classic concept of strategy to gain a clearer understanding. This classic concept states that "Strategy equals **Ends** (objectives towards which one strives) plus **Ways** (courses of action) plus **Means** (instruments by which some end can be achieved)."[17] Application of this general concept provides a basis for the formulation or, in this case, the analysis of the U.S. Humanitarian Demining Strategy and the Demining 2010 Initiative. The last part of the analysis section projects today's challenges to the year 2010 before considering possible courses of action or alternatives.

ENDS

The U.S. Demining 2010 Initiative, announced in October 1997, called for accelerating the global humanitarian demining efforts five-fold, thereby allocation one billion dollars per year to the effort. The United States pledged to coordinate the combined efforts of public and private resources devoted to identifying and clearing the landmines that pose a threat to civilians, setting 2010 as the completion date.[18] By focusing on clearing those landmines that pose a threat rather than on all landmines, the United States has selected a much more practical and attainable goal. In many cases, deminers can simply mark the location, but not remove landmines that do not interfere with reconstruction; returns of refugees and displaced persons; economic recovery; and environmental abatement. Then deminers can concentrate their scarce resources on demining areas that offer the biggest return for their efforts.

WAYS

In response to requests for assistance from countries free of hostilities, the United States takes the lead in establishing sustainable indigenous humanitarian demining programs. These include establishing a mine action center, a mine awareness program, and a humanitarian demining training center. Once the programs reach a point of self-sustainability, the United States turns its active role over to the host nation.[19] In many cases, the United States works through United Nations-sponsored organizations to establish and to maintain these programs.

The mine action center (MAC) serves as the hub of all humanitarian demining activities in a country. At the mine action center, the four parts of humanitarian demining come together into a synergistic whole to achieve the goal of first reducing and then eliminating casualties caused by landmines. The mine action center establishes mine awareness programs for both

deminers and for local populations to sensitize everyone to the omnipresent mine threat in contaminated areas. It also coordinates landmine assessment and survey based on field verification of available minefield records and maps of landmine contamination. Then the mine action center coordinates activities of donors and contractors to conduct mine clearance according to United Nations standards. Meanwhile, the mine action center arranges for victim assistance when and where needed.

The humanitarian demining training center focuses on training the local population to assume the role of the deminers. They train the trainers who will eventually prepare the personnel who will represent the indigenous humanitarian demining capability of their country. Once established, the humanitarian demining capability can then sustain itself.

MEANS

"Since 1993, the United States alone has provided over a quarter of a billion dollars in humanitarian demining assistance."[20] Congress now authorizes over one hundred million dollars per year for all parts of the program. Combined with public and private funding from other sources worldwide, this makes the goal of one billion dollars per year much more attainable. The United States provides Special Operations Forces to eligible countries who then establish the foundation for the self-sustaining, indigenous, humanitarian demining programs. They work with United Nations representatives in many countries to set up mine action centers, humanitarian demining training centers, as well as mine awareness training programs and victim assistance programs. In some cases, either North Atlantic Treaty Organization or United Nations peacekeeping forces provide the same services as the Unites States Special Operations Forces.

PROJECT TO 2010

Each year, since the announcement in 1997 of the Demining 2010 Initiative, the program has grown in funding and results. To achieve the stated goal in the next ten years however, the world must reduce or eliminate new land mining and continue to increase humanitarian demining efforts. The Ottawa Convention did not eliminate use of antipersonnel landmines in current or future conflicts. The problem of landmine use remains in many areas of the world. Until or unless militarily and economically effective alternatives emerge from research and development efforts, landmines will remain attractive and popular, particularly with less wealthy nations. The compelling reasons why landmines developed into and remain "an important feature in almost every conflict since"[21] World War II will still hold true in the year 2010, absent

feasible alternatives. Potential belligerents continue to rely on landmines because of their low cost, ease of use, and proven effectiveness. On the other hand, in the area of humanitarian demining, expanded research and development into improved technology for survey, detection, and removal of landmines and for proofing cleared areas may help. But for the next few years it appears that traditional methods of mine clearance will predominate.

COURSES OF ACTION (COA)

In the short term, the United States should refine its current policy with more emphasis on nonproliferation efforts short of a complete ban. Strict controls on the use of landmines including sanctions on nations that fail to accurately and completely record minefields and added emphasis on humanitarian demining will improve the situation as well. In anticipation of eventually signing the Ottawa Convention, the United States should employ diplomatic, informational, and economic elements of national power to discourage the use of non-self-destructing landmines and to encourage the development of alternatives for the future. However, in light of the current situation – lack of militarily and economically acceptable alternatives to using landmines and the predictable preference on the part of potential belligerents to continue to rely on landmines – the United States can realistically expect that the ban will remain not completely enforceable. Therefore, the United States needs to consider adopting one or a combination of the following four humanitarian demining options.

COURSE OF ACTION ONE -- MILITARY USE OF HIGH TECHNOLOGY

Current restrictions in Title 10, United States Code, prevent United States military forces from conducting mine clearance operations. In anticipation of new and safer technologies to survey, detect, and remove landmines, the United States should selectively relax this restriction. With due consideration for force protection requirements, the military could both effectively remove existing landmines and deter their future use. The option of deploying military forces quickly to clear critically important mine contaminated areas in selected countries could give the regional Commanders-in-Chief (CinCs) a potentially valuable tool to assist in executing their theater engagement plans (TEPs). On the other hand, in today's apparently casualty-averse environment for employment of military personnel, force protection considerations may outweigh and overshadow the potential benefits. This course of action has the probability for great effectiveness as a result of integration of a breakthrough in high technology with highly trained and capable service people to employ it.

Some emerging technologies that show promise include the following: Japanese designed ground penetrating radar using smart signal processing for detection;[22] Harvard University designed "sonar-style" detector using computer based acoustic signatures;[23] MIT designed modernized metal detector using a meandering winding magnetometer with air compressors and explosive foam to uncover and destroy the mines;[24] University of Rolla designed remote-controlled high-pressure water jet device;[25] a U.S. Army Night Vision Labs advanced demining vehicle designed to process berms and remove mines from them;[26] other technologies employing nuclear, chemical, and bacteriological detection;[27] and from Germany an armored earth tilling machine called "RHINO" capable of clearing antitank and antipersonnel landmines.[28] Any one or a combination of these technologies may eventually provide the long sought after "silver bullet" for demining. Some of these technologies could even partially negate the military effectiveness of landmines and thus eventually lead to their elimination from arsenals as obsolete weapons.

COURSE OF ACTION TWO -- GOVERNMENT FUNDED CONTRACTORS AND TRADITIONAL LANDMINE REMOVAL METHODS

The United States should directly fund established and reputable contractors using proven, traditional methods (such as landmine probes, electronic (magnetic) landmine detectors, and landmine detection dogs) to conduct humanitarian demining in critical areas. Used in this way, relatively small amounts of public funding for humanitarian demining have a potential for huge returns in terms of (1) speeding reconstruction; (2) allowing access to medical services; (3) permitting returns of refugees and displaced persons; (4) enhancing economic recovery; (5) easing environmental abatement; (6) facilitating social and political reconciliation; and (7) meeting security and military concerns. By directly contracting with the company conducting humanitarian demining activities, the United States retains tight control and close supervision. In areas where the local governments and international organizations cannot effectively perform these functions due to political, diplomatic, or other restrictions, this course of action allows the United States to act unilaterally to set the example for other countries and for International Organizations (IO). However, unless undertaken with due care and foresight, the loss of legitimacy and of international acceptance may represent an unacceptable risk.

COURSE OF ACTION THREE -- ECONOMIC INCENTIVES FOR THE PRIVATE SECTOR

The United States should provide economic incentives to private entrepreneurs and organizations willing to fund humanitarian demining efforts as part of their investment in the

infrastructure in developing countries. Tax incentives, low interest loans, insurance programs, and other methods could offset the additional five to ten percent of capital investment needed by investors for humanitarian demining prior to economic development. The advantage of this approach lies in its more focused use of the economic element of U.S. national power. In this case, the direct dollar expense could remain less than with the previous two courses of action, while the potential for return on the investment stays high. By encouraging investment of private capital, the United States leverages its economic power and opens the possibility for more investment and new trade. The pitfall in this approach lies in the lack of control over the objectives and decisions of the private interests involved. The United States could face risk of reduction in focus of efforts by using this concept.

COURSE OF ACTION FOUR -- IMPROVED COORDINATION OF EFFORTS BY BOTH THE PUBLIC AND THE PRIVATE SECTORS

The United States should provide leadership to get the most effective and efficient application of worldwide resources to demining efforts. Other countries, International Organizations (IO), Non-Governmental Organizations (NGO), and Private Volunteer Organizations (PVO) all play an important, though usually uncoordinated, role in successful humanitarian demining. By hosting conferences, providing information, making "in kind" contributions of personnel with expertise and experience, and by creating a positive environment for cooperation, the United States can enhance the value of everyone's efforts. This course of action promises long-term benefits. Coordination of the efforts and resources of many diverse countries and organizations – each with different interests, objectives, goals, and agendas – means accepting a more flexible and somewhat opportunistic approach to addressing the humanitarian demining challenges. Through this course of action, the United States would trade the ability to directly control the other actors for a more subtle type of influence – a seat at the table, perhaps as the host, but not necessarily as the boss.

RECOMMENDATIONS

The United States set an achievable goal in the Demining 2010 Initiative. By implementing one or a combination of more than one of the courses of action outlined above, the United States can modify its ways and fine-tune its strategy without exceeding its means. Selecting the right options requires answering some tough questions: What affordable, near-term, technologies can the United States military forces safely and effectively employ? What landmined areas offer the most potential decrease in injuries and increase in security and

stability through use of U.S. funded humanitarian demining contractors? What economic incentives provide the most cost-effective encouragement to private ventures? What other countries, International Organizations, Non-Governmental Organizations, and Private Volunteer Organizations taken in combination offer the optimum capabilities to work with the United States? Answers to questions such as these, while beyond the scope of this analysis, will lead to a more potent and eventually more successful U.S. policy for humanitarian demining.

CONCLUSION

Historical examples of highly successful regional efforts to perform humanitarian demining abound. After World War II, Western Europe safely and successfully removed millions of landmines laid by both Axis and Allied forces in England, France, Belgium, and other countries. In doing this, these countries all but eliminated the threat posed by landmines. Even so, every year farmers and construction workers uncover mines and unexploded ordnance when plowing fields or excavating. The key point remains that despite not clearing all mines and unexploded ordnance, the humanitarian demining efforts resulted in almost complete elimination of the threat to civilian populations. More recently, Kuwait removed landmines and unexploded ordnance after the Gulf War, and Germany cleared the former Inner-German Border of antipersonnel landmines restoring contaminated areas to normalcy. U.S. humanitarian demining policy drives a strategy that through global leadership and coordination aims to rid the world of the threat of non-self-destructing antipersonnel landmines. With some adjustment in ways and means to fine-tune the strategy, the United States can successfully achieve its ends.[29] These adjustments could include use of military forces employing new technologies, government funding for civilian contractors demining with traditional techniques, provision of economic incentives for private investors to offset the added cost of developing opportunities in landmine threatened areas, and U.S. leadership and improved coordination of resources of joint efforts including International Organizations, Non-Governmental Organizations and Private Volunteer Organizations. The history of overcoming the threat posed by landmines shows that to succeed in the future, the United States must apply the right approach to the right situation at the right time.

WORD COUNT = 4642

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