

ISRAEL HIGH-TECH & INVESTMENT REPORT

A MONTHLY REPORT COVERING NEWS AND INVESTMENT OPPORTUNITIES JOSEPH MORGENSTERN, Publisher
June 2009 Vol. XXIV Issue No.6 You are invited to visit us at our website: <http://ishitech.co.il>

It all began with a “familial” wager

In the late 1970s I was serving two functions --- banker and journalist. I wrote daily for the Jerusalem Post and worked full time at Israel's fourth largest bank. I enjoyed writing about science and technology. I had already written three books on these subjects. It was little wonder that I felt as if I were sitting on top of the world. Except at home I never mentioned my feelings to anyone. The better half complained that I was “full of myself”. At the drop of a hat I would proclaim that there was no one in Israel who would refuse an invitation from me, for an interview. She laughed. Indeed, if you are right, as a prize, I will cook for you the best beef stroganov that you have ever eaten. The challenge was more than I could resist and the wager was struck.

For me it was really “a piece of cake”. I contacted Mrs. Nardi, the President's secretary. The President then was, now of blessed memory, Ephraim Katzir. I was asked to submit 20 subjects for his approval and eventual discussion. . And so it was that a day and exact time were set. On the appointed day I was there an hour early and sat in my car waiting for 5pm to come. And when it finally did I approached the booth outside the President's house. The guard sprang into action. “We have been looking for you on the highway. No one could find you,” blurted the guard. I realized the error of my ways. “May I go inside and apologize to the President, in person, for my lateness?” I asked. I was ushered into the President's study. He sat me down and in his humble manner, assured me that we could begin our discussion. It turned out to be a superb interview. It was full of anecdotes and popular science. As per agreement, I submitted my 7,500-word article for approval. I was advised that President Katzir did not wish to have it published

In any case the beef stroganov was mine to be had. It became clear that, in the President's opinion, I had exaggerated his scientific achievements and standing. He was too modest and would not have the article published. Few years later the Weizmann Institute invited me for a birthday party to celebrate Professor Katzir's 70th birthday. His students came from all over the world. It was a wonderful day.

<http://ishitech.co.il>

It all began with a “familial” wager
IAI speeds-up delivery of UAVs to Russia
Nanobible presented to the Pope
DNA helps track down stolen cow in Israel
Rafael wins \$20m contract with General Dynamics
Israeli company says it has key to stop flu's spread
New Solar Power Farm in Israel Will ‘Help Fight Terror’
Unmanned rotorcraft for urban operations
VC investment in Israel slumps to five-year low
AORA to launch world's first hybrid new solarized gas turbine power station
New treatment of intractable angina and a non-invasive way of producing blood vessels
Healthcare, environment companies get OCS funds
Elbit Systems unit, General Dynamics in UAV joint venture
Significant financial backing for Israel's life sciences industry
Agritech
Neutralizing tumor growth in embryonic stem cell therapy
Next-generation Israeli UAVs to take off in Paris
Hebrew U. to launch biggest center in Israel for brain research

If there was a lesson to be learned from these experiences is it was that an ounce of modesty would never harm.

(We enclose for our subscribers a copy of the article about President Ephraim Katzir z'l that appeared in the Israel at 60 publication)

IAI speeds-up delivery of UAVs to Russia

Russia recently announced that it was suspending the sale of combat aircraft to Syria. Israel Aerospace Industries (IAI) is speeding up delivery of Unmanned Aerial Vehicles to Russia after the Russian government announced last week that it was suspending the sale of its Mig 31 fighter aircraft to Syria.

The deal worth \$50 million was signed last month and Israel is now expected to deliver the first of the UAVs by the end of 2009. The development has enormous strategic importance for the Middle East with Israel strengthening its defense relationship with Russia, while Moscow seems to be weakening its defense relationship with Syria and Iran.

IAI is also expected to sell long range missiles to Russia.

At the same time sources close to the Indian Defense Ministry report that the Indian government is negotiating with IAI for the purchase of three AWACS aircraft for \$1.35 billion. This is in addition to the three AWACS aircraft that the Indian government is currently buying from IAI for \$1.1 billion. India in talks to buy three more AWACS planes from IAI

India is negotiating the purchase of three additional AWACS surveillance planes from Israel Aerospace Industries, an Indian defense official said over the weekend. The estimated value of the deal is \$1.35 billion.

The news comes just days before the expected delivery of the first of three Phalcon AWACS that India ordered in 2004 for \$1.1 billion, the official said.

The Phalcon radar can track 60 targets simultaneously out to 350 kilometers, an Indian Air Force official said.

While awaiting the AWACS planes - Airborne

Early Warning and Control Systems - the air force has been relying on unmanned aerial vehicles manufactured by IAI, including the Searcher-I, Searcher-II and Heron models.

Nanobible presented to the Pope

Israeli President Shimon Peres presented visiting Pope Benedict XVI an Old Testament that local scientists have inscribed on to a pinhead-sized silicon chip. The Hebrew-language Bible was engraved on a 0.5 square millimeter (0.0008 square inch) chip by scientists from Technion, Israel's Institute of Technology. According to the nanotechnology experts at the Technion Haifa Institute of Technology, the text measured less than 0.5 sq mm, which was written on a silicon surface covered with a thin layer of gold (20nm in thickness - 0.0002mm). The veteran Israeli statesman presented the 308,428-word text to the pontiff during his visit to Israel.

The chip is in a glass case decked with a magnifying glass along with technical explanations of the nano Bible in Hebrew and English, and the first 13 verses of the Book of Genesis magnified 10,000 times.

Israel High-Tech & Investment Report
Published monthly since January 1985

Publisher and Editor in Chief
.Joseph Morgenstern, B.A. Chem
Technology Review Board
(Prof. S.J. Joel-Cohen, MD, FRCS, FRCOG (1996-200
Prof. Hylton Miller, M.B. Ch.B
.Dr. Clive L. Carpel, M.B. Ch.B

Copy Chief
Debbie Mor
Web Master
Marty vonBokel
Graphics Consultant
Daniel Morgenstern
Subscription Inquiries
Tel-. +972-3-5235279 Fax. +972 3-5227799
E-mail: htir_1@netvision.net.il
Annual subscription \$95.- per year, for 11 issues,
Israeli residents add 15.5% VAT
Web Edition and Archives
<http://ishitech.co.il>

The 86-year-old president is a known enthusiast of nanotechnology, which he has branded as the key to solving the Jewish state's security needs.

DNA helps track down stolen cow in Israel

Police used DNA to track down a stolen cow in the Upper Galilee, the first time such a method has been used in Israel.

The breeding cow, named Gilad, was found in the village of Rama - not far from Moshav Hazon where it was stolen .

The cow's ears - which had an identification tag on them - had been cut off by the thieves.

But what the thieves did not know was that the cow had undergone blood tissue tests in the past, the results of which are stored in a computerized database along with the DNA of another 20,000 cows that have undergone tests in Israel. Guy Evron, who conducted the genetic tracking program for the company Baktochen, confirmed for police that the cow was Gilad

Rafael wins \$20m contract with General Dynamics

Rafael Advanced Defense Systems Ltd. is to participate in a \$37 million project led by General Dynamics to upgrade the armor on US Army Bradley fighting vehicles. Rafael's share in the project is worth some \$20 million.

Rafael and General Dynamics have cooperated for several years on reactive armor for armored fighting vehicles in the front lines in Iraq and Afghanistan, in projects worth over \$120 million. Rafael has won an award from the US government for its contribution.

Rafael provides active armor for APCs. The armor is activated when advanced weapons such as anti-tank missiles are launched at the vehicle. The company is considered a world leader in reactive and passive armor and now also in active armor with its Trophy system for the Merkava tank, Israel's main battle tank.

Israeli company says it has key to stop flu's spread

Israeli start-up CartaSense says it has developed technology that could help stop communicable diseases spreading from

livestock to humans, and is in talks with several large companies to mass-produce its products.

CartaSense has been selling its technology - a tag that integrates a sensor, battery, micro controller, non-volatile memory and a radio frequency circuit that transmits to a control unit -- for three years through other companies.

It targets farmers who have large herds and need to instantly monitor each animal's vital statistics.

Since the H1NI flu virus broke a few weeks ago -- infecting over 6,000 people in 27 countries -- CartaSense has been flooded with calls from around the world for the system.

"Everybody wants this as fast as possible," Sharon Soustiel, vice president of business development, said in an interview. Mass production at this stage is not possible as CartaSense, based in a Tel Aviv suburb, is a tiny company of 10 employees, he said.

Soustiel said CartaSense is in talks with a number of large U.S. and European companies to join as strategic partners. He noted the only way it can grow is through partnerships.

"Using our technology, we can avoid the next swine flu," he said. "We can't afford to do it alone."

CartaSense was started to target the broader agricultural sector, but this phase of its development is for cattle.

"Pigs are now our first priority," Soustiel said, adding the CartaSense has a device prototype that could be operational within a year.

The "tag" with the sensor is placed in the ear of the animal and sends information like temperature and heart rate to the farmer's computer or mobile phone in real time. "If the herd gets sick, you know from where in the herd and you can isolate the sick group and prevent an epidemic from breaking out," Soustiel said, noting the technology can also be used inside beehives to measure temperature and humidity.

A network can be made with the group of tens or hundreds of thousands of cows and they can be monitored even when they move. The network can

be used in wide-open spaces, since the sensors work up to 500 meters away from each other.

New Solar Power Farm in Israel Will 'Help Fight Terror'

Shimon Peres, the President of Israel recently helped launch a new solar farm at Kibbutz Yavne. The farm uses concentrating solar power to generate electricity and hot water. President Peres said at the launching ceremony, "It is a natural way to fight terror because the oil-producing countries of Iran and Venezuela destroy our lives by terror." He also called solar power democratic because sunlight is available to everyone.

No government aid was required for the project. It was funded entirely by Israeli venture capitalists. The cost of the electricity generated is approximately 8 cents per kilowatt hour. This price is slightly less than the cost for electricity provided by the main power supplier in Israel, the Israeli Electric Corporation.

Zenith Solar provided the technology for the system. They have a patented CSP device which they say can use a great deal of the sun's energy: "Zenith Solar utilizes the heat generated at the solar cell receiver to provide usable hot water heating, improving overall solar power conversion efficiency to 75% ". Each of the mirrored solar collecting dishes at the site has 110 square feet of surface area.

A vineyard will be planted between the rows of solar cells. Kibbutz Yavne has 1,500 acres of land for growing field crops, fruit, poultry and dairy. It is the site of the largest chicken hatchery in Israel. About 1,100 people live there.

Unmanned rotorcraft for urban operations

Israel's Urban Aeronautics is readying for the first flight of its multimission MULE, an unmanned vertical takeoff-and-landing (VTOL) aircraft tailored for urban operations.

Now in final assembly at company facilities, the midsize MULE demonstrator is scheduled to take to the sky by June, following full-power ground tests planned for next month.

If extensive flight testing validates the MULE's hidden-rotor, internal-lift design - as it has thus far in wind tunnel tests and in the company's

scaled-down Panda UAV, flying since late 2007 - Urban Aeronautics can claim a significant aerospace milestone: the world's first Federal Aviation Administration (FAA)-certifiable "rotorless" VTOL capable of ferrying cargo and passengers in and out of constricted areas.

Built around company-patented Fancraft propulsion, flight control and aerodynamic technologies, the internally powered and controlled MULE is designed to take off and land like a helicopter, but without the safety hazards, flight restrictions and noise of large rotors and exposed rotor blades. With a maximum gross takeoff weight of 2,400 pounds, the midsize system is designed to carry a 500-pound payload nearly 300 miles - about two hours worth of flight time - while traveling at speeds of up to 100 knots.

Under the firm's preliminary concept of operations, MULEs would be loaded with logistics supplies, fly via GPS satellite coordinates to designated offload areas, and land at locations selected by beacon-bearing ground spotters. The rotorless external configuration renders approach on landing and offloading of supplies much safer and faster than with conventional aircraft, company executives here say. Once emptied, each MULE can evacuate two wounded on its return flight to forward or rear bases.

"Everything's inside the body of the aircraft; there are no exposed rotors, and this opens up a world of operational possibilities for military and civil use," said UrbanAero President Rafi Yoeli. According to Yoeli, the unmanned MULE as well as the company's X-Hawk, a larger, twin-rotor, 11-passenger manned demonstrator now in development, are designed to fly with precision and relative stealth in urban, forested and other areas now off-limits to conventional tactical aircraft.

"The tips of the rotors are protected inside the ducts, and deliberately turn slowly, so MULE will be very stealthy," Yoeli said. He added that infrared and radar signatures have been kept very low to ensure survivability.

In an interview at UrbanAero's headquarters here, Yoeli noted that the basic concept driving the firm's internal rotor Fancraft design has been around for decades, yet never proved practical due to inherent instability and aerodynamic inefficiencies. However, thanks to

new lightweight composite materials, high-thrust engines, powerful micro-processors, quadruple fly-by-wire flight controls and company-patented aerodynamic innovations, “what was once a mere design curiosity is now a reality.”

Yoeli said MULE relies on existing and proven technologies, is built in accordance with FAA-specifications and has passed a U.S. Navy-funded risk reduction and safety assessment program conducted jointly with Bell Helicopter and Penn State University.

“We’re building an air vehicle that is as safe or safer than anything flying today,” he said.

Ovadia Harari, a nationally recognized aerospace pioneer who agreed to serve as UrbanAero’s chairman after nearly 40 years at state-owned Israel Aerospace Industries, credited Yoeli for designing and essentially hand-crafting the MULE prototype and the unmanned Panda - a tactical surveillance system that doubles as a flying test bed - in a fraction of the time and cost required of conventional aerospace firms.

“He raised nearly \$10 million until now from good people who believe in his maverick ideas and practical smarts. In an industry which is so conservative and risk-averse, Yoeli inspires others to invest in his dream,” said Harari.

Aside from a 2008 agreement with Tata Advanced Systems to jointly market and produce MULE for the Indian market, UrbanAero is discussing a potential strategic partnership with a major European aerospace firm, he said.

“Once MULE starts flying, the interest in this system will increase substantially,” Harari said.

Data culled from flight testing of the firm’s scaled-down, 35-pound Panda and ground subsystem tests indicate that the 2,400-pound MULE demonstrator will be highly stable, drag-resistant at sustained forward speeds of up to 100 knots and able to withstand gusts of up to 50 knots. Yoeli attributed performance breakthroughs mostly to the company’s Vane Control System, a row of vanes on the inlet and outlet of the fan ducts that provide maximum maneuverability without having to tilt the body of the aircraft.

“Vanes mounted at the outlet of the ducts are an

old idea, but for some reason, nobody ever put vanes on the inlet side. But we found they are as effective as the lower set of vanes and when all are moved in coordination, they act as a sum of tens of individual lifting surfaces, capable of generating a multitude of overall force and movement combinations,” explained Janina Frankel-Yoeli, UrbanAero’s vice president for marketing.

“For the first time, we have a vehicle that can move sideways without the need to roll, and vice versa,” Frankel-Yoeli said.

She added that aerodynamic tailoring between the lift rotors and fuselage allows the fuselage to provide about 70 percent of the lift it needs when operating at high speeds, with the remaining 30 percent of lift provided from the internal rotor.

UrbanAero was exploring development of two additional MULE versions: a two-to four-seater manned vehicle and a faster, unmanned aircraft capable of flying upward of 250 knots, Frankel-Yoeli said.

“We’ve done wind-tunnel tests of the high-speed variant and have gotten excellent results and our existing MULE demonstrator can be adapted quite easily to hold up to four people,” she said.

First flights will be very brief, low-altitude hovers, with the MULE vehicle tethered to the tarmac by safety wires. Later this summer, the firm plans to transition to high-altitude flight, after which the MULE vehicle will be ready for demonstrations for prospective customers, company executives said.

VC investment in Israel slumps to five-year low

The MoneyTree report for the first quarter of 2009 by Kesselman & Kesselman - PricewaterhouseCooper Israel states that Israeli venture capital-backed start-ups raised \$194 million in the first quarter, 32% less than the \$287 million raised in the preceding quarter, and 55% less than the \$427 million raised in the corresponding quarter of 2008. Fundraising in the first quarter was the lowest in over five years, since the \$192 million raised in the fourth quarter of 2003.

Just 49 Israeli start-ups raised capital in the first quarter, compared with 81 start-ups in

the preceding quarter, and 92 start-ups in the corresponding quarter. The average amount raised was \$4 million in the first quarter, compared with \$3.5 million in the preceding quarter and \$4.6 million in the corresponding quarter.

The findings of the Israel MoneyTree report are in line with the report for the US, where the amount raised by start-ups in the first quarter was 47% less than in the preceding quarter, and the number of start-ups raising money fell by 37%.

Declaring it a record total, Pacific Gas & Electric announced an expansion of solar-power contracts with Oakland's BrightSource Energy for a total of 1,310 megawatts of electricity — enough to power 530,000 California homes during peak hours of noon to 7 p.m.

The power purchase agreements, which will now include seven power plants, add to a previous contract the two companies struck in April 2008 for up to 900 megawatts of solar thermal power.

BrightSource called it the largest solar deal ever. The company now has 2,610 megawatts under contract, which it said is more than any other solar thermal company and represents more than 40 percent of all large-scale solar thermal contracts in the United States.

"The solar thermal projects announced exemplify PG&E's commitment to increasing the amount of renewable energy we provide to our customers throughout Northern and central California," John Conway, senior vice president of energy supply for PG&E, said in a statement. "Through these agreements with BrightSource, we can harness the sun's energy to meet our customers' power requirements when they need it most — during hot summer days."

John Woolard, chief executive of BrightSource Energy, said the additional contracts came about after BrightSource demonstrated its technology in Israel with results that were "at or above all the specifications."

Woolard said. "They saw us executing and delivering" efficient production of solar energy.

Gov. Arnold Schwarzenegger, a major solar proponent, welcomed the deal as "more evidence that reliable, renewable and pollution-

free technology is here to stay and sunshine will eventually power hundreds of thousands of homes and businesses across our golden state."

BrightSource, which designs, builds and operates solar thermal plants, will construct the plants at a cost of at least \$3 billion in the southwestern deserts of California, Nevada and Arizona. The company anticipates the first plant, a 110-megawatt facility at Ivanpah in eastern San Bernardino County, to begin operation by 2012.

Its technology uses sunlight reflected from thousands of movable mirrors to boil water to make steam. The steam then drives a turbine to generate electricity. BrightSource founder and Chairman Arnold Goldman's previous company, Luz International, built nine solar plants in the Mojave Desert between 1984 and 1990, all of which are still operating.

In March, BrightSource reached an agreement with Southern California Edison to purchase 1,300 megawatts, then the largest solar contract ever, BrightSource said.

Investor-owned California utilities such as PG&E are required to get 20 percent of their power from renewable sources by 2010, or to by then have contracts for power from projects that go online by 2013. PG&E already has contracts in hand that exceed that 20 percent goal, said spokeswoman Jennifer Zerwer.

She said PG&E gets 12 percent of its energy from renewable sources now, and expects that to increase to 14 percent by the end of the year.

AORA to launch world's first hybrid new solarized gas turbine power station

AORA, a leading developer of applied ultra-high temperature concentrating solar power (CSP) technology, announced today that on June 24th it will launch the world's first gas turbine solar thermal power station at Kibbutz Samar in southern Israel.

AORA's Samar power station consists of a field of 30 tracking mirrors (heliostats) situated on half an acre of land. The power module is expected to supply 100 kW of power to the national grid, enough to sustain approximately 70 households.

"The launch of our solar power system ushers in a new and exciting generation of solar technology,"

said Haim Fried, AORA's CEO. "Not only can our modular systems be scaled and customized for a variety of environments and individual needs, but the fact that we are using a hybrid system means that our customers can produce clean energy and heat 24 hours a day, seven days a week."

AORA's hybrid approach allows the system to run on solar radiation input, as well as almost any alternative fuel, including biogas, biodiesel and natural gas. This flexibility enables the module to run in a variety of operation modes – from solar-only mode, where electricity is supplied when there is ample sunlight, to hybrid mode, where fuel helps generate electricity when sunlight is insufficient, such as at night or when it is cloudy. This capability offers uninterrupted, green power 24 hours-a-day.

Additionally, the company's modular energy-generating system is designed to require less land to generate more usable power and heat at a lower cost than other solar energy systems.

Each of the Samar station's 30 heliostats track the sun and reflect its rays towards the top of a 30 meter-high tower housing a special solar receiver along with a 100kw gas turbine. The patented receiver uses the sun's energy to heat air to a temperature of 1,000 degrees Celsius and directs this energy into the turbine. The turbine in turn converts the thermal energy into electric power that will be fed directly into the national grid.

New treatment of intractable angina and a non-invasive way of producing blood vessels

Chest pain is a dominant symptom that brings patients to seek medical help. A common cause is the narrowing of the coronary arteries due to arteriosclerosis. In the last three decades, enormous advances have been made in the treatment of coronary artery disease, the number one killer in the Western World. Preventive measures including diet, exercise, cholesterol lowering drugs and treatment of hypertension have resulted in a dramatic decrease in the mortality from heart attacks and angina pectoris. Coronary artery bypass and cardiac catheterization with implantation of stents have resulted in alleviation of symptoms of angina pectoris and prolongation of life. However, there is a growing number of patients who have undergone bypass surgery

and often multiple angioplasties, but remain with disabling symptoms of angina pectoris despite optimal medical therapy. In fact multiple reports of the results of angioplasty and bypass surgery in carefully controlled trials show that at a year after both procedures, up to 25% of patients had symptoms of angina pectoris, despite optimal treatment. These patients, with intractable angina, are not candidates for further interventional procedures, and yet remain cardiac cripples or have severe limitation of effort.

A new promising non-invasive treatment has been developed by Cardiospect, a company that manufactures and markets a device that produces high energy ultrasound shock waves for lithotripsy, (breaking up stones in the kidneys and ureter) . This machine has been modified to produce low energy shock waves (one tenth that required for lithotripsy). Based on laboratory and animal experiments, repetitive low energy shockwaves applied outside the body, stimulate the development of new blood vessels in the designated area of the ischemic area of the heart muscle by releasing cytokines and homing factors for the progenitor cells ("healing cells") in the circulation. This has been repeatedly demonstrated in many centers in Europe and in two centers in Israel. The shock waves are focused and guided to the ischemic muscle with conventional ultrasound. The out-patient treatment is painless, does not cause damage to the treated heart, lasts about 30 minutes for the application of about 500 "shocks". Optimal stimulation of blood vessel formation is obtained by a series of 9 treatments, 3 per week, at 4 weekly intervals. Professor Hylton Miller, an interventional cardiologist, and a member of the ~Advisory Board of IHTIR has seen marked improvement in radionuclear myocardial perfusion scans following Shock-Wave Therapy in a series of patients, a phenomenon he has seen only in patients who have undergone revascularization by by-pass surgery or angioplasty. These results have been reported on in multiple European centers.

Alternative non-invasive treatments include EECP – Enhanced External counter-pulsation. This involves three cuffs placed on each leg (on the calves, the lower thighs, and the upper thighs (or buttock)). The cuffs are timed to inflate and deflate based on the individual's electrocardiogram. The number of ECP treatment sessions is a

total of 35 one hour sessions over 7 weeks. The results are modest, unpredictable and patients with peripheral vascular disease are not suited for this therapy. In development are attempts at cell therapy for chronic angina, but no dramatic results have been reported. It is not widely used, and is invasive, complex and the cost is high. External Shock-Wave Myocardial Revascularization (ESMR) is an effective and patient friendly modality for the stimulation of angiogenesis and for treatment of patients with intractable angina and is poised to become a more widely used treatment for the growing population of patients with intractable angina. Studies are underway using shock wave therapy in patients with chronic heart failure and as an adjunct homing stimulus for cell therapy.

Healthcare, environment companies get OCS funds

The incubator technologies committee, chaired by Chief Scientist Dr. Eli Opper, approved funding for four new ventures at its last meeting. The companies are in medical devices, software, and water technologies.

MDC, based at the Dimona-based incubator Rotem Industries Ltd., is developing innovative membranes for recycling water. The market recycling household, municipal, and industrial wastewater is currently estimated at tens of billions of dollars, and is growing rapidly. Water recycling involves heavy operating and maintenance costs, hence the need for improving the process.

TACount, based at Kinarot-Jordan Valley Technology Incubator, is developing technology to identify and count microorganisms in samples.

Colongate, based at Misgav Technology Center, is developing a medical alternative for people suffering from stoma problems following a colostomy.

Concealium Software Ltd., based at Naiot Venture Accelerator in Yokne'am, is developing an information security solution for enterprises, irrespective of format or storage system. The solution will be for Software as a Service (SaaS) systems.

The Technical Incubators Program director said that the incubator technologies committee

discussed 41 applications for new ventures during the first quarter, and that it approved 31 of them. NIS 53 million was approved for the programs, one third of the Technical Incubators Program's budget for 2009.

Elbit Systems unit, General Dynamics in UAV joint venture

Joint venture UAS Dynamics solutions will be based on Elbit's Hermes and Skylark systems.

Defense electronics company Elbit Systems Ltd. (Nasdaq: ESLT; TASE: ESLT) US subsidiary Elbit Systems of America, LLC, and a General Dynamics (NYSE: GD) unit have formed a joint venture to build unmanned aerial systems for the US military.

The General Dynamics Armament and Technical Products and Elbit venture will be named UAS Dynamics, LLC. The solutions that UAS Dynamics will offer are based on Elbit-designed unmanned aerial vehicles that have accumulated more than 150,000 operational flight hours to date: the Hermes and Skylark systems.

The venture expects to provide unmanned aerial systems to the Department of Defense and other potential US government customers through programs such as the recently announced US Marine Corps' small tactical unmanned aircraft system (STUAS)/Tier II program.

UAS Dynamics is equally owned by Elbit Systems of America and General Dynamics and is located in Fort Mill, South Carolina.

Elbit's orders backlog totaled \$5.091 billion at the end of the quarter, compared with \$5.03 billion as of December 31, 2008. Approximately 67% of the backlog relates to orders outside of Israel. Israeli Life Sciences Companies Receive Largest Share of Seed and Early-Stage Hi-Tech Investments in First Quarter of 2009

Significant financial backing for Israel's life sciences industry.

Ahead of next month's ILSI-Biomed Israel Conference, IVC survey reveals significant financial backing for Israel's life sciences industry.

Biomed Israel Conference, Israel's premier

life sciences event, announced that a survey conducted by the Israel Venture Capital Research Center (IVC) ahead of the ILSI-Biomed Conference (June 15-17) showed Israel-based life sciences companies received the largest share of seed- and early-stage investments in the Israeli hi-tech industry in the first quarter of 2009, with 43 and 34 percent of all hi-tech investments respectively.

Twenty-five seed and early-stage life sciences companies raised \$50 million in the first quarter of 2009, equaling 24% of the capital raised in the entire hi-tech industry. Medical device companies raised \$28 million, 56% of the total capital raised in the life science sector, and 11% of the capital raised in all hi-tech sectors.

The IVC survey, conducted across the entire Israeli hi-tech industry, also revealed that the life sciences industry in Israel raised the third highest amount of funds over the first quarter, totaling 19% of all hi-tech capital raised during the quarter.

“These results, appearing only weeks before the ILSI-Biomed Conference, highlight how important the biomedical and life-sciences industries have become, even during the economic slowdown,” said Ruti Alon, ILSI Chairperson. “The clear interest and financial support reaching the life-sciences industry makes the ILSI-Biomed Israel conference even more important, giving international CEOs, experts, academics, scientists, researchers, venture capitalists and angel investors the opportunity to gather together to provide and gain insight into the future of the BioPharma and Medical Device industries.”

The \$50 million raised by life sciences companies, however is 66% lower than the \$147 million raised by 21 companies in the first quarter of 2008 and 23% lower than the \$65 million raised in the last quarter of 2008.

The total raised by medical device companies represents a decline of 56% in comparison to the first quarter of 2008 where 14 medical device companies raised \$63 million and a drop of 3% in comparison to the last quarter of 2008 in which nine such companies raised \$29 million.

“Despite the decrease in capital raising from 2008, the fact that we are continuing to see strong investments in Israeli seed- and early-stage life

sciences companies shows a lot of promise for the future of this sector,” said Alon. “Next month’s ILSI-Biomed Conference will provide many of the country’s seed- and early-stage life sciences companies with an opportunity to showcase their technology and to attract investments.”

ILSI-Biomed Israel, set to take place June 15-17, 2009, is the leading international conference covering the fast-growing field of innovation in the biomedical, health care and life sciences industries. The lectures and panels at the conference will provide insightful outlooks on biomedical opportunities, including discussions such as medical technological breakthroughs in a time of economic turmoil, investment strategy in a time of crisis, facing the change of regulation and legislation in the U.S. markets, impact of new FDA regulation on development of new medical devices, and cardiovascular therapies in 2020.

Agritech

David Arzi, Chairman of the Board, Israel Institute for Export and International Cooperation states that as a result of the International Global Crisis, the export of agricultural inputs from Israel is expected to decrease.

Nonetheless, it **Agritech** is estimated that at the Agritech Exhibition, business transactions worth approximately 40 Million Dollars will take place in the area of agricultural inputs. “The government needs to create affordable lines of credit for exporters in the field in order to double sales to developing countries yet the global food crisis creates an extraordinary opportunity for Israeli exporters to increase their sales worldwide thanks to Israeli technologies which are expert at increasing efficiency”

“Despite the 10% increase in export of agricultural inputs from Israel in 2008 totaling 2 Billion Dollars, the Export Institute estimates that due to the global financial crisis, a total stand still is expected this year in export of agricultural inputs. However, at the beginning of 2010 we expect a recovery in demands, among other reasons due to the severe lack of food and water in many areas of the world” says David Arzi, Chairman of the Export Institute at the Opening of Agritech 2009.

Arz estimates that on Exhibition’s Opening day at

the Tel Aviv Fair grounds, attended by hundreds of buyers and agriculture professionals from around the world, business deals will be signed for about \$40m. According to the Export Institute, which is responsible for marketing the Exhibition overseas, about 65 delegations from around 35 countries are expected to attend. Among the delegations there are seven delegations from China and four from India. Furthermore, over 20 Ministers of Agriculture are expected to participate from many countries including: Argentina, Belarus, Brazil Colombia, Cyprus, Ethiopia, Georgia, Sri Lanka, Vietnam and others.

Arzi pointed out that insurance of short and medium term foreign trade risks is critical for this field and he called upon the government to create affordable credit lines for exporters in the field in order to accelerate the signing of financial protocols with developing countries in Africa, Latin America, Central Europe and the Former Soviet Union. Through these measures, Arzi believes, it will be possible to double the field's exports to emerging markets and create a revolution in the field of agricultural inputs.

Studies carried out at the Export Institute show that 200 exporters in the field of agriculture export presently to more than 100 countries worldwide. About 45% of the export is directed towards Europe, 20% towards the USA, 16% towards South America and 11% towards Asia and other countries including Ethiopia, Angola, Kenya and the Former Soviet Union.

During the Agritech 2009 Exhibition, which is jointly organized by the Israel Export & Interantional Cooperation Institute, The Ministry of Industry, Trade & Labor, the Ministry of Agriculture, the Ministry of Foreign Affairs and the Faculty of Agriculture of the Hebrew University, an International Symposium will be held on the topic of "The Global food Crisis and its Ramifications". The symposium will be attended by government officials and guests from overseas. The purpose of the symposium is to raise the dilemmas concerning the food situation and to position Israeli technologies in the field as the global leaders that they are.

According to Arzi, Israel is justifiably perceived as a leader in technologies for increasing efficiency in use of agricultural inputs and increasing agricultural production.

In its 61 years of existence the State of Israel has succeeded in increasing agricultural production 20 fold, while the labor force in the field has decreased from 17% of those employed to only 2.5%. Furthermore, Israel has prudently learned to produce more, much more in dollar terms, from each given cubic meter of water, from each pair of working hands and from every bit of land, while significantly improving efficiency and production. Israel has registered records in the production of milk and eggs, greenhouse flowers, recycling of water for agriculture and the growing of tomatoes in salty water, among others. These abilities of Israel are very much coveted in the world. The Export Institute's challenge is to increase exports of Israeli agricultural technologies from \$2b in 2008 to \$2.5b. in 2011.

In 2008, delegations and business people in the field of agricultural inputs, aided by the Export Institute, traveled to Romania, Thailand, Vietnam and India. Last year, with the assistance of the Institute, about twenty delegations from around the world were hosted in Israel in the areas of irrigation, greenhouses, milk farms, seeds, poultry and others. This year, the Export Institute is arranging delegations of businesspeople in the field of agriculture inputs to Romania, South Africa, India, China, Mexico, Vietnam, Cambodia, Thailand and other countries.

Neutralizing tumor growth in embryonic stem cell therapy

Researchers at the Hebrew University of Jerusalem have discovered a method to potentially eliminate the tumor-risk factor in utilizing human embryonic stem cells. Their work paves the way for further progress in the promising field of stem cell therapy.

Human embryonic stem cells are theoretically capable of differentiation to all cells of the mature human body (and are hence defined as "pluripotent"). This ability, along with the ability to remain undifferentiated indefinitely in culture, make regenerative medicine using human embryonic stem cells a potentially unprecedented tool for the treatment of various diseases, including diabetes, Parkinson's disease and heart failure.

A major drawback to the use of stem cells, however, remains the demonstrated tendency of such cells to grow into a specific kind of tumor,

called teratoma, when they are implanted in laboratory experiments into mice. It is assumed that this tumorigenic feature will be manifested upon transplantation to human patients as well. The development of tumors from embryonic stem cells is especially puzzling given that these cells start out as completely normal cells.

A team of researchers at the Stem Cell Unit in the Department of Genetics at the Silberman Institute of Life Sciences at the Hebrew University has been working on various approaches to deal with this problem.

In their latest project, the researchers analyzed the genetic basis of tumor formation from human embryonic stem cells and identified a key gene that is involved in this unique tumorigenicity. This gene, called survivin, is expressed in most cancers and in early stage embryos, but it is almost completely absent from mature normal tissues.

The survivin gene is especially highly expressed in undifferentiated human embryonic stem cells and in their derived tumors. By neutralizing the activity of survivin in the undifferentiated cells as well as in the tumors, the researchers were able to initiate programmed cell death (apoptosis) in those cells.

This inhibition of this gene just before or after transplantation of the cells could minimize the chances of tumor formation, but the researchers caution that a combination of strategies may be needed to address the major safety concerns regarding tumor formation by human embryonic stem cells.

Next-generation Israeli UAVs to take off in Paris

Israel will unveil its ambulance UAV for evacuating wounded soldiers from the battlefield. Israel will make its 24th appearance at the Paris Air Show - Le Bourget that will open its centenary exhibition on June 15. 18 Israeli companies and organizations will participate, 12 of them at the Israel Chalet organized by the Israel Export and International Cooperation Institute at a cost of NIS 6 million. Six companies will have their own stands.

Export Institute chairman David Arzi said that, this year, the Israeli exhibition will emphasize avionics, and unmanned systems that represent

the concept of the future, and which are at the forefront of international technology. Israel will also unveil several new unmanned aerial vehicles (UAV), including helicopters, mini UAVs with electric motors that are carried and operating by individual infantrymen, light tactical UAVs, mid-sized UAVs with proven operational experience and simultaneously operate a range of sensors, and large strategic UAVs with wingspans the size of passenger planes.

Israel will also unveil its ambulance UAV for evacuating wounded soldiers from the battlefield.

The companies at the Israel Chalet are Elbit Systems Ltd. (Nasdaq: ESLT; TASE: ESLT), Rafael Advanced Defense Systems Ltd., Rada Electronic Industries Ltd. (Nasdaq: RADA), Aeronautics Ltd., Bental Industries Ltd., Plasan Sasa Ltd., Kanfit Ltd., Controp Precision Technologies Ltd., TAT Technologies Ltd. (Nasdaq:TATTF; TASE:TATTF), Urban Aeronautics Ltd., and Amicell - Amit Industries Ltd.. SIBAT Ministry of Defense Foreign Defense Assistance and Defense Export Organization will also be at this chalet.

Israel Aerospace Industries Ltd. (IAI) (TASE: ARSP.B1) will have its own chalet next to the national one.

Other Israeli exhibitors are Israel Military Industries Ltd. (IMI), Ashot Ashkelon Industries Ltd. (TASE: ASHO), AeroMaoz Ltd., Bet Shemesh Engines Ltd. (TASE: BSEN), and SGD Engineering Ltd.

Arzi said that Israeli industry has been able to maintain its UAV edge, and that Israel is a global leader in this field, and attracts great interest from the world's armies and air forces, as well as from law enforcement agencies seeking civilian applications of unmanned air power.

In addition to UAVs, the Israeli companies will display other unmanned vehicles and UAV command and control systems, imaging equipment for nighttime and in difficult weather conditions, electronic intelligence systems, transmission calibration, and radar systems for air, land and sea operations.

The biennial Paris Air Show is the world's largest and important show in the aviation and

aerospace industry. 2,000 exhibitors from 42 countries will participate in this year's show. 400,000 visitors are expected at the show.

pen, is manufactured and sold by Acro Security Ltd.

Hebrew U. to launch biggest center in Israel for brain research

Israel's largest institute for brain research will be launched next week at the Hebrew University of Jerusalem. The new \$130 million Edmond and Lily Safra Center for Brain Sciences (or ELSC) will be announced in the presence of Mrs. Lily Safra.

The decision to invest in a center for brain sciences is based on the findings of an international monitoring committee, whose members include two Nobel laureates, Prof. Bert Sakmann and Prof. Richard Axel. The committee determined that the level of research in the field of brain sciences at the Hebrew University is among the highest in the world. The Safra Center will pursue five different inter-cooperative fields of brain research. The first will focus on genes, molecules and nerve cells in the brain; the second will focus on research of structure and function of local neuronal circuits; the third will focus on research of electrical activity and the communication between brain areas, with the aim of understanding how senses, movement and thoughts are created; the fourth will research cognitive processes and will focus mainly on aspects of human brain function; while the fifth will focus on theoretical fields, computational aspects and building models of the nervous system, proposing new experiments and predicting their results.

Ephraim Katzir is dead

Ephraim Katzir, Israel's fourth president and a biophysicist who co-founded its military's science corps, has died at the age of 93.

Katzir, who died on May 30, was elected president in 1973, assuming the largely ceremonial post four months before the outbreak of war with Egypt and Syria.

In 1977, he welcomed Egyptian President Anwar

Sadat for a visit to Israel that led to the first peace treaty between an Arab country and the Jewish state. At the end of his presidential term, in 1978, Katzir returned to scientific research.

In a 2001 paper in "The Non-Proliferation Review," Avner Cohen, a senior research scholar at the University of Maryland, said Katzir was among a group of scientists who pressured Israel's first prime minister, David Ben-Gurion, to establish a chemical and biological weapons program.

Born in Kiev as Ephraim Katchalsky, Katzir immigrated with his parents to then British-ruled Palestine at the age of six.

Educated in Jerusalem and in the United States, he joined the Haganah, a pre-state Jewish underground, helped to establish the military's science corps and served as the armed forces' chief scientist from 1966 to 1968.

Katzir was a founder of Israel's Weizmann Institute of Science and played a pioneering role in enzyme engineering used in the food and pharmaceutical industries, according to his biography on the Foreign Ministry's website.



Please enroll me as a subscriber to the Israel High-Tech & Investment Report. I understand that if not satisfied, I may cancel my subscription at any time and receive a refund of the unexpired portion. I enclose a check for \$95 (or the Israeli shekel equivalent and 15.5% v.a.t.) and am sending it to POB 33633, Tel-Aviv 61336. I am providing you with my name, title, mailing address, e-mail, telephone and fax numbers.

The Israel High-Tech & Investment Report is a monthly report dealing with news, developments and investment opportunities in the universe of Israeli technology and business. While effort is made to ensure the contents' accuracy, it is not guaranteed. Reports about public companies are not intended as promotion of shares, nor should they be construed as such.