Securing the state

Israel, which has long been a target for militant ire, has developed a range of defensive measures against rocket, maritime, cyber and nuclear threats.

Kylie Bull and **Joe Charlaff** report

The Israel Navy is investing in platforms such as IAI Super Dvora Mk III patrol vessels to better protect Israel's offshore gas rigs. IAI: 1364926

While Israel has been successful in defending against cross-border military attacks over the years, the primary threat continues to originate from short-range rockets launched by Islamic militants from the Gaza Strip and the likelihood of a similar attack launched by Lebanese militant group Hizbullah should hostilities break out.

Since Israel withdrew from the Gaza Strip in 2005, the area has become something of a launch pad for a variety of rockets, some homemade and some supplied by Iran; more than 7,000 rockets and mortars have so far been fired into civilian areas in southern Israel. The rockets have consisted of three types: homemade short-range Kassam rockets and 107 mm and 122 mm artillery rockets.

Among the infrastructure facilities that are vulnerable to attack in Israel are oil storage tanks and harbour facilities at Ashdod port, which are within reach of the short-range homemade rockets that form the backbone of Hamas and Hizbullah's arsenal.

Speaking at the annual Herzliya Conference in February 2012, Israel's Director of Military Intelligence, Major General Aviv Kochavi, warned that there were some 200,000 rockets and missiles aimed at Israel. The Directorate of Military Intelligence estimates that most of these have a maximum range of 40 km, but many have ranges of a few hundred kilometres.

Subsequently, March 2012 saw 157 attacks emanating from the Gaza Strip compared with 31 in February, according to Israel's general security services. This surge was brought about by an escalation of violence in southern Israel. Of the 157 attacks recorded, 137 were attributed to rocket attacks, with the rest comprising 19 mortar round launches and one improvised explosive device.

To counter the rocket threat, Israel has developed a range of missile defence systems with financial assistance from the US. These systems include Iron Dome: a mobile air defence system manufactured by Rafael Advanced Defense Systems that is designed to intercept short-range rockets and artillery rounds fired from distances up to 70 km in all weather conditions. For medium- and long-range missiles the David's Sling (Magic Wand) system is being jointly developed by Rafael and Raytheon, while the Arrow ballistic missile defence system is being developed by Israel Aerospace Industries (IAI).

The Israel Defence Force (IDF) believes that nine Iron Dome batteries could protect a sizable percentage of the population in any future war and that without these batteries civilian deaths could double to 400 a year. Currently, Israel has three batteries and plans to set up a fourth in the coming months.

Iron Dome comprises three central components: a detection and tracking radar built by Elta (a subsidiary of IAI); a control centre, including a battle management and weapon control system built by mPrest Systems (a private Israeli software company that is partly owned by Rafael); and a missile firing unit that launches the Tamir interceptor missile, which is equipped with electro-optic sensors and several steering fins for increased manoeuvrability. However, an interceptor missile costs about USD50,000, where as a Grad rocket costs just a few hundred dollars. For this reason Iron Dome only intercepts threats deemed to be bound for specific areas being defended.

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Iron Dome has proven its ability to successfully defend Israel's three most populous southern cities by intercepting 90 per cent of rockets launched from Gaza, according to Defence Minister Ehud Barak. For Israel, the successful performance of Iron Dome has been a game changer as the prevention of mass casualties has reduced the need to launch a major offensive into the Gaza Strip.

However, if Hamas were to launch longer-range missiles targeting populated areas closer to metropolitan Tel Aviv, the IDF would lack sufficient systems to cover the entire area. The battery that protects the Israeli city of Ashkelon, for example, cannot simultaneously defend any other urban area. As a result every city and town needs to have a battery at its disposal and this requires

Israel's Iron Dome system has intercepted over 90 per cent of rockets fired from the Gaza Strip since being declared operational in April 2011.

PA Photos: 1441020

An Israel Navy Shaldag-class patrol craft shadows a ship containing international activists. PA Photos: 1454069

a large number of batteries, each of them needing a substantial number of missiles at substantial cost.

However, according to a top-ranking IDF officer who did not wish to be named, the situation has become complicated by the presence of newly arrived Iranian military experts who are assisting the militants to manufacture the rocket launchers. The officer also claimed that some of the rocket launchers being used in Gaza were produced under the supervision of these experts, increasing their accuracy.

Maritime threats

In recent years Israel's border security has become more sophisticated, making it increasingly difficult for militants to penetrate conventional borders. This has resulted in militants using the sea as a means for launching attacks as well as smuggling weapons to Palestinian insurgent groups.

Israel has a unique problem as its Mediterranean coastline measures 85 n miles and its main ports, Haifa and Ashdod, are close to Lebanon and the Gaza Strip. The Israel Navy, which deploys long-range patrol boats and aircraft, is primarily responsible for the ports' outer perimeter and coastal security.

A terrorist attack on Israel's maritime interests is a credible scenario, with the country highly dependent on maritime trade and situated in a region where militant groups possess maritime capabilities. These include remote-controlled boats, speedboats, divers and mini-submersibles. Many of these platforms can be accommodated on a mother ship, providing a concentration of attack capabilities with the purpose of attacking Israeli ships, especially tankers, located in Israel's harbours.

Moreover, having continuously improved their maritime capabilities and tactics over the past decades, these groups have shown they have the potential to penetrate weak links in Israel's coastal defences. Possible targets include Ashkelon's power station, gas rigs, coastal defence installations and Israeli cruise ships. Attacks on any of Israel's ports could cause serious economic disruption and loss of life as all ports are located near major population centres.

That said, the sophistication, expense and training it takes to carry out these operations necessitate considerable overheads for the militants, including acquiring appropriate vessels, maritime skills and specialist weapons and explosives capabilities.

It is difficult to predict how the miitants might behave in future. An attempt at smuggling weapons on a cargo ship was foiled when the Israel Navy captured a cargo ship called *Karine A* in the Red Sea in 2002 transporting advanced weaponry destined for the Palestinian Authority. The shipment included 122 mm and 107 mm rockets as well as 80 mm and 120 mm mortar shells, various types of anti-tank missiles, anti-tank mines, sniper rifles, Kalashnikov assualt rifles and ammunition.

Another smuggling attempt took place in November 2009 when the cargo ship *Francop* was intercepted by the Israel Navy off the coast of Cyprus en route from Iran to Syria, where its cargo was to be smuggled by land to Hizbullah in Lebanon. The ship contained 36 containers of arms bearing the seals of Iran's national shipping company, including mortar rounds, rockets, artillery shells, grenades and small arms ammunition, all hidden behind sacks of polyethylene.

With regard to improving Israel's naval

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defences, better interconnected command-and-control centres combined with the use of unmanned aerial vehicles (UAVs) will allow Tel Aviv to react faster to maritime threats.

Furthermore, the navy has acquired the Protector unmanned surface vessel, which is based on a 9 m rigid-hull inflatable boat adapted for remote-control operation.

While the government is also looking to purchase additional platforms that will boost maritime capabilities, the navy remains reliant on private security companies for the protection of certain critical infrastructures, such as oil and gas platforms. These companies operate according to guidelines set by the Israeli National Security Council (NSC).

Rear Admiral Noam Feig (rtd), former vice chief of naval operations and head of naval intelligence, is one of the four directors of FourTroop: a private company specialising in maritime security.

Adm Feig said there have been many developments in relation to maritime security over the past few years, including Israel discovering gas and declaring an exclusive economic zone in agreement with Cyprus, whereupon Lebanon claimed that the gas was in its territory and threatened to attack Israel's rigs.

"The Israel Navy will not always provide close and on-board protection to the rigs, so the task has fallen to private security companies ... working in co-ordination with the defence establishment," Adm Feig explained.

Furthermore, the Israel Security Agency (ISA) co-ordinates security operations with the selected private companies, which are guided and supervised by the ISA's security officers in the relevant ministry.

As the protection of private vessels is not the responsibility of the navy, the government recently commissioned FourTroop to provide protection to a research vessel on an important mission. "We drew personnel from our database who are all ex-special forces, trained a crew and sent them to the ship in the Gulf of Aden and provided round-the-clock protection for 32 days, successfully repelling eight attacks from pirates," said Guy Sakin, a director and head of the special task team of FourTroop.

Cyber threats

As developed countries increasingly turn to computer networks to control their infrastructure, these systems become increasingly exposed to cyber threats. These potentially range from hacking into the database of a medical centre and deleting patients' records to disrupting the water and electricity supplies or transport network of an entire country.

As a result, governments must now be wary of terrorist and state-sponsored attacks against their critical infrastructures and, ac-

cording to Major General (rtd) Isaac Ben-Israel, former adviser on cyber security to Prime Minister Binyamin Netanyahu, Israel is hit by 1,000 cyber attacks every minute.

To this end, Hamas has reportedly used encrypted internet communications to transmit maps, pictures and other details pertaining to planned terror attacks, according to Yael Shahar, director of open-source intelligence and database projects at the Institute for Counter-Terrorism in Herzliya.

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In response to this threat, the Israeli government set up a cyber command team in 2011 known as the National Cybernetic Task Force, led by Ben-Israel, to secure the country against hacking attacks on its key networks. The task force has already submitted recommendations to the Israeli government on how to counter cyber attacks. These recommendations include, among others, appointing a national consultant on cyber threats, establishing a national headquarters for formulating a cyber defence policy and monitoring its implementation and establishing research centres in academia while increasing co-operation between the government, academia and industry.

Furthermore, it was reported by The *Jerusalem Post* that the IDF has “close to 300 young computer experts” serving as cyber specialists, while 30 ‘cyber defenders’ will be stationed throughout the IDF in various branches to oversee computer networks and to prevent cyber attacks. It is also believed that Unit 8200, which evolved from Israeli signals intelligence structures, forms a core cyber force.

That said, some believe the cyber threat is being over-hyped. For example, Shahar said that she thought the two main threats to Israel are low-level cyber attacks and ‘hactivism’ – computer hacking intended to convey a social or political message, or to support the position of a political or ideological group (such as cyber-activists Anonymous, who have threatened to attack critical Israeli websites).

Shahar said she was not aware of any successful hacks into critical infrastructure sites. However, in January 2012 pro-Palestinian hackers did manage to attack the websites of the Tel Aviv Stock Exchange and El Al Israel Airlines. Both organisations said that their websites had been affected by the attack, although not immobilised. Stock trading was unaffected.

Regarding the possibility of infrastructure becoming a target for cyber attacks, Shahar believes that, while websites might be targeted, cyber terrorists do not have the resources to launch large attacks against infrastructure. For example, the latest cyber threat to target the Middle East – a virus called ‘Flame’ – requires what is thought to be the resources of a state and a sophisticated intelligence agency to fund, develop, deploy and then analyse the information that has been extracted by the malware. Meanwhile, it is thought that Tehran does not as yet have the capabilities to respond with anything comparable to the Stuxnet virus that targeted the personal computers of employees in Iran’s Bushehr nuclear power station.

Israel regularly runs simulated responses to nuclear, biological and chemical attacks, with the latest exercise, Operation ‘Dark Cloud’, taking place in January.

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The nuclear threat

According to a report published by the Begin Sadat Centre for Strategic Studies in 2010, the threat of nuclear terrorism is growing and has been on Israel’s watch list for a number of years. The report went on to say that Al Qaeda appears to be the only terrorist organisation that might be able to develop a nuclear weapon on its own, although it is not yet able to do so. The author Chuck Freilich, former deputy national security advisor in Israel, confirmed to *IHS Jane’s* that the findings of the report remain true today.

There are many technological obstacles to developing a nuclear weapon and the international community under the leadership of the United States is increasingly on the alert for them. At this stage, Israel does not appear to be in immediate danger from this threat, but complacency should be avoided in light of growing instability in the region.

That said, in 2008 the US Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism issued its first warning that a nuclear or biological terrorist attack was likely to occur within the next five years. “Unless the world community acts decisively and with great urgency, it is more likely than not that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by the end of 2013,” the commission stated.

After the publication of its final report, the commission was authorised by US Congress

The Rafael Stunner interceptor forms part of the David's Sling missile defence system, which is designed to defend against medium-range rockets and cruise missiles.

IHS/Patrick Allen: 1346695

to implement 13 recommendations. These included: the US undertaking a series of mutually reinforcing domestic measures to prevent bioterrorism and the proliferation of biological weapons; Washington undertaking a comprehensive review of co-operative nuclear security programmes; stopping the Iranian and North Korean nuclear weapon programmes; working with the Russian government on initiatives to jointly reduce the danger of the use of nuclear and biological weapons; and accelerating counter-proliferation and counter-terrorism initiatives among law enforcement communities.

Meanwhile, although Israel maintains tight control of its maritime borders, a small 'dirty bomb' could be hidden on a cargo ship carrying hundreds of containers. Estimates are that the number of casualties would be around 500 if a radioactive dirty bomb attack was launched in Tel Aviv. However, the psychological effects would be much more far reaching.

As part of preparation for such an event, a civil defence exercise named 'Dark Cloud' took place in Israel on 18 January in the form of a simulated response to a radioactive dispersal device attack. Defence officials downplayed the significance of the drill, noting that it was part of the ministry's regular training programme. However, the timing led the media to speculate that Iran's supposed nuclear aspirations were the reason behind launching 'Dark Cloud'.

"In light of the revolutionary events and the growing instability in much of the greater Middle East and South Asia and the growing threat of failing states losing control on their chemical, biological and nuclear assets, an international effort to monitor, control and foil CBRN [chemical, biological, radiological and nuclear] terrorist attacks is vital for the security of the international community," said Ely Karmon, senior research scholar at the International Institute for Counter-Terrorism in Herzliya.

In contrast to conventional warfare, decisive victory over terrorism is rare. When countermeasures prevent one avenue of attack, the perpetrators usually improvise new methods of inflicting damage. After a series of aircraft hijackings in the 1960s that forced Israel to improve aviation security, terrorists began targeting Israeli embassies abroad. When security was tightened at these locations, terrorists launched bombing attacks on shopping centres, markets, buses and pedestrians in Israel's major cities. Accordingly, in Israel as elsewhere, counter-terrorism strategies must continually adapt.

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