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## **Exclusive:** US Defense Force Personnel Remain Vulnerable as New Vehicle Systems Enter Production Without Appropriate Survivability Systems

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## **US Defense Force Personnel Remain Vulnerable as New Vehicle Systems Enter Production Without Appropriate Survivability Systems**

**Analysis. Staff Report.** The International Strategic Studies Association (ISSA) issued a White Paper on June 11 and June 21, 2007,<sup>1</sup> highlighting the threat to US military personnel, particularly in Iraq, from inadequate protective systems aboard the new US Army and US Marine Corps family of Mine Resistant Ambush Protected (MRAP) and other vehicles. ISSA on July 3, 2007, issued an extensive update which said that the vehicles were now entering production, still without the appropriate and vital safety systems.

The new addition to the White Paper noted that since the ISSA report, the US Army and US Marine Corps had responded rapidly to advice that the protection was inadequate for military personnel against improvised explosive devices (IEDs) and other incidents in the new MRAP family of vehicles and the proposed upgrades to existing HMMWV soft-skinned vehicles in the Iraq War theater. However, even as major orders for the new MRAP vehicles are being placed, the advice has not been transformed into contractual directives to ensure that the appropriate technology is used within the MRAP and other vehicles to address the threat.

See *Defense & Foreign Affairs Special Analysis*, [June 11, 2007](#): *New Study Highlights Ongoing Dangers to US Troops With Major New Vehicle Programs*, and *Defense & Foreign Affairs Special Analysis*, [June 19, 2007](#): *Iranian, Jihadis Prepare Doctrine to Defeat New US MRAP Vehicles*.

As a result, not only has the situation not yet been resolved to guarantee the improved safety of US troops, a methodology has not yet been put in place to move toward fixing the present contract specifications for MRAP and other vehicles, or for ensuring that, in the future, military vehicle safety standards can be given adequate oversight and planning.

The major manufacturers of the current MRAP range of vehicles have reportedly all been given advice as to the requirement to protect personnel against the secondary effects of blast. This requires attention to (a) personnel seating, (b) restraint systems, and (c) seat/harness mounting systems and associated structural strengthening. USMC and US Army officials have become aware of, and have accepted, the fact that armor protection against the initial effects of blast are insufficient to protect the occupants of vehicles under combat conditions, and that, as noted in the original ISSA White Paper, "issues such as inertial compression of the body due to acceleration and, in particular, "slam down" — the effect of the vehicle being lifted by blast and then slammed down after it — cause the an unduly high proportion of spinal injuries, head trauma and other injuries, and poor restraint systems, including those still specified (unchanged from earlier

vehicles) for the new MRAPS and upgraded M1114s, create death and injury among vehicle occupants”.

The International Strategic Studies Association (ISSA) team monitoring the situation has decided to issue this, and further, updates to the original White Paper, given the rapid pace of contracting and proposed deployment of the MRAP and upgraded HMMWV vehicles into conflict situations.

What has become apparent is that despite the fact that the MRAP vehicles and HMMWVs are to operate in high-danger situations, few of the vehicles fully meet even the two basic civilian safety standards, for motor vehicle seats, namely the National Highway Traffic Safety Administrations Standard No. 207 and Standard No. 210.<sup>2</sup> Significantly, as well, no-one is certifying the operational safety and viability of the vehicles being delivered to the USMC and US Army, other than the vehicle manufacturers themselves; there is no independent audit standard. In the civilian world, where the requirements (even Standards 207 and 210) are less stringent than should be applied to combat vehicles, there is a requirement for independent certification of safety compliance.

As well, reinforcing the point made in the ISSA White Paper of June 11/21, 2007, that “US Army testing capabilities for the new vehicles have themselves been limited, with only sufficient test dummies to test the two front seats in the vehicles”, it is clear that the and that the US Army Test and Evaluation Command at Aberdeen Proving Ground in Maryland does not have sufficient resources to adequately test vehicles against the anticipated range of true operational conditions which the vehicles are now encountering in Iraq. The Aberdeen facilities have only been able to undertake limited testing, under static conditions, against the front seats of the test vehicles, and then using only a small number of available water-filled dummies, which were inadequate to the task.

The International Strategic Studies Association concluded that the lack of a coherent framework of vehicle safety standards for the US Armed Forces – and the fact that adoption even of the most stringent of the National Highway Traffic Safety Administration’s Federal Motor Vehicle Safety Standards (FMVSS) and Regulations – constituted a major threat to the achievement of US Secretary of Defense Dr Robert Gates’ stated goal of placing personnel safety ahead of platform survivability. As a result, it would be of substantial benefit to the US Armed Forces if the uncoordinated, but exceptionally dedicated, efforts of key US Defense Department officials were supported by a responsible Congressional oversight capability within the House and Senate committees responsible for defense procurement.

The basic ISSA White Paper, *Considerations on Defense Force Personnel Survivability in Vehicle Incidents Under Urban Warfare Conditions*, focused heavily on the seating and restraint systems aboard MRAP and HMMWV systems, but, in reality, the whole approach to the inside structures of the vehicles neglected the requirements for personnel safety, particularly in blast situations. The basic flooring on a number of MRAP and other military vehicles has been seen to be inadequate to take the strain of blast and other combat situations, and so, too, are some of the wall-mounted cantilever brackets supposed to support seat capable of handling two-stage energy attenuation (EA) following blast.

Most vehicle manufacturers in the MRAP program seemed focused on (a) the cost of seating and associated systems and mounts, and (b) the cost of the systems. Significantly, although the vehicles had been developed with new technologies to meet a new generation of threat, the internal seating systems being adopted were, in fact, legacy technologies and off-the-shelf products which had never been adequately tested and which, clearly, would not withstand real conflict situations.

ISSA studies said, however, that the main MRAP vehicle manufacturers could not be faulted entirely, since adequate specifications for internal fit-out had not been given by the Defense Department and the Services, and contract pricing was based around the official specifications. Nonetheless, competent independent testing services had demonstrated that many of the seats being fitted into the vehicles would actually worsen the effects of blast, and would thereby jeopardize personnel survivability in conflict situations. Moreover, given the urgency of the vehicle

programs, the vehicle manufacturers were reluctant to stop production ramp-up at this time because of the prospect of legal action against them by the Defense Department should they not deliver vehicles to the military on time.

It was understood that some attempt was now being made to authorize more complex testing of MRAP and HMMWV seats, but initial contracting of test services – apart from the Aberdeen Proving Ground tests and tests at a US Navy facility – was being done to facilities which had only the capacity to undertake static tests, which would be inadequate to the challenge.

The reality is that inadequate seats, and inadequate mountings and restraint systems, could negate much of the enormous cost and benefit of fielding new combat vehicles to the US forces. Put more bluntly: the wrong seats and systems will add substantially to the casualty levels of the Iraq and other wars. Moreover, had the appropriate seating systems been available earlier, the casualty levels of the Iraq War would have been, for the US, considerably lower, with all the attendant political and strategic ramifications which a lower casualty (death and injury) rate would have implied.

Statistics during the current Iraq conflict show that IEDs cause 73 percent of tactical vehicle KIA (killed in action), and roughly 50 percent of the WIA (wounded in action) are injured so severely that they cannot return to duty. Moreover, the rate of IED incidents was climbing rapidly during the course of the Iraq conflict, and the rate of IED discover/clearance was rising, but not commensurately with the rate of incidents. Significantly, although the incident rate was climbing, the level of KIA/WIA was remaining fairly flat, indicating that doctrinal changes by US forces were working. On the other hand, there was a clear strategy by insurgents in Iraq, and their principal, ultimate support, the Iranian Government, to keep the US media and public focused on casualty rates. Again, this begged the question as to whether, had the US introduced adequate seating and restraint systems earlier into combat vehicles, the casualty rate would have been lowered, and the political climate surrounding US force deployment altered.

The ISSA study, in looking at some six competing seats being used in the MRAP vehicles, only one could be said to effectively be a comprehensive “system”, capable of meeting the threat. This was the CCOPS (Cobra Soldier survivability system), which, because of its significantly higher price, was fitted to only a few front-seat installations in some of the new MRAP vehicles. Moreover, the CCOPS maker, GSS, of Pennsylvania, was the only producer of total seating/restraint/mounting solutions which appeared to have designed and developed its approach around a realistic and broadly-tested approach to the threat.

It is important to note that the Arizona firm, Armorworks, which is known for its ballistic armor protection capability, had produced seats for some of the MRAP platforms (including some of the seats in the rear of BAE Systems vehicles). The ArmorWorks seats, however, have four-point restraint harnesses, and no provision to cope with the phenomenon known as “submarining”, and are based on helicopter seats which provide for (and require) only single-phase EA, whereas ground combat vehicles require the two-stage EA to meet the secondary effects of blast, particularly in slam-down. The ArmorWorks seats, in the view of ISSA analysts, do not meet the threat specifications and neither do they mitigate dynamic amplification. It was known that these seats were being discussed for the US Marine Corps Expeditionary Fighting Vehicle (EFV) program as well as MRAP.

It is clear that the USMC and USA are heavily involved in interim solutions to the IED threat which are reactive, at best; ie: the proposed underbelly solution called the “Frag 4 kit” plus extra heavy armor for Explosively Formed Projectile (EFP) protection. The real solution needs to get away from monolithic armor enhancements and move towards a system for personnel survivability.

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**Footnotes:**

1. *Considerations on Defense Force Personnel Survivability in Vehicle Incidents Under Urban Warfare Conditions*. See [www.StrategicStudies.org](http://www.StrategicStudies.org). See: *ISSA Releases Findings of Study into US Military Vehicle Safety*.

2. Officially, §571.207 and §571.210. Regulation 207 is the easiest and least important of the requirements with which manufacturers of vehicle seats and vehicles must comply. Regulation 210 is the more important and more difficult.

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## Doubts Still Surround Death of US Army Attaché in Cyprus

**By Valentine Spyroglou, South-East Europe Bureau Chief.** Mystery is founded in the death of the US Army Attaché at the US Embassy in Cyprus, Lt.-Col. Thomas Mooney. He had been missing since June 28, 2007, since 14:00 hours local time, after he left from the US Embassy. The Cypriot Police Department conducted investigations and found Lt.-Col. Mooney's body on Monday, July 2, 2007, in a mountainous area, south-west of the Cypriot capital, Nicosia, in an area called "Pirkolofos", between of the villages Aska and Kalopanagioti.

According to the announcement of the Cypriot Police on July 3, 2007, the 45-year-old Lt.-Col. Mooney died from loss of blood from a cut in his throat. The autopsy was conducted by Cypriot medical coroners, in Nicosia, Drs Marios Matsakis and Sofoklis Sofokleous, in the presence of a US delegation.

Officially, it is not clear if the Attaché was killed or if he committed suicide. Initial reports from the US Embassy to Washington indicated that suicide might have been the cause. However, secure information coming from GIS sources in Cyprus note that when he left from his office on June 28, he said that he was going to the gym in an hotel in Nicosia. Other information coming from the Embassy indicated that he was going to the airport to pick up someone. However, he neither went to the gym nor the airport.

A note was found in the pocket of the dead officer, but the contents of it was not made public. Also, his briefcase was found in his car. A small knife was found next to the corpse. Initial notification that Lt.-Col. Mooney was missing came from a US officer serving in the US Embassy in Nicosia, to the Chief of the Cypriot Police, Mr Papakostas, confirming also that Mooney was not in the northern part of Cyprus, occupied by Turkey. The US Embassy made the news of Lt.-Col. Mooney's disappearance public on June 29, 2007, one day after he was missing.

Mooney had been serving at the Embassy for one year, living with his family. He had served in Cyprus in the past and knew the island very well. During the recent visit of US Secretary of State Condoleezza Rice to the Middle East he had welcomed the Secretary of State personally at the Cypriot airport in Larnaka.

The Cypriot Security forces with US officers were now investigating the case to determine how Lt.-Col. Thomas Mooney died. They also were investigating the possibility that he was kidnapped and killed by terrorists, because before serving in Cyprus he had served in Afghanistan. Officially, however, the Cypriot Police excluded murder as a likely cause of death. The Cypriot Police report referred to a "cross-section [cutting] of big blood vessel in the neck" without referring to how this was conducted.

Intelligence sources in discussion with GIS/Defense & Foreign Affairs, however, noted that in recent years, Cyprus had become the center of espionage from the countries of the Middle East. Therefore, the sources felt, it could be assumed that Lt.-Col. Mooney was, in fact, murdered.

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## East Timorese Parliamentary Election Expected to Result in Coalition Government; Partnerships Unclear

**Analysis. By Barry Patterson, in Perth.\*** Early counting in East Timor's (Timor Leste) Parliamentary election, held on June 30, 2007, reveals that no major party has achieved sufficient votes to form government. Latest estimates suggest that *Frente Revolucionaria de Timor-Leste Independente* (Revolutionary Front for an Independent East Timor: FRETILIN), the current ruling party, maintain an 8-10 percent lead over their main competitor, *Conselho Nacional de Reconstrução do Timor* (National Council of Timorese Reconstruction: CNRT). Final results are not expected until after July 8, 2007. As of late July 3, 2007, FRETILIN had 32 percent of the vote

and CNRT 22 percent. As both parties have declared their unwillingness to enter into a coalition with the other, at this stage, it is unclear who will form the new Government.

There were 14 parties competing for 65 seats in the National Assembly, East Timor's Parliament. Campaigning was dominated by the better-funded, and newly-formed, CNRT, led by former President, and former guerilla commander, Kay Rala Xanana Gusmão. While being criticized for having limited policies, Gusmão's leadership and status as former statesmen, and national hero, is likely to have appealed to voters. FRETILIN, which has been the dominant party in East Timorese politics since national independence in 2001, has seen its support gradually decline, particularly since the events of May 2006 in which then Prime Minister and FRETILIN Secretary-General Mari Alkatiri was dismissed from his job by then-Pres. Gusmão. This sacking was in response to the Government's inability to control violence that resulted from the dismissal of almost a third of the army.<sup>1</sup>

Popular support remains strong for FRETILIN, due to many of their candidates being ex-guerilla fighters themselves, as well as a broad perception that Alkatiri presided over a competent, administration which was fiscally responsible with East Timor's \$1.12-billion oil revenues. The revenue, generated by Timor Gap oil and gas deposits, is in a New York-based fund and has been a point of contention in the election campaign. CNRT, and Pres. José Ramos-Horta, have declared their intention to access the fund in order to invest in development projects and infrastructure construction. FRETILIN however, have maintained it should remain untouched for future generations.

Another key party likely to be influential in the new parliament is the left-leaning *Partido Democrático* (Democratic Party: PD). Led by Fernando De Araújo, former General-Secretary of *Resistência Nacional dos Estudantes de Timor-Leste* (National Resistance of East Timorese Students: RENETIL), PD is likely to secure the third highest amount of votes.<sup>2</sup> De Araújo and the PD have the explicit support of the Catholic Church, popular rebel leader and fugitive Alfredo Reinado, as well as many younger Timorese, who were born during the Indonesian annexation. The PD also campaigned on a platform of economic liberalisation and rapid investment in infrastructure development, a similar platform to Pres. Ramos-Horta and Gusmão. PD has in the past suggested working with CNRT is a possibility. Any coalition with CNRT as the dominant party and PD as the junior partner will undoubtedly result in Gusmão as Prime Minister, and De Araújo as Deputy Prime Minister.

Other parties expected to play a significant role in a coalition government include: *Associação Social-Democrata Timorese* (Timorese Social Democratic Association: ASDT), led by former president Francisco Xavier do Amaral, and the *Partido Social Democrata* (Social Democratic Party: PSD), led by Lúcia Lobato.

All accounts suggest that the voting process was well coordinated, transparent and legitimate. It marks the first East Timorese run elections, coordinated by the newly created government organisations, the National Election Commission, and the Technical Secretariat for Election Administration. The UN and external forces however, provided security, logistical support as well as technical advice. There are currently 500 invited international observers, and 3,000 multinational peacekeepers providing security.

There were few reports of violence or intimidation. A solid turnout saw 80 percent of the 548,000 registered voters, across 13 districts, voting. However, concern was expressed over the counting process. Prior to the election, FRETILIN passed legislation to alter the counting process, transporting ballot boxes from the polling booths, where they had been counted for the recent April 9, 2007, and May 8, 2007, presidential elections, to district polling centres for counting. European and Australian observers expressed concern that there may be irregularities in the process. More concerning to observers was the potential for the *perception* of vote tampering, leading to the rejection of any potential final vote amongst segments of the population.

It is expected that once votes have been counted, and parties begin negotiations to enter into coalitions for government, the potential for violence and related trouble is likely to increase.

In unrelated news, on July 2, 2007, a foundation laying ceremony was held for the new East Timor Presidential Palace. Located west of Dili, the construction of the palace is funded by the People's Republic of China (PRC), who has been active in providing the East Timorese Government with support in national reconstruction. Attending the ceremony was the PRC Ambassador to East Timor, Su Jian. According to Chinese news sources, the project will take 13 months to build and will involve the closure of a nearby Australian helicopter base.

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**Footnotes:**

\* The author is a Research Fellow at Future Directions International (FDI), the sister organization of ISSA, which publishes *GIS/Defense & Foreign Affairs*. He is based in Perth, Western Australia, and has written extensively on East Timor.

1. Patterson, B; "Timor Leste Disturbances Reveal Unresolved Defence Issues", *Weekly Global Report*; May 8, 2006.
  2. De Araújo was also a presidential contender in the April 9, 2007 presidential elections, where he also received the third highest amount of votes. In the subsequent May 8, 2007 two candidate presidential run-off election PD transferred their support to Ramos-Horta, at the cost of rival candidate, FRETILIN's Francisco Guterres. Patterson, B; "East Timorese Presidential Elections Fail to Produce Clear Winner", *Weekly Global Report*; April 30, 2007.
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