

The use of the air arm during Operation Change of Direction

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Introduction

In the morning of 12 July 2006 Hezbollah employed missiles, mortars and snipers in southern Lebanon. In a well-coordinated action three Israeli servicemen were killed and two were abducted. As a reaction Israel carried out standard artillery bombardments. An Israeli Defense Force (IDF) unit was ordered to pursue the Hezbollah group in Lebanon, but was ambushed, during which a main battle tank was destroyed and the crew killed.

Subsequently, Israel got entangled in an armed conflict from 12 July up to and including 13 August, when, after intensive consultation, the UN adopted a resolution calling for the cessation of hostilities.² After the conflict both Hezbollah and Israel claimed victory. In the aftermath of the conflict there was much criticism in Israel on the way the IDF, and in particular the Israeli Air Force (IAF), had conducted the war. This article is an attempt to analyse what the IAF's contribution was and how effective this contribution was in relation to the outcome of the war.

In doing so, this contribution will be divided into two parts. In the first part the political arena in Israel will be considered, as it is there where certain strategic choices were made that determined the outcome of the conflict in advance. Subsequently, the tactical concept of Hezbollah will be reviewed, in its role as Israel's opponent. The second part is a chronology of the IAF's air actions. In the third part IAF's effectiveness and contribution to Israel reaching its strategic objectives will be discussed.

Preparation and doctrine

In order to come to a correct analysis of the manner in which the military actions were conducted and why they were carried out in this way, it is necessary to go into the doctrines and preparation of the belligerents. Generally speaking, they are less well-known for Hezbollah and as there are fewer similarities with that of western armed forces, this will be dealt with in greater detail.

The Vulture and the Snake

Experience has taught Israel that an occupation of Lebanon is an exhausting enterprise, both with regard to the number of losses and casualties and the loss of public (national and international) support. Based on the experiences from the Lebanese occupation (1982-2000) the IDF Institute for Campaign Doctrine Studies (ICDS) developed a new doctrine. An unclassified excerpt was published as an academic article entitled *The Vulture and the Snake*.³ In essence the doctrine prescribes that Israel should rely more on its air supremacy, in order to acquire an asymmetric superiority over an (irregular) opponent. This would make the IAF the predominantly offensive element (vulture) against terrorists or guerrilla fighters (snake), wherever they might be. In order to achieve this, a number of elements are necessary:

- the possibility for a continued surveillance (observation) of certain areas, for which unmanned aerial vehicles (UAVs) could be employed;
- fighter aircraft equipped with precision weapons for the kinetic effect;
- a robust, effective and fast command and control system able to attack time-sensitive targets;
- helicopters for carrying out air raids and supporting of air mobile operations.

In this concept land forces would mainly be employed in the defence of the Israeli border. In exceptional circumstances small units (special forces) could be used offensively against targets or persons that cannot be attacked from the air.

The concept depended heavily on the premise that dominance in the air would lead to victory. This assumption was politically acceptable as it allowed the well-known weak spots of the IDF ground forces to be ignored. Apart from that, it was deemed the solution for a long-cherished Israeli desire to prevent collateral damage through technology, especially during operations in urban terrain.

The decision to go for an immediate response with an intensive military action was not founded on a detailed, comprehensive and authorised military plan on the basis of a thorough study of the complexity of the Lebanese theatre. In advance, it was not certain whether the political objectives could be attained through military action. Nor was it clear whether military action would provoke the firing of more missiles on Israel, or whether the launches could only be made to stop by a (lengthy and intensive) occupation of the areas from which Hezbollah carried them out.⁴ Also in the light of the situation described above, it is understandable that the ground troops, in particular, were taken by surprise by the governmental decision to go to war against Hezbollah.

The Hezbollah 'doctrine'

If there is or was something like a (formal) Hezbollah doctrine,⁵ it will not be easy to describe, even if its actions are directed at attaining long-term political objectives. What is clear, though, is that Hezbollah made a thorough study of the Israeli doctrine and also carefully observed and analysed the actions of the IDF in the Israeli occupied areas. It is rather remarkable that an organisation like Hezbollah seriously considers the most effective course of action against the 'Zionist foe'. In describing the options at its disposal, terms like deterrence are also used. Besides, it is clear that Hezbollah has studied the IDF way of operating well and geared its organisation and tactics to it. This can be illustrated by the fact that Hezbollah in operation *Accountability* (1993) still assumed a large-scale Israeli ground offensive. The IDF, however, exploited its technological superiority via artillery shellings and a comprehensive precision bombardment by its air forces, taking Hezbollah by surprise. This prompted Hezbollah - in response to Israel's focus on the deployment of air forces and artillery – during operation *Grapes of Wrath* (1996) to trust on its ability to launch *Katyusha* missiles.

The lessons Hezbollah drew were mainly directed at the logistic sustainability of its actions and the method of decision making and command and control in order to optimise their effect. In the years after the Israeli withdrawal from southern Lebanon (2000) Hezbollah, taking into account the lessons from the past, prepared itself extremely thoroughly for a new confrontation. In doing so, it received extensive support from Iran and Syria. In the preparations a decreased Israeli capacity to receive considerable numbers of casualties was taken into account.⁶ In order to be able to conduct a lengthy future conflict effectively, Hezbollah prepared for a war of attrition against the Israeli home front. In order to achieve this, three 'rings' were developed. The first ring would consist of short-range missiles, the *Katyushas*, while the second ring would be formed by artillery, equipped with Syrian 220-mm missiles and *Katyushas* with an increased range, positioned south of the Litani River. The third ring was to consist of missiles with a maximum range of 250 kilometres, positioned between the Litani and Beirut.⁷ The main target for these missiles was the most densely populated areas of Israel, between Haifa and Tel Aviv. Apart from that, a large number of vehicles had been fitted out with launching pads for medium-range missiles. A possible reason for this mobile option was the protection of launching capacity against attacks by the IDF. Apart from this 'kinetic' equipment Hezbollah set up a strongly hierarchical organisational structure which allowed units to operate in a coordinated manner – making use of the three rings.

The doctrine that could be maintained with the help of these systems was based on two basic methods of operations. The first comes down to 'flooding' northern Israel with *Katyusha* missiles. To this end, Hezbollah had a large number of caches south of

the Litani and an extensive network of tunnels and subterranean bunkers and shelters, mainly built with a view to giving the fighters a chance of surviving IDF attacks and being able to continue the operations against the IDF and Israel.

The effect, the tactical execution

After the action of Hezbollah on 12 July the Israeli air force carried out an air raid which had been planned in advance. The targets consisted of some 17 Hezbollah command posts and bases and bridges in southern Lebanon across the Litani River.⁸ The action of Hezbollah took place at around 09:00 hrs and not even 90 minutes later Israeli fighter aircraft took to the air. The first actions of the IAF were confirmed at around 11:00 hrs by the Lebanese government. One of the objectives of attacking the bridges across the Litani was blocking a route of escape for the abductors.

Israeli reaction

In the course of the afternoon of 12 July a second attack wave was launched during which around 40 targets were attacked. In the first 24 hours of the operation around 100 air raids were carried out by the IAF. The information on what had been attacked and what had been destroyed and what the effect had been on Hezbollah, however, was not clear. This was demonstrated by the statement of Major General Adam during a press conference on 12 July, during which he stated that the IDF had the situation under control, "We are in control (...) we have destroyed all the Hezbollah outposts in the border and we are now continuing to operate in depth."⁹ His statement implied that an important part of the targets had been attacked effectively, but this could not be confirmed at the moment. There was an unopposed use of the Lebanese air space, but this was not remarkable. It is true that Hezbollah had done much to make the air space over Lebanon less accessible for the IAF by means of air defence, but neither the Lebanese armed forces nor Hezbollah had an air force of any significance. Apart from a number of bridges and command posts of Hezbollah, the international airport of Beirut was attacked on 13 July. This latter target was attacked by the IAF to give the Lebanese government once more the message that it was held responsible for the freedom of movement that Hezbollah had acquired over past few years.

Israeli objectives

On 12 July 2006 the IDF proposed the following objectives to the Prime Minister and the cabinet.¹⁰

- The removal of Hezbollah from the border areas with Israel;
- Giving a significant blow to Hezbollah's military capabilities in order to end the terrorist threat from Lebanon;

- The strengthening of the military deterrence towards Hezbollah and the surrounding countries;
- Forcing the Lebanese government to interfere in the situation and dismantle Hezbollah as a state within a state;
- Creating circumstances leading to the release of the two abducted Israeli servicemen;
- Ensuring that Syria does not become involved in the realisation of the above-mentioned objectives.

Below, the subsequent actions carried out by the IAF and the extent to which they contributed to the realisation of these objectives will be considered.

Chronology of the air actions

12 July 2006

The first day of the conflict is characterised by two attack waves; the first at 10:20 hrs local time and the other at around 16:00 hrs. The first attack takes place within 90 minutes after the initial Hezbollah action.¹¹ The air raids target in particular Hezbollah positions and several bridges in southern Lebanon. In total some 100 targets are attacked on this day.

13 July 2006

Aircraft of the IAF carry out air raids against Beirut, hitting, amongst others, targets at Rafic Hariri, the international airport of Beirut. The most important reason Israel gives for attacking this airport is that, apart from facilitating commercial flights, it is also used for the transport of weapons from Iran and Syria for Hezbollah.¹² Besides the airport some 80 other targets are attacked, such as Hezbollah headquarters and command posts, supply routes and bridges, missile launch pads and weapons storages.

Later in the day leaflets are dropped over southern Beirut calling upon the population to stay away from buildings that could be linked to Hezbollah activities. A remarkable attack on this day is the one on the broadcasting station of the Lebanese Al Manar in Beirut, a broadcasting organisation sponsored by Hezbollah which is used for broadcasting Hezbollah propaganda and appeals for suicide missions against Israel.¹³ An Al Manar relay station in Baalbek is attacked simultaneously. Two military airfields in Lebanon, Qulayaat and Riyak are also attacked as, like the Rafic Hariri International Airport, they are linked to the supply lines along which weapons transports from Iran

and Syria enter the country.¹⁴ During an action, lasting 34 minutes, 59 permanent missile launch installations of Hezbollah are attacked and destroyed. The installations are mainly intended for medium and long-range missiles. During the night of 13 on 14 July air raids are carried out on Haret Hreik in Beirut, a Shiite residential area known for being used by Hezbollah for locating its infrastructure in several apartment buildings.

14 July 2006

Apart from the attacks on Beirut described above, later this night also bridges and roads around Beirut are targeted, as well as various oil storage facilities and electricity installations that could be linked to the support of GSM communication.¹⁵

15 July 2006

The IAF carries out attacks on radar installations in Joenieh, Tripoli and other northern ports in response to the Hezbollah attack on an Israeli naval vessel, during which a shore-launched missile is fired. Israel accuses the Lebanese army of lending support in this attack and sees in this statement a justification for the attack on the radar installations.¹⁶ There were also attacks on houses or offices of Mohammed Nazzal in Beirut and Hussayn Musawi in the Baalbek valley, both senior Hezbollah leaders.¹⁷ Due to the threat of attacks on Lebanese energy facilities a spokesman of the Lebanese energy company Electricity du Liban (EDL) announces the closure of its plant in Jiyeh in the interest of the safety of its employees.

16 July 2006

IAF aircraft attack the Haret Hreik residential area. During the attack, which lasts for several hours, several buildings are destroyed. In the Manara residential area a light house is hit and the small village of Aitarun is attacked, during which eight Canadian holidaymakers are killed.¹⁸ A spokesman of the IAF headquarters indicates in a press conference that IAF has flown more than 1,000 fixed wing sorties up to that moment and more than 350 rotary wing sorties. In the press conference it is also stated that, according to the IDF, 60 per cent of the long-range missile launching installations have been destroyed.

17 July 2006

The Israeli air raids are intensified and carried out all over Lebanon. The targets that are attacked on this day are army barracks in Tripoli and Baalbek, fuel storage tanks of Beirut airport and several buildings in the Haret Hreik residential area. During an air raid a missile is fired at a minibus in Reileh, killing 12 civilians.¹⁹ An IDF spokesperson states that "if their missiles hit petrochemical plants in Haifa we will consider bombing plants in Lebanon".²⁰ During the night of 17 and 18 July a total of 60 objectives is

targeted, including targets in Baalbek, missile launching installations and radar installations of the Lebanese army to the north of Beirut. According to the IDF the targeted radar installations have been used in the attack on the naval vessel *Hanit*.²¹ Besides, targets in the harbour of Beirut and the 'Al Abda' harbour to the north of Tripoli are attacked.²² In Tyrus an apartment building is attacked which, according to the Israelis, is used as a Hezbollah headquarters. Several non-governmental organisations (NGOs) report a bloodbath in Tyrus after the attack on a multi-storey apartment building,²³ upon which Israel provides convincing proof that the destroyed building has been used as a Hezbollah headquarters.²⁴ Furthermore, there are attacks on communication systems used by Hezbollah, among which the Al Manar relay station.

18 July 2006

This day's attacks are directed at cutting off the supply lines between Syria and Lebanon. Of the 52 targets there are 12 that could qualify as supply lines.²⁵ Israel has always held Syria responsible for supplying Hezbollah.²⁶ Over a number of villages in southern Lebanon leaflets are dropped calling upon the population to leave the locations from which missiles have been fired as quickly as possible. At the same time it is announced that any transports by lorry will be considered suspect.²⁷

19 July 2006

Several targets in Beirut are attacked, including the airport.²⁸ According to the IDF 23 tons of bombs are dropped in an attack on a bunker in South-Beirut. According to Hezbollah, this is a mosque under construction.²⁹ During a press conference it is reported that weapons are being smuggled from Syria and that several trucks involved in these activities have been attacked.³⁰

20 July 2006

The targets on this day can be qualified as communication facilities, launching installations, roads and an airfield.³¹ According to IDF officers, about 50 per cent of Hezbollah's weapons arsenal has been destroyed, and one of them (brigadier Alon Friedman, Chief of Staff of Northern Command) states he is convinced that it will only be a matter of time to destroy what has remained.³² Again leaflets are dropped in which the IDF promises rewards for giving valuable information on Hezbollah.

21 July 2006

On this day 124 targets in Lebanon are attacked, more than 40 of which during the night. The targets are mainly Hezbollah headquarters, weapons caches, missile launching installations, roads and bridges.³³ The Mdeirej bridge, part of the most important connecting road between Damascus and Beirut, is once more attacked.³⁴

22 July 2006

According to the IDF, 2,000 targets have been attacked and the IAF has carried out 4,000 sorties since the beginning of the conflict on 12 July. The targets that are attacked on this day include roads, tunnels, missiles launching installations and the roads leading towards them, command posts and ammunition storage sites.³⁵ The roads that are attacked are all connecting roads between Syria and Lebanon. Moreover, attacks are made on television masts and GSM installations.³⁶ Over a number of villages in the area south of the Litani River leaflets are dropped calling upon the population to leave the area and seek shelter to the north of the river.

23 July 2006

The installations of the Al Manar television station near Beirut are targeted again by the IAF. A launching installation of a 220-mm missile, set up in the garden of a house, is identified and successfully attacked. Many attacks are carried out on communication systems that are thought to be used for Hezbollah command and control purposes.³⁷ The IAF is accused that day of attacking two vehicles near the village of Qana which were clearly marked as ambulances of the Red Cross.³⁸ The IAF denies the accusations. Two more weapons caches and bunkers are attacked.

24 July 2006

Possibly in connection with a visit of the American Secretary of State Rice only a small number of targets is attacked this day. The raids are directed at suppressing Hezbollah's capacity to launch missiles on northern Israel. To that end a launching installation is attacked, including alleged storage sites and bunkers used by Hezbollah fighters as hide-outs during Israeli attacks. Also the roads leading to launching locations are attacked, along with several trucks in the area south of the Litani River. The population was already warned of these attacks by means of leaflets on 18 July.³⁹ For the first time leaflets are dropped calling upon Hezbollah fighters to stop fighting.⁴⁰ During an action an Apache helicopter of the IAF crashes because its main rotor has become dislodged. Hezbollah claims to have shot down the helicopter, a statement that is immediately denied by the IAF.⁴¹

25 July 2006

This day the IAF carries out 180 air raids, mainly directed against locations that are used as shelters by Hezbollah fighters. Additionally, a number of locations is attacked from which missiles have been fired into Israel.⁴²

26 July 2006

The targets attacked are comparable to the ones of the past few days. In addition to the target list of the previous day, some vehicles are attacked that have been linked to the preparation of execution of missile attacks on Israel.⁴³

27 July 2006

The attention for the IAF on this day is mainly directed at the locations from which Hezbollah might be able to launch its missiles on Israel or has already done so. Apart from that, targets are attacked so that their destruction may make reaching the launching locations more difficult. Ammunition storage sites are also targeted.⁴⁴ To the north of Beirut a radar facility of the Lebanese army is attacked and destroyed.⁴⁵

28 July 2006

The air raids on this day are mainly aimed at Hezbollah's weapons caches and their re-supply. In this context several trucks and containers are attacked. Besides, the attacks on possible locations from which missiles can be fired on Israel continue. Also, the access roads to these locations remain a target in the air raids.⁴⁶

29 July 2006

The main objective of the air raids is the road connections between Damascus and Beirut, while Israeli IDF personnel state they have closed off the border between Syria and Lebanon in order to prevent the smuggling of arms and the re-supply of Hezbollah.⁴⁷

30 July 2006

The IAF attacks weapon storage sites and locations from which missiles were launched on Israel.⁴⁸ One of those places is Qana, where three objectives are attacked and where somewhere a big mistake has been made in the identification of the targets, resulting in the destruction of an apartment building and a large number of civilian casualties. The incident is given broad attention in the media⁴⁹ and the IDF gives a press conference during which it accepts the responsibility and tries to explain how the mistake could have happened.⁵⁰

31 July and 1 August 2006

In connection with the incident in Qana the IAF suspends its air actions over southern Lebanon for 48 hours, which allows an inquiry into the facts surrounding the incident. The IAF, though, maintains a constant presence in the air to be able to support the ground troops if need be. Arkin reports that for the first time in the conflict the IAF has made use of unmanned, armed, aerial vehicles.⁵¹ It is possible that these unmanned

aerial vehicles attacked personnel operating at rocket launch installations in other parts of Lebanon. Furthermore, there are attacks on several Hezbollah targets, such as command posts, ammunition storage sites and missile launching installations and launch locations.⁵²

2 August 2006

The IAF continues its attacks on various Hezbollah targets, such as ammunition storage sites and launch locations for the missiles. For the first time, there is a report from the IDF on the provision of covering fire for the ground troops.⁵³

3 August 2006

During nightly air raids some 120 sorties are flown, mainly directed against buildings in and around Beirut linked to Hezbollah activities,⁵⁴ locations suitable for missile launching installations and access roads. Besides, several launching installations for medium-range missiles are destroyed.⁵⁵

4 August 2006

This day the IAF attacks targets in Beirut, such as an ammunition bunker beneath a football stadium.⁵⁶ Aircraft of the IAF for the first time raid targets in the predominantly Christian area to the north of Beirut. These attacks are directed at cutting off the last significant connecting road between Syria and Lebanon.⁵⁷

5 August 2006

According to the Lebanese media, the IAF has carried out the most intensive air raids on southern Lebanon so far, with a total of 250 sorties, during which some 4,000 bombs and missiles have been dropped against several targets.⁵⁸ Leaflets are dropped to call upon the population of Sidon, one of the biggest towns in southern Lebanon, to leave the town.

6 August 2006

According to the IAF more than 4,600 targets have been attacked since 12 July. On this day the attacks are directed against bunkers, tunnel entrances, weapon storage sites and other Hezbollah infrastructure.⁵⁹

7 August 2006

Apart from a number of launching installations and Hezbollah infrastructure, the IAF also has intercepted and shot down a Hezbollah unmanned aerial vehicle. According to the IDF, it was detected before it crossed the border with Israel and subsequently flew

at low altitude over the Mediterranean before it was shot down. The Israeli Navy, which has salvaged the wreckage, reports that the aircraft had been unarmed.⁶⁰

8 August 2006

That day the IAF has flown some 200 sorties and attacked a number of Hezbollah targets, such as missiles, launching installations and the access roads leading to them.⁶¹

9 August 2006

The number of sorties flown remains high but the description of the objectives attacked is becoming increasingly vague.⁶²

10 August 2006

The 150 sorties of this day are mainly directed against several Hezbollah buildings used for various purposes, such as command posts and storage sites. Apart from that, six missile launching installations, three petrol stations and two bridges are attacked. The attack on the historical light house in Beirut is remarkable, as Hezbollah has threatened to launch missiles against Tel Aviv if the IDF attacks residential areas of Beirut not controlled by Hezbollah.⁶³

11 August 2006

During air raids 60 Hezbollah command posts are attacked. In the morning of this day heavy raids are carried out on the southern residential areas of Beirut, targeting the Hezbollah leadership. Apart from that, leaflets are dropped over Sidon and Beirut in which Nasrallah is accused of twisting the facts on the number of Hezbollah fighters who have died up to now.⁶⁴

12 August 2006

The IAF carries out attacks against various Hezbollah buildings, bridges and approaches and launching locations. According to several media, the IAF has attacked a building in Baalbek which accommodates a Hezbollah charity.⁶⁵ Also, power plants are targeted, which leads to power cuts in Tyrus and Sidon. Hezbollah claims to have shot down an Israeli CH-53 transport helicopter, which may have been hit by anti-tank missiles.⁶⁶

13 August 2006

The last day before the cease-fire comes into effect at 08:00 hrs on Monday 14 August local time there are still intensive bombardments on southern Beirut on bridges and roads that still make a connection possible with Syria and several petrol stations.⁶⁷ Also,

several vehicles are attacked of which it is assumed that they are used for shipping weapons.⁶⁸

15 August 2006

In the last hours before the cease-fire takes effect another 178 targets are attacked by the IAF, mostly in the area of Sidon, Tyrus and Khiam.

Objectives realised?

Below, for each IDF objective it will be assessed whether and to what extent it was realised.

Removing Hezbollah from the border areas with Israel

Israel had two important reasons for removing Hezbollah from its border areas with Lebanon. The first one was related to the capability of Hezbollah to infiltrate into northern Israel, and the second reason, possibly even more important, was the suppression of the missile threat. According to Cordesman, Israeli experts estimated that Hezbollah had somewhere between 10,000 and 16,000 *Katyusha* missiles at its disposal at the beginning of the war, although he indicates the estimate may have a margin of error of about 5,000 missiles. This might be caused by the fact that shortly before the war Syria had intensified its supplies and that it was discovered only later that Syria had supplied more missiles than was originally assumed.⁶⁹ For this reason, the IDF set great store by locating and destroying the launching installations for the medium and long-range missiles. According to others these missiles were capable even of reaching Tel Aviv or any other target in Israel, from Lebanon, and this was a new threat to Israel, requiring a forceful response.

According to Cordesman, in the first attack wave of the IAF 18 of the 19 to 21 launching installations of these medium and long-range missiles were destroyed.⁷⁰ After the first attack wave, which lasted about 35 minutes, General Halutz is reported to have told Olmert that all long-range missiles had been destroyed and that the war had been won.⁷¹ Both were convinced that this had worked the shock and awe effect, resulting in an historic victory for the IAF. According to Arkin, the claim of having destroyed 90 per cent of the Hezbollah launching installations for the long-range missiles cannot be substantiated by the facts and mission reports.⁷² Most analysts, however, praise the Israeli intelligence service for being instrumental in the reduction of that threat to about 20 per cent in the course of the first two days. Most medium and long-range missiles were of Iranian or Syrian stock. It is not known why the systems that had not been destroyed

by the IAF were not employed. Uzi Rubin presents three possible explanations for not firing the Iranian long-range missiles.⁷³ The first is that there were no Iranian missiles in Lebanon, an explanation he deems highly unlikely in view of the statements made by Iranian sources, which claimed publicly that Hezbollah was in possession of the *Zelzal-2* missile. A second explanation is that the missiles and their launching installations had all been destroyed in the Israeli attack on 13 July, an assumption that is contradicted by later data. In an IAF air raid on a target close to Beirut on 17 July a missile was accidentally fired and launched. Analysts have determined by means of photos and films that this must have been a *Zelzal-2* missile.⁷⁴ The third explanation, finally, is that the Iranian authorities had not given permission to use these weapons. Rubin is convinced this is the most likely one and it is also corroborated by Iranian statements to that effect.⁷⁵

In spite of all the efforts of the IAF to destroy Hezbollah's missile launching capability, the organisation managed to fire a large number of *Katyusha* missiles from the border area into Israel on a daily basis. Of the approximately 4,000 missiles that were fired on Israel during the war, 90 per cent are assumed to have been *Katyusha* missiles. Hezbollah, however, claims that it had fired many more missiles. According to the Human Rights Watch report, this discrepancy can be explained by the fact that Israel only counted the missiles fired on civilian targets, the missiles directed at and possibly landed on or in the proximity of military targets not being incorporated into the total.⁷⁶ In a speech on 9 August 2006 on Al Manar television Hezbollah leader Nasrallah claimed that, "we assert to you that these rockets were guided by God and are guided technically and are not fired indiscriminately".⁷⁷ Many of the missiles attacks, according to Hezbollah, were directed against the IDF, although, from 13 July onwards, the organisation also threatened to consider civilian targets as legitimate objectives if Israel continued targeting the Lebanese population in its attacks.⁷⁸

The above implies that on average 115 missiles were fired per day. More detailed reports reveal a varying intensity with an increase in the number of launches in the later half of the conflict, with a peak of 240 missiles on 3 August.

An additional reason for the considerable inaccuracy in the estimates of the size of the Hezbollah arsenal can be found in the fact that in the years leading up to this war the General Security Services (GSS) of Israel focused more on the Gaza strip,⁷⁹ a situation that was in part caused by budgetary restrictions. In its turn, Hezbollah was very much aware of the capability of the GSS and managed to keep strict secrecy by hiding information and the transfer thereof in a sophisticated manner. The GSS did its utmost to penetrate Hezbollah's communication system, which appeared to be a great challenge.

Thanks to a good secrecy by Hezbollah on the arms supplies and shipments, Israel was only able to make a rough conjecture of the types and quantities of weapons.⁸⁰

Apart from this, the role of UNIFIL is not quite clear in all this. These UN troops were mandated to monitor the withdrawal of the IDF and assist the Lebanese government in restoring its authority over the border area with Israel.⁸¹ In spite of the presence of UNIFIL, Hezbollah was able for years to fortify the border area with Israel and build and supply a substantial number of weapon storage sites.

One of the biggest problems for the IDF in dealing with the missiles threat was that Hezbollah used the Lebanese population and its infrastructure as a shield. Thus, many launching installations were spotted near hospitals, schools and mosques, and there were even missiles launching sites on top of apartment buildings. These methods undoubtedly contributed to the IDF being portrayed as incompetent in its attempts at stopping the missile launches, but also as showing no respect for the population of Lebanon in its efforts to tackle the missile problem. To show that Hezbollah did not only use big, visible launching installations, the IAF put a number of images on the Internet. They are intended to demonstrate the frequent use of improvised launching installations in the direct proximity of houses, schools, hospitals and mosques.⁸² These actions did create some appreciation, but at the same time they prompted the question whether there was no other way of taking out the targets, taking into account intended or unintended collateral damage. During the conflict Israel continually claimed that it would spare the Lebanese civilian population as much as possible. Thus, in leaflets that were dropped the people were repeatedly called upon to remove themselves from the locations Hezbollah was operating from.

From a military respect, what the IAF achieved in its actions against the missile threat was impressive. Thus, on 11 July three medium-range missiles were fired at Haifa from the area of Tyrus in Lebanon. According to Ophir,⁸³ the missile launching installations were destroyed within minutes after the first launches. In the actions secondary explosions were observed, which might indicate that not all missiles had been fired yet at the moment of the Israeli counter-attack. In the totality of the threat the detection and assault capability is only minuscule, but it is an indication of the advanced methods and technology used by the IAF and IDF to detect, identify and attack missile launching installations.

According to Ophir, it was striking that in the entire month that the conflict lasted the IAF showed itself to be capable of keeping large areas under surveillance and, where necessary, attack the identified launching installations; all the more so because part of

the IAF's capacity was still available for supporting the ground forces and carrying out interdiction missions. At the same time, however, it was worrying that the threat of the short-range missiles remained undiminished and the actions of the IAF had little influence on the number of missiles Hezbollah fired during this war. IDF analyses show that it is assumed that only a small part of the *Katyusha* missiles were destroyed, but that the IDF succeeded in stemming the resupply from Syria and Iran during the war. Israel, however, does not claim to have been able to significantly limit the missile threat.

This does not mean that the air actions were ineffective. Thus, Ophir thinks the effective neutralising of the so-called "low observable time-sensitive targets" one of the most significant achievements of the IAF. In his analysis, Ophir goes so far as to state that the explanation of the success of the IAF in this area can be found in the combination of advanced methods of information gathering and the quick assault. He even claims that it is not entirely unthinkable that the relatively low number of missiles fired at Haifa was a direct consequence of the effectiveness of the IAF. As Hezbollah made frequent use of launching installations consisting of only one launching tube, reacting to all launches was like trying to find a needle in a haystack. Ophir concludes his analysis by remarking that the IAF cannot do it on its own.

He emphatically states that support from special units and artillery is necessary, in spite of the high costs involved. Only with an integral approach can an adequate defence be realised.

Giving a significant blow to Hezbollah's military capabilities in order to end the terrorist threat from Lebanon

Hezbollah had not accommodated its command centres and other offices in military complexes remote from the civilian infrastructure, but in apartment buildings and houses. From the outside these facilities were not or hardly recognisable as something different than homes. Hunnerwadel⁸⁴ remarks that an organisation like Hezbollah is affected only to a low extent by attacks on its infrastructure, better still, it profits from it. The inevitable collateral damage caused to the civilian population and infrastructure in any case enables Hezbollah to effectively manage the propaganda against Israel. Hezbollah has repeatedly indicated to be amazed at the ease with which IDF deals with the fact that in all combat actions there is an enormous amount of collateral damage and which is apparently accepted. In a number of cases Human Rights Watch accused Israel of committing war crimes by attacking civilian targets. This is remarkable in itself as Hezbollah, in its turn, can be accused of deliberately accommodating its fighters and munitions in the civilian infrastructure.⁸⁵ Arkin established that many of the targets which had been described as destroyed by various organisations, such as the local Lebanese authorities,

Human Rights Watch and Amnesty International, often only sustained damage that can be repaired relatively easily, and that there was no question of destruction yet.⁸⁶

A second objective intended by the neutralising of the operational infrastructure is to take away Hezbollah's possibility of effectively commanding and controlling its fighters. This is in line with the methodology that perceives the opponent as a system in which the elements of command and control are of vital importance for the effective operation of the system. An analysis of organisations like Hezbollah, however, shows that they are rather built-up from a large number of semi-autonomous cells capable of acting without any clear command and control from a higher echelon. Because of this, attacks on the command facilities only have a limited effect, and partly because of this, Israel was criticised of showing few scruples with regard to attacks on civilian targets and causing civilian casualties.

One of the major challenges facing the IAF was attacking the Hezbollah command posts. These facilities were frequently located in apartment buildings and could not be destroyed without causing some extent of collateral damage. According to Cordesman, a large number of the attacks on the Hezbollah facilities had an opposite effect. As the IDF was unable to prove that in the attacked targets large quantities of ammunitions had been stored, Hezbollah effectively managed to show the world that Israel was not merely after Hezbollah, but that it felt no qualms in attacking the Lebanese population as well. Apart from that, the Hezbollah headquarters do not harbour facilities with much high-tech equipment, and by destroying them Israel created much more animosity against itself than tactical advantage.⁸⁷

In order to be able to operate effectively against the Hezbollah capability to sustain its command and control, it was important to take out the means of communication. According to Israel, Hezbollah made extensive use of the Lebanese Al Manar television station in Beirut for the dissemination of propaganda messages. The IAF failed to destroy Al Manar's capability completely, although air raids did take place against Al Manar and the Hezbollah controlled Al-Nour radio station on 12 July and the days following, to which the international media reacted with indignation. Israel claimed they were used to glorify suicide attacks and that the networks functioned as Hezbollah C2 assets. After the war the UN inquiry commission questioned the targeting of Al Manar, in particular doubting the legitimacy of the attack. According to the commission, the only way to justify an attack would be if the stations were used to call upon their audience to commit war crimes, crimes against humanity and genocide.⁸⁸ The commission does, however, make a distinction in its judgment by acknowledging that Al Manar was

used for disseminating propaganda and that this cannot be ascertained for the other stations that came under attack.

In its fight against Israel Hezbollah made use of two important elements, viz. Stand-off Firepower and attrition tactics to exhaust the IDF.⁸⁹ The missiles used by Hezbollah had different ranges and were fired from different areas. Obviously, the short-range missiles (especially *Katyusha* missiles) were stationed in the southern part of Lebanon, those with a larger range (*Fajr-3* and *Fajr-5* medium range) were mainly fired from the Tyros area and north of the Litani River. There were also attempts to launch from more northerly positions still. The major objectives for the missile attacks were civilian, and their firing was well-coordinated. The impression of coordinated actions was not challenged during the war, an indication of a very robust Hezbollah command and control system.

Apart from the use of stand-off firepower, attrition of the IDF was an important principle, of which the abundant use of anti-tank missiles, mortars and obstacles, mines and booby traps are clear indications. Hezbollah was hardly active in defending its territory, but was only trying to make things as tough as possible for the IDF, preferably by attacking materiel with a high media value, such as tanks, other armoured vehicles and, if given the chance, helicopters. In planning its actions, Hezbollah made thorough use of its familiarity with the terrain and the study of the expected routes of advance of the IDF.

From the beginning of the conflict, the IAF tried to damage the organisational and operational infrastructure of Hezbollah. This was mainly realised by attacking control centres, communication systems and buildings in the Dahiya residential area of Beirut of which it was known that they were used as Hezbollah headquarters. An analysis afterwards has shown that, as was indicated above, in particular the organisational infrastructure was attacked effectively and that great damage was inflicted.

Because of the fact that the battle strength and deployment of Hezbollah was not significantly impaired, it can be cautiously stated that the operational infrastructure was not effectively targeted or that Hezbollah was resilient enough to sustain its operational command and control.

Military deterrence towards Hezbollah and the surrounding countries

Whether Israel was able to realise the above-mentioned objective can only be ascertained after some time. Nevertheless, there are indications that point at a longer-term effect that had been achieved. Thus, shortly after the outbreak of hostilities Nasrallah claimed that if he had known that Israel would react the way it eventually did, he might

have chosen a different course.⁹⁰ This is somewhat surprising, as Hezbollah must have had a fairly good idea of Israel's reaction after its intention of abducting Israeli soldiers. Several weeks before the conflict in southern Lebanon Hamas had abducted an IDF soldier and killed two others in the border area with Gaza. In response the IDF carried out operation *Summer Rains* on 28 June 2006, mobilising thousands of troops to suppress the missile attacks from the Gaza strip and to achieve the release of the abducted soldier. On top of that, the IAF flew a number of selective bombing sorties and the IDF deployed ground troops over the entire Gaza strip.⁹¹ Nasrallah's reaction, therefore, must be viewed with some scepticism.

The neighbouring countries and sponsors of Hezbollah were less definite during the conflict and also kept a low public profile. The possibility that Iran may even have prevented the use of long-range missiles can be seen as an attempt to stop Hezbollah from escalating the conflict further, which might provoke the IDF into extending its action beyond just Lebanon. Efraim Halevy, the former director of the Israeli Mossad intelligence service, too, indicates that Iran and Syria made almost daily appeals for a cease-fire.⁹²

Furthermore, the support for Hezbollah in Lebanon is considerably less than in the period prior to the conflict. Several sources confirm that the support for Hezbollah in the Arab states in the period after the war has declined considerably. What must be remarked here is that the support in the Arab countries had been divided in the first place. Iran supported Hezbollah unconditionally, with Syria and Jemen in its wake, while the Arab League adopted a clearly more negative stance towards Hezbollah and the war it had provoked. In doing so, the relation with Iran was emphatically mentioned. "You have Hezbollah, a Shiite minority, controlled by Iran, and the Iranians are embarrassing the hell out of the Arab governments", stated Riad Kahwaji, director of the Institute for Near East and Gulf Military Analysis in Dubai.⁹³ The Egyptian Foreign Affairs minister, Ahmed Abul Gheit, accused Hezbollah of having started the war against Israel in order to avoid being disarmed by the Lebanese government.⁹⁴ Gheit stated that Nasrallah had undertaken an ill-conceived action, which made some people feel proud or even cry out victory, but which had brought the country (Lebanon) enormous damage. Shortly after the outbreak of the conflict the official Saudi-Arabia press agency, SPA, disseminated a press release in which it stated that a distinction should be made between legitimate resistance and uncalculated adventures by elements (inside Lebanon) and those who support these elements, without taking into account the legitimate authorities. At the same time, the press agency held Hezbollah accountable for the escalation and appealed to it to bring the crisis to an end.⁹⁵

Forcing the Lebanese government to interfere and dismantle Hezbollah as a state within a state

Attacking the infrastructural facilities in Lebanon was one of the ways in which Israel tried to point out its responsibilities to the Lebanese government. At the beginning of the conflict the Israeli government had put a restriction on attacking Lebanese infrastructure. Later in the conflict, especially during the last hours before the cease-fire came into effect on 14 August 2006, the IAF attacked a number of petrol stations in southern Lebanon and also a number of roads and bridges in northern Lebanon and in the Bekaa valley. The idea behind this, according to several analysts, was that this would delay and possibly undermine the regeneration of Hezbollah after the start of the cease-fire. Besides, there was some speculation of the cease-fire possibly being violated by Hezbollah, in which case the IDF would benefit from a seriously disrupted, damaged or partly destroyed infrastructure. In the aftermath of the conflict various organisations made inquiries into the damage that was done and the legitimacy of the targets that had been attacked. Arkin reports that, amongst others, Amnesty International and Human Rights Watch determined that the IDF had attacked targets that had no relation with any Hezbollah activity whatsoever, which suggested that Israel had mostly been after the systematic destruction of Lebanese civilian infrastructure.⁹⁶ In spite of the pressure that this put on the Lebanese government to take its responsibility in the conflict, this government never tried convincingly to make its authority felt and to curb Hezbollah's power.

Creating circumstances leading to the release of the two abducted Israeli servicemen

This objective was not reached during the weeks the conflict lasted. As the release or exchange of prisoners was a long way in coming about, the IDF cherished little hope anymore that the two men would still be alive. Finally, the bodies of the two abducted soldiers were transferred as part of a prisoner exchange on 16 July 2008.⁹⁷

Ensuring that Syria does not become involved in the realisation of the above-mentioned objectives

Syria made it clear that the Israeli troops had to stay clear of the Syrian border. Apart from that, the establishment of an international peacekeeping force in Lebanon would be considered a force of occupation, and this would legitimise resistance by resistance movements.⁹⁸ As it never went beyond the uttering of threats, a cautious conclusion may be drawn that this objective was reached, although it is impossible to attribute this success to a particular Service.

Conclusion

It is clear that the IDF was unable to remove Hezbollah from the border areas with Israel or to destroy it, and the movement is still functioning as a social-political and military organisation inside Lebanon. What can be said, however, is that the support for Hezbollah has considerably decreased. Through the IDF actions Israel has demonstrated (once more) to other countries in the region that it is prepared to go to great lengths when its security and existence as a state are at stake. In part as a result of great international pressure, a situation has emerged in which the Lebanese army and the UN troops in southern Lebanon must ensure that in the coming years Hezbollah will not be able again to form a serious threat to Israel. This is a tall order for the Lebanese army as well as the UN. The release of the abducted servicemen was not achieved, and it was not until 2008 that an exchange of prisoners and the mortal remains took place.

The role of the IAF has been criticised by many as it failed to produce the clinical victory independently. Nevertheless, it can be said that the role of the IAF has been a decisive one in the course of the conflict. Precision bombings and actions against the missile launching installations within an extremely short period of time have shown the IAF's worth. The perception that an air force can win a conflict with an (irregular) opponent on its own has been changed, but at the same time the necessity of an air force has been proven by the way in which the ground forces were supported in their actions and the ability to carry out actions in the rear area with targets of tactical and strategic value for the direct opponent in his capacity to fight the battle as well as for the state player (Lebanon) to take its responsibility.

In short, air power did not fail, it lived up to expectations. However, many held expectations that were not realistic, and they have had to adjust their ideas.

Notes

1. Lieutenant-Colonel A. (Guus) de Koster is an airpower lecturer at the Military Operational Arts and Sciences section of the Netherlands Defence Academy. He is a former F-16 pilot of the Royal Netherlands Air Force.
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3. Shmuel L. Gordon (1998), *The Vulture and the Snake Counter-Guerrilla Air Warfare: The war in Southern Lebanon*, Bar Ilan University, Begin-Sadat Center for Strategic Studies, Ramat Gan.

4. Zeev Maoz (2007), 'Evaluating Israel's Strategy of Low-Intensity Warfare 1949-2006', *Security Studies* 16, number 3 (July-Sept 2007), p. 327.
5. For an elaborate discussion on Hezbollah and its methods of operations see; Biddle and Friedman (2008), *The 2006 Lebanon campaign and the future of Warfare: Implications for army and defence policy*, Carlisle.
6. See also Amir Kulick (2007), *Hizbullah vs. the IDF: The Operational Dimension*, as published in <english.hizbullah.tv.essaydetailsf.php?eid=1160&fid=20&st=Doctrin e>, visited on 15 December 2008.
7. Hezbollah has acquired the Iranian *Zelzal* rocket, various models exist with a maximum range of 210 km.
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12. See <www.mfa.gov.il/MFA/Terrorism-+Obstacle+to+Peace/Terrorism+from+Lebanon-+Hizbullah/IDF%20operations%20against%20Hizbul lah%20in%20Lebanon%2014-Jul-2006>, visited 11 December 2008.
13. Ibid.
14. Arkin, op. cit, p.165.
15. Ibid., p. 174.
16. See <www.mfa.gov.il/MFA/Terrorism-+Obstacle+to+Peace/Terrorism+from+Lebanon-+Hizbullah/Summary+of+IDF+operations+against+Hi zbullah+in+Lebanon+15-Jul-2006.htm>, visited 11 December 2008.
17. Arkin, op. cit, p. 175.
18. See *New York Times*: <www.nytimes.com/packages/khtml/2006/07/19/world/middleeast/20060719_MIDEAST_GRAPHIC.html?adxnnl=1&adxnnlx=1153326065-54nLALq6GPoJSW6+A+M62g>, visited 10 November 2008.
19. See *New York Times*: <www.nytimes.com/packages/khtml/2006/07/19/world/middleeast/20060719_MIDEAST_GRAPHIC.html?adxnnl=1&adxnnlx=1153326065-54nLALq6GPoJSW6+A+M62g>, visited 10 November 2008.
20. See *Jerusalem Post*: <www.jpost.com/servlet/Satellite?cid=1150886020269&pagen ame=JPost%2FJPostArticle%2FShowFull>, visited 11 December 2008.
21. See <www.mfa.gov.il/MFA/Terrorism-+Obstacle+to+Peace/Terrorism+from+Lebanon-+Hizbullah/Summary+of+IDF+operations+against+Hi

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22. Arkin, op. cit, p. 182.
 23. *Israel's War Against Lebanon A Third of the Victims are Children*, Report compiled by Khiam Rehabilitation Center for Victims of Torture, Beirut, Lebanon, for the Second Session of the Human Rights Council in Geneva, 14 September 2006. See also Human Rights Watch (2006), *Fatal Strikes: Israel's Indiscriminate Attacks Against Civilians in Lebanon*, August 2006, pp. 22–24.
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 25. See <www.mfa.gov.il/MFA/Terrorism-+Obstacle+to+Peace/Terrorism+from+Lebanon-+Hizbullah/Summary%20of%20IDF%20operations%20against%20Hizbullah%20in%20Lebanon%2018-Jul-2006>, visited 11 December 2008.
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 27. Ibid, p. 185.
 28. See *New York Times*: <www.nytimes.com/packages/khtml/2006/07/19/world/middleeast/20060719_MIDEAST_GRAPHIC.html?adxnnl=1&adxnnlx=1153326065-54nLALq6GPoJSW6+A+M62g>, visited 10 November 2008.
 29. Arkin, op. cit, p. 187.
 30. See <www.mfa.gov.il/MFA/Terrorism-+Obstacle+to+Peace/Terrorism+from+Lebanon-+Hizbullah/Summary%20of%20IDF%20operations%20against%20Hizbullah%20in%20Lebanon%2018-Jul-2006>, visited 11 December 2008.
 31. Arkin, op. cit, p. 189.
 32. Ibid.
 33. See <www.mfa.gov.il/MFA/Terrorism-+Obstacle+to+Peace/Terrorism+from+Lebanon-+Hizbullah/Summary%20of%20IDF%20operations%20against%20Hizbullah%20in%20Lebanon%2021-Jul-2006>, visited 11 December 2008.
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 35. See <www.mfa.gov.il/MFA/Terrorism-+Obstacle+to+Peace/Terrorism+from+Lebanon-+Hizbullah/Summary%20of%20IDF%20operations%20against%20Hizbullah%20in%20Lebanon%2022-Jul-2006>, visited 11 December 2008.
 36. See *New York Times*: <www.nytimes.com/packages/khtml/2006/07/19/world/middleeast/20060719_MIDEAST_GRAPHIC.html?adxnnl=1&adxnnlx=1153326065-54nLALq6GPoJSW6+A+M62g>, visited 10 November 2008.
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59. Ibid., p. 227.
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