



**STRATEGY  
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**THE LANDMINE DILEMMA AND THE ROLE  
OF THE U.S. GOVERNMENT**

**BY**

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THE LANDMINE DILEMMA AND THE ROLE OF THE U.S. GOVERNMENT

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## ABSTRACT

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The proliferation of antipersonnel landmine use has created problems world-wide. This study identifies and clarifies the complex issues that have created the current landmine dilemma. In addition, this research discusses international and Congressional attempts to regulate antipersonnel landmine use and critically analyzes these efforts. This paper also proposes recommendations as to what the role of the United States should be in resolving the landmine dilemma.

## INTRODUCTION

Since the beginning of World War II more than 400 million landmines have been deployed throughout various parts of the world. Of this number, more than 65 million have been deployed in the last 15 years. The proliferation of landmines has taken its greatest toll not on combatants but on the civilian populace residing in or near areas of conflict.<sup>1</sup>

Each year approximately 26,000 people are killed or injured by landmines. That means, on the average, 70 victims are claimed daily<sup>2</sup>. Fewer than half of the victims are combatants. The victims are more often a family member or child pursuing a household chore, such as seeking firewood, tending to a food source (gardening, livestock, etc.), or playing. All too frequently, the incident is in an agrarian society where the victim, handicapped by his injuries, is shunned by society. The effects of the antipersonnel mines are devastating, both physically and psychologically.<sup>3</sup>

"Women are doubly burdened. First, a young female amputee is often cut off from marriage and motherhood. This is particularly true because of the demographic imbalance brought about by years of conflict. (In Cambodia many more men than women died under the Khmer Rouge.) Secondly, as primary care-givers within the family, women bear the heaviest burden of caring for the injured."<sup>4</sup>

This has so enraged numerous non-governmental agencies and elements of our government that in January, 1996, Congress passed a bill (Leahy Landmine Amendment) establishing a moratorium on the use of antipersonnel mines by United States forces. The bill is to become effective in 1999<sup>5</sup>. While perhaps a noble idea

based on good intentions, the bill prompts one to question whether or not it adequately addresses the complex issues that landmines are causing throughout the world today.

To better understand the landmine dilemma, it is important to gain an understanding of the nature of landmines and the problems they pose. Landmines are categorically divided into two groups: antitank and antipersonnel mines.

The antitank landmines, as the name implies, are intended to defeat armored vehicles. They are characterized as being very large (when compared to antipersonnel mines) and generally require substantially more force (pressure) to detonate than do antipersonnel mines. While they can be devastating, the fact remains that they are significantly fewer in number and their likelihood of being detonated by the weight of a person is less.

Since antitank mines are also relatively easier to locate due to their size and likely areas of employment, antitank mines are far less of a problem than antipersonnel mines. Therefore, the focus to date by activists and Congress has been on antipersonnel mines<sup>6</sup>. For that reason, my research will focus on the world-wide problems associated with antipersonnel mines. I will identify problems created by the use of antipersonnel mines. I will also discuss what I believe the United States government role should be in regard to the appropriate use and regulation of antipersonnel mines.

## WHY LANDMINES HAVE PROLIFERATED

The growth of the landmine problem during the past 15-20 years can be attributed to two events. The first of these was the introduction in the late 70's of plastics to landmine production. Plastic encasements provide the mines with significantly enhanced protection from deterioration, rust, or becoming inactive/inoperable. The incorporation of plastics means that a mine lying in the ground 15 or 20 years can be just as deadly as it was the day it was first planted. Plastics also make locating mines, utilizing conventional mine detecting equipment, considerably more difficult.

The second event that influenced landmine growth resulting in today's problems is the increase in civil conflict, particularly in the 1980's. Some experts identify Afghanistan as the first killing field for landmines. It was the war in Afghanistan that taught countries and numerous guerilla groups around the world how deadly, devastating, and effective landmines can be when indiscriminately laid in large numbers<sup>7</sup>.

In addition, there are other aspects about antipersonnel landmines that have added to their proliferation. In most cases, antipersonnel mines are not designed to kill, but instead are intended to maim the enemy. A seriously injured victim is more costly to an army or government than a dead victim. A serious injury requires the resources of medics, doctors, nurses, and much equipment and medical supplies to care for the injured. An amputation is, thus, far more costly than a death in terms of

financial and manpower resources. The incident also affects the psychology of the individual victim, as well as those associated with the incident, and may disrupt the commander's/government ability to exercise command and control.<sup>8</sup>

Antipersonnel mines are a high return, low cost investment. They are easy and inexpensive to produce and employ. Cost estimates to produce antipersonnel mines range from \$2 to \$10. The exact figure is difficult to pinpoint because there is such a large variety of antipersonnel mines.

For instance, Bosnia and Croatia each have 2 million to 3 million landmines planted by all three of the warring ethnic factions (Serb, Croatian, and Muslim). Of these, it is estimated that 25% are homemade.<sup>9</sup> In an attempt to identify the variety of landmines employed world-wide, the Department of Defense recently released a CD ROM depicting over 675 different landmines<sup>10</sup>.

While mines are cheap to produce and employ, they are very costly to remove. It is estimated that a \$2 to \$10 antipersonnel mine costs \$1,000 to remove<sup>11</sup>. Antipersonnel mines are frequently indiscriminately employed by belligerents or the minefields are not marked and recorded. Both of these actions result in large "suspect" areas being identified and scarce mine-clearing resources having to be applied inefficiently.

Mine detection technology has not been able to keep up with the pace of change in the variety of landmines being developed and employed. Mine detection has become increasingly difficult with the development of plastic mines (nearly free of metal) which require newer and more costly technology to detect. Differences in

mines and their fusing techniques result in some 2,500 possible combinations world-wide<sup>12</sup>.

Often within a single minefield there are a variety of mines. Because of the variety of mines, the climatic conditions (rain, snow, ice, etc.), soil types, and mineral content, no single solution or single set of component solutions is possible<sup>13</sup>. It is this complexity and the destructive nature of landmines that make them a valued asset in the arsenals of belligerents as well as organized military forces.

### **INDISCRIMINATE LANDMINE USE**

Prior to the breakup of the Soviet bloc countries, the former Yugoslavia was a major mine and munitions producer for the bloc. As Yugoslavia broke up, each of the warring factions, the Bosian Croats, Muslims, and Serbs, assured themselves of the ability to produce landmines. Landmines were liberally emplaced in confrontation zones and for the purposes of ethnic cleansing of geographical areas.<sup>14</sup> There was no discipline in their deployment. "They were laid randomly without being recorded and oftentimes were deliberately laid to thwart a cleanup."<sup>15</sup> Totalling in the millions, landmines in the former Yugoslavia pose a serious hazard to the populace and our peacekeeping forces.

The indiscriminate use of landmines in Cambodia by the Khmer Rouge and other warring factions has earned it the distinction of possibly being the most heavily mined country in the world. One landmine barrier runs an estimated 240 miles and

contains two to three million mines. Where one faction's mines end, the opposing minefields begin. Minefields have been sown on top of minefields.<sup>16</sup>

Mines in Cambodia continue to be laid faster than they can be located and cleared<sup>17</sup>. The pattern of mining is ill-defined. It is interesting to note that while Cambodia's antipersonnel mines number in the millions, the United States has sold Cambodia only 600 such mines since 1969<sup>18</sup>.

Africa is the continent most affected by landmines. Africa has an estimated 30 million landmines scattered across 18 countries.<sup>19</sup> Angola, Mozambique, and Somalia have the heaviest concentrations of mines. Here and in other parts of the world, such as Afghanistan, lie large economic dead zones because of the millions of mines scattered there<sup>20</sup>.

Low-cost mines have evolved as the "weapon of choice" in low intensity conflicts fought by groups with limited financial means. The United Nations estimates that based on the current rate of landmine clearance, and without further indiscriminate use of landmines, it would take more than 1,000 years to clear the world and would cost a staggering 33 billion dollars<sup>21</sup>.

Insurgent movements learned quickly that landmines were effective means to depopulate an enemy's territory, to disrupt agriculture, to interrupt transportation, and to damage economic infrastructure. In Mozambique a single \$5 landmine kept a strategic stretch of road closed for more than 10 years. Also over a million acres of fertile land goes uncultivated each year for fear of landmines.<sup>22</sup>

The problems caused by indiscriminate use of landmines is an enduring

problem, and yet every year thousands more antipersonnel mines are sown, primarily in third world countries. The indiscriminate use of antipersonnel mines and ensuing economic and personal hardships belie the question, What impact will banning the use of antipersonnel mines by United States forces have on resolving the global landmine problem? Unfortunately, the impact is minimal since the problem exists predominantly in third world countries, and the supply of antipersonnel mines are fueled by those countries and by other powers opposed to sanctions on landmines.

### **LEGITIMATE LANDMINE USE**

Antipersonnel mines are an important United States military capability that help to protect United States forces. "The United States military uses mines to channel opposing forces into particular patterns of movement, to scatter opposing forces over a broad area, to disrupt the command and control system of opposing forces, and to protect allied forces from maneuvers by opposing forces."<sup>23</sup> Antipersonnel mines were originally developed to impede the removal of antitank mines. Today mines are employed for both defensive and offensive purposes. Mines create barriers that impede the enemy's mobility or deny him access to key objectives.

The United States military deploys mines in support of battlefield operations. In defensive operations, mines protect borders, economic assets, and fighting forces. On the battlefield, they restrict the battle area and force deployment of enemy troops into areas where the defender is best able to defeat them. This is commonly referred to

as "shaping the terrain"<sup>24</sup>. Minefields degrade the enemy's capabilities by disrupting combat formations and delaying their movement, interfering with command and control, and by confusing enemy commanders. Thus, vulnerabilities are created which aid in the destruction or attrition of the enemy.

In offensive operations, mines may be deployed by artillery and from aircraft. Their employment generally focuses on isolating the battlefield, facilitating economy of force, enhancing overall force security, and blocking (fixing) or delaying an enemy's movement<sup>25</sup>. Landmines are a key combat multiplier, particularly when employed against a numerically superior force. Mines help maximize the synergism of our combined arms, and effect and support quick victory with fewer casualties.

These points were well-demonstrated in the attack phase of Operation Desert Storm. Gator<sup>26</sup> scatterable mines delivered by United States Air Force aircraft fixed two Iraqi divisions in place as they attempted to counterattack into the exposed left flank of the United States VII Corps<sup>27</sup>.

In the future, as we increasingly perform force projection missions from the continental United States, landmines may become increasingly valuable. During early entry operations, landmines could be utilized to protect lodgement areas until we have built an adequate combat capability<sup>28</sup>. Mines fill a unique niche on the battlefield for which there is no known viable alternative. They are legitimate and effective tools of war when employed by responsible nations<sup>29</sup>.

## INTERNATIONAL ATTEMPTS TO REGULATE LANDMINE USE

International law does not prohibit the use of antipersonnel mines. The use of landmines, however, is regulated by the laws of war, specifically by the 1980 Convention on Conventional Weapons (CCW), Protocol II. The main provisions of Protocol II are summarized as follows:

- Mines may be directed only at military objectives; indiscriminate use is prohibited and all feasible precautions must be taken to protect civilians.
- Remotely-delivered mines may not be used unless their location is accurately recorded or they are fitted with an effective neutralizing mechanism.
- Records must be kept of the location of pre-planned minefields, and the parties to a conflict are also to keep records on other minefields laid during hostilities.
- At the end of hostilities, the parties are to try to agree either among themselves or with other states or organizations to take the necessary measures to clear minefields.<sup>30</sup>

United States warfighting doctrine clearly embraces CCW Protocol II<sup>31</sup>.

Responsible nations have demonstrated that landmines can be effectively employed during conflicts with minimal risk to noncombatants. During Desert Storm an unknown number of mines were employed by both coalition and Iraqi forces. Upon cessation of hostilities, both the coalition forces and Iraqi forces occupying Kuwait produced

detailed and accurate records of minefield locations and mine dispersement patterns used in each minefield.<sup>32</sup>

The United States military clearly utilizes landmines in a disciplined, doctrinal, and discriminate manner. Problems with landmines arise when governments, revolutionaries, and terrorists (otherwise referred to as belligerents) utilize landmines indiscriminately and irresponsibly.<sup>33</sup>

### CONGRESSIONAL REGULATION OF LANDMINES

Because of the problems that landmines have created for societies world-wide, enraged Americans and non-government agencies have encouraged Congress to pass a law to regulate the use of antipersonnel landmines by United States military forces. The resulting Leahy Landmine Amendment, so named after Senator Patrick Leahy, the sponsor of the bill, was attached to the FY 96 Senate Foreign Operations Appropriations Bill. The main provisions of the Leahy amendment are as follows:

- impose a one year moratorium on use of antipersonnel mines, except along international borders and in demilitarized zones. It urges the President to seek similar moratoria on the use of antipersonnel mines by other governments.
- delay the start of the moratorium until three years after the date it is signed into law, in order to seek the support of other governments for similar action.

- urge the Administration to support proposals in international negotiations to achieve as rapidly as possible the United States goal of the eventual elimination of antipersonnel landmines. (This goal was declared by President Clinton at the United Nations in September 1994.)
- require the President to withhold sales of United States military equipment to countries that export antipersonnel landmines. (Current law prohibits United States exports of antipersonnel landmines.)<sup>34</sup>

However, the Leahy amendment is directed at United States forces and does little to solve the world-wide proliferation of landmines.

Since 1992 the United States has had in place a moratorium on the export of landmines<sup>35</sup>. Since 1974, the United States has procured only mines which self-destruct and self-neutralize after a predetermined period of time following activation.<sup>36</sup> At the height of United States landmine export business, the United States accounted for only approximately 8% of the world market, and our sales were predominantly to our allies— Canada, Greece, and Israel<sup>37</sup>. We never sold mines to Afghanistan.<sup>38</sup> The United States is not a direct contributor to the landmine proliferation problem; therefore, the Leahy amendment is hollow of any direct intervention in the continuing landmine problem.

In addition, the Leahy amendment predisposes that other countries will follow our example and that landmines will eventually be eliminated<sup>39</sup>. To a limited extent, that has happened. Some 29 countries have agreed to prohibit the export of mines, and a few countries (such as Sweden, Mexico, and Belgium) have banned the

manufacture, stockpiling, and use of landmines by their military forces<sup>40</sup>.

Unfortunately, these countries are not primary contributors to the landmine proliferation problem. China, Iran, Iraq, Russia, and Pakistan, among others, are primary contributors and remain opposed to any prohibitions<sup>41</sup>.

Countries like China insist that mines are legitimate weapons for states to use in self-defense against foreign aggression<sup>42</sup>. It should be noted that China is probably the largest manufacturer of landmines in the world. There landmines are "big business"; one Chinese subsidiary alone takes in \$40 million annually. In some countries, it is possible that companies may have moved production offshore to avoid export bans at home.<sup>43</sup>

The Leahy amendment prohibits the United States from exporting any defense articles and services to foreign governments that sell, export, or otherwise transfer antipersonnel mines. Several nations, such as Egypt, allow the export of antipersonnel mines. The Leahy amendment could place the United States in the embarrassing position of sanctioning some of our close allies.<sup>44</sup>

It is important to mention that the Leahy amendment specifically addresses antipersonnel mines; it does not prohibit the export of components. The export of component parts remains legitimate business. A major United States exporter is Motorola. Research on a particular Chinese mine, the T-72B, reveals the broad application of computer chips manufactured by Motorola.<sup>45</sup>

However, attempts to ban the export of component parts may be futile. Component parts, such as micro chips, may have multiple applications; and with

hundreds of known mines, along with many (homemade) unknown to us, as well as thousands of possible fuse combinations, an exact list of parts may not be possible. International laws and sanctions may very well be a better solution. This will be addressed later in this paper.

In general, there is also a lack of support internationally for Senator Leahy's objectives. "Most allies agree with preventing the export of CCW prohibited antipersonnel mines, but there is no consensus on the limitation of stockpiles and/or production."<sup>46</sup> Efforts to date to radically curtail production and export of antipersonnel mines through changes in the CCW Protocol II have been met with protests by China, Russia, India, and Pakistan.<sup>47</sup>

## **RECOMMENDATIONS FOR THE UNITED STATES**

Since consensus building is essential to implementing any effective change, I believe seeking incremental changes internationally will be the only successful path forward. Incremental changes in the use of, manufacture, stockpiling, and commerce of antipersonnel mines must be incorporated in enforceable international law. The vehicle for these changes is a strengthened CCW Protocol II.

The CCW Protocol II, as agreed to in 1980, contains a number of weaknesses. The following are some of the weaknesses:

- it does not apply to internal armed conflict, where most recent mine use has occurred.

- no clear responsibility is assigned for removal of mines
- it does not prohibit the use of non-detectable mines
- provisions for remotely delivered mines are not strong enough
- provisions on the use of hand-emplaced mines are too weak
- there is no effective implementation or monitoring mechanism<sup>48</sup>

In addition to the above specified weaknesses, an additional weakness is that only 54 countries have become a party to the 1980 Convention.<sup>49</sup> To be effective, the provisions of the CCW must be strong and provide mechanisms for follow-up and regular reviews.

The United States has already proposed the following changes to improve Protocol II of the 1980 CCW:

- expand the scope of the Protocol to include internal armed conflicts, as well as during peacetime.
- require that all remotely delivered mines (delivered by aircraft, rocket, or artillery) be equipped with self-destruct devices and self-neutralizing features.
- require that antipersonnel mines without self-destruct devices and backup self-neutralizing features be used only in controlled, marked, and monitored minefields.
- require that self-destruct devices and self-neutralizing features would have a specified maximum lifetime from emplacement as well as required reliability.
- require all mines be detectable using commonly available technology

- require that the party laying mines assume responsibility for them, including a duty at the cessation of active hostilities to clear them or maintain them in controlled fields. Where the party laying the mines no longer controls the territory in which they were laid, it would have a duty to provide assistance to ensure their clearance.
- establish an effective verification mechanism. If violations are found to have occurred, there would be a possibility of reference to the U.N. Security Council for action, as well as individual criminal liability for persons who willfully or wantonly put the civilian population in danger.
- establish a mechanism for more frequent consideration of the landmine protocol.<sup>50</sup>

A step toward gaining incremental changes to effect the way nation states use, manufacture, stockpile, and conduct commerce involving landmines is to recognize that legitimate militaries have legitimate requirements for antipersonnel landmines. When used in accordance with international laws of armed conflict, antipersonnel mines are an important part of military war fighting doctrine and are a force multiplier. The antipersonnel mine moratorium included in the Leahy amendment fails to recognize the legitimacy of landmines; and, thus, sends a powerful negative message to those with whom we are to negotiate.<sup>51</sup>

Another early incremental goal should be to establish a mechanism within Protocol II for more frequent consideration of the landmine protocol. An on-going dialogue and more frequent face to face discussions will better clarify the underlying

concerns of member states and build confidence toward establishing more substantial CCW protocols. Without active dialogue, it will be extremely difficult to build consensus.

From a practical viewpoint, landmines are a reality. If the world would accept the fact that landmines are going to be a continuing problem, and Bosnia demonstrates that where the availability of mines may be limited, combatants will produce homemade mines, then we need to give recognition that "good" and "bad" mines exist. Good mines being those mines that self-destruct and have a self-neutralization feature— both of which activate within a specified time period. Good mines are also detectable with common technology. Bad mines would be those that lack all these features.

United States antipersonnel mines have all the desired features and likely reflect the world's highest reliability factor wherein only 1 out of 32,000 self-destructing antipersonnel mines fail and become a hazardous dud. United States antipersonnel mines should, therefore, be marketed to preclude a market vacuum for antipersonnel mines being filled by less desirable (bad) antipersonnel mines.<sup>52</sup>

However, the United States must avoid imposing its technological superiority by limiting landmines to sophisticated models that other countries do not know how to produce or cannot afford.<sup>53</sup> China has expressed concern that it lacks the specific technology for self-destruct/self-neutralize mines. The Soviets want to opt only for self-deactivating mines. The latter leaves hazardous duds emplaced; and if an anti-handling device is affixed, the mine becomes a booby trap, ready to detonate when

disturbed. Self-destruct devices cause the mines to detonate after a specified period of time; thus, in effect, performing demining operations.<sup>54</sup>

United States self-destructing and self-neutralizing antipersonnel mine technology is mature. It is in our best interest to share that technology and seek to negotiate among equals rather than from a perceived position of superiority.

As discussed earlier in this paper, if basic antipersonnel mines can be procured for as little as \$2 each, how then does one convince a government or belligerent group to procure "good mines" costing \$15-\$100 each? Few third world countries can afford good mines. Neither can these countries continue to absorb economically dead zones and increasingly degraded infrastructure caused by indiscriminate use of mines.<sup>55</sup>

Within these countries, the social, political, and religious groups must be educated and mobilized to seek change within their respective governments. Collectively CCW member countries must put pressure on non-members to join and seek change. Only when the major powers come to grips with the problems, and effective international laws are implemented, can we begin to expect real change in the third world countries.<sup>56</sup>

The United States government, in conjunction with the United Kingdom, has proposed, as a possible compromise to those opposing changes to Protocol II, that nation states be permitted to maintain stockpiles of mines composed of 85% "good" mines and 15% "bad" mines.<sup>57</sup> All mines would maintain a minimum 8 gram metal content. The latter causes the mine to be detectable using commonly available

technology. The 8 gram metal content can be accomplished by affixing a metal washer to each plastic mine.<sup>58</sup>

However, the 85/15 split presents significant challenges. Fuses are easily interchangeable, and it is the fusing devices that predominantly determine whether a mine is a "good" or "bad" mine. The 85/15 split would be extremely difficult to enforce. It would be better to seek strong international laws in the form of changes to Protocol II that would include punitive actions against both governments and individuals found in violation of the CCW protocol.<sup>59</sup>

## CONCLUSION

In summary, the United States armed forces do not procure mines that cause humanitarian problems. Neither do our armed forces employ mines in contravention of international law as spelled out in CCW Protocol II. The United States does, however, have a humanitarian responsibility to seek applicable changes to CCW Protocol II that would deter belligerents from indiscriminately and irresponsibly using antipersonnel mines.

On the other hand, seeking changes to CCW Protocol II should be done without unnecessarily placing American service members in harms way. The Leahy amendment risks American lives unnecessarily.<sup>60</sup> The world is not ready for a total ban on antipersonnel mines.<sup>61</sup>

Preventing United States forces from employing antipersonnel mines creates an unfair battlefield disadvantage for United States forces. Aircraft delivered Gator mine systems, which proved so effective in Desert Storm and saved American lives, would be prohibited because the systems incorporate antipersonnel mines with antitank mines. The same is true for the air and ground vehicle delivered Volcano<sup>62</sup> scatterable mine system. The cost to remove antipersonnel mines from these systems is also prohibitive. It would cost an estimated \$136 million to convert the 120,000 Volcano canisters currently in inventory. Final costs would be even higher due to 38,000 canisters still in production.<sup>63</sup>

In addition, prohibiting antipersonnel mines would cause commanders to assume greater risk. Commanders would not be able to "shape" the terrain or "fix" the enemy. Areas, flanks, etc., previously well-protected by antipersonnel mines, would have to go unprotected or be protected by forces that we can ill-afford to commit to such inefficient responsibilities. Instead of having a force multiplier, the Leahy amendment is a denominator that further diminishes force effectiveness at a critical time of downsizing and austere budgets. A better course of action is to seek incremental change to the CCW Protocol II that will effect change in third world countries employing "bad" antipersonnel mines and in those countries producing them. Such a course of action by the United States government is a far superior method of truly resolving the landmine dilemma.



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