ISRAEL HIGH-TECH & INVESTMENT REPORT

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FLEXIBILITY

Flexibility is Israel's key national characteristic. Most countries achieve excellence in specific areas. Switzerland is the world's best watch-maker. Italy is famous for its glass. America, long ago, became the world's outstanding automobile maker. These countries not only achieved excellence but also extended it as time went by.

By contrast Israel has adjusted itself to its fundamental needs. The country's pharmaceutical industry was founded, during World War II, when it could not buy pharmaceuticals on the world's markets. There were small workshop pharmaceutical units but it took Eli Hurwitz to combine them into Teva Industries, the world's largest generic pharmaceutical company.

Israel is the world's foremost manufacturer and exporter of drip irrigation. The story behind the industry's origin is manifold. One is that it was noticed that a pot with holes provided the minute amounts of water necessary for plant growth. Impetus for the growth of the water fertilization industry was the country's shortage of water. To preserve water, in our own roof garden we have installed a water irrigation system. A kibbutz develped solnoid system produced is adjustable to the number of times times a day and the time required for watering our plants. In this issue Israel's leading water companies are featured in detail.

Israel's defense industry has its origin in dire

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need.

The major catalyst for Israel's metamorphosis from a small-arms manufacturer to a producer of sophisticated military systems came after the 1967 Six-Day War. During the war, France imposed an embargo on arms sales to Israel, including the Mirage planes already on order from the Dassault aircraft factory. When the United States became the primary supplier of combat aircraft, Israel began to develop its own production capability. The government-owned Israel Aircraft Industries (IAI), founded as a maintenance facility in 1953, soon began developing and assembling a variety of its own aircraft, including the Kfir - a replacement for the Mirage - as well as the Arava and Nesher planes. At the same time, IAI's contacts with US suppliers advanced from subcontracting jobs to joint ventures with Boeing and Lockheed-Martin. As a result, employment at IAI grew rapidly from 4,000 to a peak of 14,000 in the late 1980s. Israel is now one of the top five arms manufacturers in the world.

Another industry that had its origin in a dire need is water desalination. Israel has built the world's largest desalination plant, operating not far from Tel-Aviv. Water purification has become a major industry with annual exports exceeding $1.0 billion.

The examples cited above are ample proof that it is not natural resources or a special skill that leads to the founding of world class industries but an inherent flexibility which responds to national needs

Vitamin A could curb fetal-alcohol effects: Israeli research

It's too early to call it a cure, but plain old vitamin A could curb the devastating effects of fetal alcohol spectrum disorder.

New research by an Israeli scientist suggests vitamin A could act almost like an antidote to the effects of alcohol on very early embryos during the critical development of the head and central nervous system. That's when the worst effects of FASD start.

Scientifically, this is a very interesting story, said Abraham Fainsod, a professor of genetics and biochemistry at the Hebrew University of Jerusalem. If we can continue our research, we could do some good.

Manitoba pledged $750,000 to help set up a joint FASD research consortium between the Hebrew University and the University of Manitoba. Sorting through the vitamin A issue will be among the projects earmarked for funding.

This has the possibility of being a relatively simple solution, said Geoff Hicks, Fainsod's counterpart at the University of Manitoba. That's why everyone is so excited.

What research Fainsod has done on frogs, Hicks will now try to reproduce using mice, which are the model for mammals.

They'll be looking at retinoic acid, one of the main biological forms of vitamin A and a critical element in cell development and revitalization. That's why so many wrinkle creams tout vitamin A as a key ingredient.

Alcohol prevents the conversion of vitamin A to retinoic acid because both compete for one particular enzyme and the alcohol usually wins. While the body is processing alcohol, it's not

making any new retinoic acid, which, in embryos, interrupts the normal development of the head and brain cells.

Fainsod's research suggests adding more vitamin A to the equation — rebalancing the amount of alcohol and retinoic acid — can reverse or curb brain defects caused by alcohol.

But Fainsod is quick to say vitamin A can never be seen as a license to drink while pregnant. Too much vitamin A can cause birth defects that mimic the effects of alcohol. And scientists haven't yet figured out what the correct balance might be.

But vitamin A could one day be added to food as folic acid was added to white flour to reduce birth defects like spina bifida.

Or it could be given to at-risk populations or chronic alcoholics who are unable to quit drinking but who risk having multiple children with FASD.

IDF Merkava Mk4 with Rafarl's trophy

IDF Merkava Mk 4 equipped with Rafael's Trophy (ASPRO-A) APS are now deployed along the Israeli border with Gaza.
With the deployment of Merkava Mk 4 tanks equipped with Rafael Defense Systems' Trophy (ASPRO-A) Active Protection Systems (APS) along the Gaza border last January , that followed a Merkava tank being hit by a Kornet anti-tank missile fired by the Palestinians, battle testing of the Trophy APS was only a matter of time. Recently the system was baptized in combat, proving its worth in a first combat engagement with a hostile RPG, fired by Palestinian anti-tank team from Gaza. The system and crew performed exactly as expected, integrating automatic response to neutralize an immediate threat, rapid situational understanding and decision and forcible response, effectively eliminating the threat.

Part of the active protection system integrated on Merkava Mk4 includes the Trophy active protection system's interceptor (in the background), WindGuard flat-panel radar (in the front) and Laser warning system (on the left). Photo: Defense-Update

According to IDF sources, the Merkava tank was patrolling the border with Gaza, when a 'missile launch' was detected by the tank's defensive system. Trophy uses the Elta System's EL/M 2133 'WindGuard' radar as the primary sensor detecting missiles and RPG threats. When such threat is classified by the system as 'acute' (aiming directly at the protected vehicle), the system alerts the crew and tracks the missile closing-in on the tank. As the RPG enters the system's kill-zone, Trophy automatically activates its hard kill countermeasure (Multiple Explosive Formed Penetrators – MEFP), destroying the threat at a safe distance from the tank. Some reports indicated the intercept was close enough to trigger the tank's automatic fire 'Spectronix' protection, which have lead to Palestinian claims of actually hitting the tank. Shortly afterwards, IDF soldiers identified several terrorists in the launching area and fired in their direction, scoring a hit.

The Trophy inherently supports such a procedure. Beside its role as the Trophy's primary sensor, detecting the threat and calculating Time-to-Impact (TTI) and plotting the optimal intercept point, the Windguard radar also localizes the firing position of the missile being

tracked, enabling the IDF troops to rapidly engage active enemy positions, eliminating follow-up attacks on its armor.

During the Second Lebanon War in 2006 more than 40 tanks were hit, most of them by anti-tank missiles, repeatedly fired by Hezbollah from hidden positions that were difficult to detect by IDF tank crews. Following this conflict, the IDF accelerated the development of Active Protection Systems (APS), and is currently fielding the system with tank battalions, being equipped with new armored vehicles. This includes new Merkava Mk4 tanks being equipped with APS and the new Namer Infantry Fighting Vehicles, which will also mount the system.

A different version of Rafael's Trophy has recently completed a six-weeks test evaluation series on a Stryker Armored Fighting Vehicle, withstanding numerous missiles and rockets attacks. The test was conducted in collaboration with the U.S. Office of Secretary of Defense and the U.S. ARMY at Aberdeen Proving Ground, as part of an evaluation of domestic U.S. and foreign APS solutions. Rafael is also developing a compact version of the system called Trophy Light, being evaluated for use with U.S. MRAP All Terrain Vehicle (M-ATV). The system is also being evaluated for the protection of Israel Navy fast patrol boats, which, like the tanks, are exposed to RPG and missile attacks.

Israel's economy continues to roar

The Jewish state's success is all the more remarkable considering its lack of natural resources such as oil and the constant threat of armed conflict with its neighbors. Moreover, Israel receives about $3 billion in US foreign aid, the largest of any foreign country. It also spends a huge amount of money on defense — 7.3% of GDP — because of the small country's many enemies.

Economically speaking, though, things are going great for Israel. The country's burgeoning high-tech and biotech sectors have fueled an explosive growth. According to the CIA World Factbook, Israeli GDP expanded by 3.4% in 2010, up from 0.2% in 2009. Per capita income is $30,000.

Israel also was not scarred as badly as other countries by the meltdown in the worldwide banking system. The country's stock market has been on a tear as well, gaining 88% and 15% in 2009 and 2010 respectively. The benchmark TA-25 Index is down 2.3% this year, underperforming U.S. indexes – a performance that is not surprising considering the turmoil in

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the Middle East.
Israel has transformed itself into one of the world's most modern economies over the past two decades when its best-known industries were orange growing and diamond polishing. More than 60 Israeli companies are listed on the NASDAQ, the second most of any foreign country behind Canada, with a market value of $500 billion. The largest of these firms is Teva Pharmaceutical Industries Ltd. (NASDAQ:TEVA), the world's largest maker of generic drugs. Israel's economy grew a staggering 7.8% in the fourth quarter.

Many large U.S. companies including IBM Corp. (NYSE: IBM), Microsoft Corp. (NASDAQ: MASFT) and Intel Corp. (NASDAQ: INTC) have established R&D centers in Israel. Israeli start-ups also are active in developing mobile apps for cell phones. Corning Inc. (NYSE: GLW) recently acquired Israeli tech firm MobileAccess for as much as $200 million.
Last year, there were media reports of a 1.5 billion barrel oil discovery; a claim that some experts say was exaggerated. What isn't hyped, however, is massive natural gas fields found off Israel's Northern coast, among the largest discoveries in the past decade.

Israel has loads of problems to be sure. Palestinians are largely living in poverty and an independent Palestinian state is bound to happen sooner rather than later. Israel's economic success, however, is undeniable.

"What we did was basically follow three things," said Prime Minister Benjamin Netanyahu in an interview with Fox Business Network. "We controlled spending. We cut tax rates and projected them in a very deliberate path into the future. And we removed obstacles to competition."

Charge your iPhone of Blackberry by just placing it on a Powermat mat.

Imagine a world with no cords; no figuring out where to plug your cell phone or your toaster oven or your television. It is exactly the kind of world Ran Poliakine, CEO of Powermat, is trying to create. The kitchen in his Israel home is cord-free. When he wants to wash his coffee maker, he puts the entire thing in the dish washer. There are no cords. His kitchen appliances receive power by simply being placed on the counter, thanks in part to the wireless charging technology his company develops.

The technology was initially used to charge cell phones and hand-held devices. The way it works is simple: first you place a case with a power receiver on the device. Then you place it on a Powermat mat, which transmits charge to the battery. When the battery is full, power stops flowing to the unit, fully charging your device and saving you money on your power bill.

FORBES first reported on the company last year when the technology was just starting to take off. Since its introduction in 2009, Powermat has sold more than 3.1 million of its units around the world at retailers such as Best Buy, Target, Wal-Mart, Amazon, Bed Bath and Beyond, Staples, and Brookstone. It's the market leader with about 90 percent share. But as it continues to try and maintain dominance in an industry expected to grow over $11 billion by 2020, Powermat must find a way to integrate into people's everyday lives.

"We are trying to do to electricity what Wi-Fi did to data," said Poliakine. "We are practically

eliminating the need to drag with you many, many, many cords with power supplies, enabling users to power and charge their devices without the need of cords."

So Powermat is expanding beyond hand-held devices and partnering with other device makers to install Powermat receivers in their products. For example, the company has a partnership with Haier with plans to put Powermat receivers in air conditioners, washing machines, and refrigerators.

Poliakine's strategy also involves implanting the charging technology into surface areas, such as furniture, counter tops, car dashboards, and even walls so you can hang a TV without cords. Powermat is even expected to appear in airports so travelers can easily charge their cell phones between flights.

And it's just been announced that it's implementing its technology into all 2012 GM Volt cars.

"Our vision in time is to make sure that there is an infrastructure; every table, every kitchen countertop, every hotel desk will have this infrastructure that will enable you to effortlessly just place your laptop or your cell phone or your lamp on the surface and get the right amount of power," said Poliakine.

The following report is the most comprehensive report of Israel's water industry. The Government of the State of Israel has prepared it.

Watering a thirsty planet

Israel's advanced approaches to water scarcity position it perfectly to tap into markets targeting the world's most rapidly depleting resource.

The desalination plant in Hadera is the world's largest seawater reverse osmosis plant.

Israel may be a land of milk and honey, but it is not blessed with an abundance of fresh water resources. In fact, the Sea of Galilee is the country's only natural lake and the rivers in Israel are quite modest in scale. Much of the southern half of Israel is desert and receives a meager amount of rainfall. Thus, the need to preserve and develop water resources has accompanied Israel since its formation - and even predated the establishment of the state.

The need for water resources was already a subject of discussion in 1898 when the visionary of the Zionist movement, Theodore Herzl, met with the German emperor in the Holy Land. And in 1937, more than a decade prior to statehood, the Mekorot national water company was created.

In the following decades, as part of Israel's efforts to address its water needs, Israeli companies have become world leaders in irrigation technology, water management and treatment, and desalination.

The Israeli Ministry of Industry, Trade and Labor lists some 166 water tech enterprises, including 91 companies offering water efficiency solutions, 50 companies specializing in wastewater reuse and desalination, and another 25 offering water control and command systems.

In addition to serving the local market, Israel's water technologies can also be found throughout the world: Israeli water tech exports now

total about $1.5 billion annually and the government is seeking to boost this number to $2.5 billion in 2011.

Smart irrigation solutions

Centuries ago, Middle East farmers planted unglazed pots adjacent to trees and periodically filled the pots with water, which gradually dripped through the pots to irrigate the trees.

Modern advances in plastics and micro-tubing led to a drip irrigation revolution spearheaded by Netafim, founded at Kibbutz Hatzerim in 1965. Modern drip irrigation systems offer 70 percent to 80% water efficiency, compared with 40% efficiency achieved with open irrigation.

Netafim is now a global company operating in more than 100 countries, with annual sales of more than $500 million. Another Israeli firm, Plastro Irrigation Systems, an early Netafim competitor, was acquired by John Deere in 2008.

Israeli R&D also contributed to subsequent improvements in irrigation technology, including sub-surface irrigation (delivering water directly to the plant's roots, thus further reducing evaporation), fertigation (distributing fertilizers through drip irrigation systems), methods to prevent salt accumulation at the plant's roots, as well as a new generation of drippers for hydroponics.

NaanDanJain Irrigation, for example, offers a smart irrigation management system that measures the crop root environment, calculates the crop's needs and automatically activates irrigation and fertilization in real time.

Other Israeli firms offering advanced irrigation solutions include:

• Galcon, established by Kibbutz Kfar Blum, is a leading manufacturer of computerized irrigation controllers and timers for a range of applications - from home gardens to agriculture and municipalities. Galcon's CityGal online smart irrigation system is installed in the new Olympic village under construction in London.

• Sadot Irrigation Systems offers the Shibolet irrigation and fertigation platforms for greenhouse applications. The company's résumé includes projects in Asia, Australia and Africa.

• Queengil has developed an advanced type of drip irrigation tape and connectors, special absorbent mulch film and other micro-irrigation products.

Israeli-developed products now account for about 50% of the global market for drip irrigation.

Water resource management

Israel has invested great efforts in managing its own limited water resources and Israeli companies have parlayed this experience to develop state-of-the-art water management systems for use throughout the world.

In 1953, the nascent state initiated an ambitious project - the National Water Carrier - to create a national water network. The project was designed by the Tahal engineering firm (then a government entity and now a private company) and was built and managed by Mekorot, the government-owned water company. Since its completion in 1964, this national pipeline has transported water from northern Israel, which enjoys relatively abundant rainfall and water

sources, to the arid southern region, enabling the development of agriculture in the desert.

The National Water Carrier, which incorporates a network of aqueducts, tunnels, reservoirs and pumping stations, transports about 400 million cubic meters of water every year.

Tahal - the Hebrew acronym for Water Planning for Israel - continues to advise the government on water resource management, while also working in developing countries in Africa, Asia and Latin America. The group's expertise includes the planning and development of regional and national water supply systems, water treatment and desalination plants, wastewater treatment and system optimization.

In addition to the National Water Carrier, Mekorot's flagship projects include the Central Filtration Plant - one of the largest and most complex in the world, with an annual capacity of more than 500 million cubic meters; and the Dan Region Wastewater Treatment Plant (Shafdan) - the largest and most advanced in the Middle East, processing about 130 million cubic meters of wastewater annually. Mekorot has commercialized some of the water technologies it has developed over the years and exports about $500 million in water systems annually.

The Central Filtration Plant built by Mekorot at Eshkol is one of the largest, and most complex in the world, with an annual capacity of 500 million cubic meters.

Combating leaky infrastructure

Once a water distribution system is in place, continual monitoring is critical to detect leaks and other faults. On a global basis, more than a third of the drinking water in municipal distribution systems (and up to 60% in some countries) is lost before it reaches the consumer. This translates into a loss of an estimated $15 billion in potential water revenues each year due to leaky infrastructure.

TaKaDu is an Israeli company whose mission is to address this problem by applying advanced mathematical algorithms and statistical models to analyze data that already exists in the water network and identify anomalies as early as possible. The company notes that its water-saving monitoring technology also cuts the large energy costs associated with transporting water. TaKaDu's software solution for water infrastructure monitoring has won broad international recognition as a 2010 Global Cleantech 100 Company, a 2010 Artemis Top 50 Water Company, a 2010 Red Herring 100 Europe Winner and a 2011 World Economic Forum Technology Pioneer.

Miya, part of the Arison Group, is also devoted to improving the efficiency of urban water systems in order to save both water and energy. The company has assembled a team of international affiliates and partners to offer comprehensive water efficiency solutions that include an assessment of a city's water system, full project planning, execution and maintenance. Miya is also investing in R&D on next-generation technologies in this field. CEO Booky Oren serves as chairman of Israel's major water tech conference, the biennial WATEC event, which aims to promote Israel as the Silicon Valley of water. The next WATEC will take place in November 2011.

The Arad Group has developed what may

appear to be a flighty idea to help detect water leaks. But it is no fly-by-night company - Arad was established in 1941 and sold more than $100 million of water meters in 2009. Its Arad Technologies subsidiary has developed wireless systems for managing water, electricity and gas networks, including a drone that receives leak alarms transmitted from water meters. This airborne leak-detection system is already being deployed in the United States and is expected to reduce water loss by up to 20%.

Curapipe has adopted a different approach to tackling the problem of leaky infrastructure. Instead of reacting to detected leaks, the company's proactive solution effectively seals tiny leaks in pipe networks (water, oil or gas) before they become large enough to be detected, and without requiring pipeline shutdown and excavation. According to Curapipe, existing monitoring systems typically detect leaks that release at least 1% of the pipeline flow. If the leak originates as a pinhole leak, as in the case of corrosion-induced leaks, it can be repaired by Curapipe's solution even at leak rates as low as 0.01% of the flow.

Israeli firms have also developed water-saving technology for use in the home. Virtually all homes in Israel are equipped with dual-flush toilets pioneered by Plasson Industries, based in Kibbutz Ma'agan Michael. More recently, SmarTap began manufacturing a digital electro-mechanical faucet system, e-cartridge, which provides real-time information on flow rates and cumulative water consumption. Individual family members can program faucets equipped with e-cartridge with their preferred showering settings and maximum flow rate. According to SmarTap, the e-cartridge can reduce water consumption by 30% without noticeable change in the shower experience.

Water treatment

Israel is the world's leader in wastewater recovery, with a water-recycling rate of about 75%, according to Mekorot. (Spain is the next largest water recycler with a rate of only 12%.) The recovered wastewater is used primarily for agriculture. This effort to reuse water has helped to spawn a large number of Israeli companies specializing in water filtration and purification.

Aqwise has developed a scalable wastewater treatment solution using plastic beads and a special aeration technology to accelerate the breakdown of wastes and increase the capacity of treatment plants. Aqwise was named a Global Cleantech 100 company in 2009 and was also recognized that year as the fastest-growing Israeli technology company. Its most recent technology is a next-generation DANA (dynamic anaerobic and aerobic) solution for wastewater treatment and energy recovery.

Founded in 1962, Amiad Filtration Systems has helped to provide clean water for industrial, municipal and irrigation users in 70 countries around the world. The company's filtration systems employ clean technology - no chemicals or polymers are used, and only a minimal amount of backflush water and energy is required.

Arkal Filtration Systems, based in Kibbutz Beit Zera, has also been providing water filtration solutions for several decades. Its systems feature a specially designed disc filtration technology, with polypropylene discs diagonally grooved on both sides to a specific micron size.

Arkal's systems are used worldwide in industrial, municipal, commercial and agricultural applications.

Emefcy was formed in 2008 with the vision of fundamentally changing the economics of wastewater treatment by offering the added value of energy production. The company's innovative Megawatter system, based on microbial fuel cell technology, enables direct electricity generation or hydrogen production from wastewater. It also provides a unique treatment solution for organic wastewater with high salinity. Emefcy was recognized as a 2010 Cleantech 100 company and a 2010 Artemis top 50 water company.

Nitron, Israel's second largest water company after Mekorot, focuses on developing and implementing energy-efficient and environment-friendly SED (selective electro-dialysis) technology to remove nitrates from drinking water. The company has built 15 SED plants for municipalities and industries in Israel, with a total capacity of more than 2.5 billion gallons a year. Nitron is a subsidiary of Israel's biggest construction company, the Arison Group's Housing and Construction.

Desalination

Some 70% of the earth's surface is covered by water, but 97.5% of it is saltwater. The idea of removing the salt from seawater is not new - the proponents of desalination included Aristotle, Francis Bacon and Thomas Jefferson. There is even a biblical precedent for desalination: The book of Exodus tells how Moses was able to turn the bitter water at Marah into potable water.

The founding father of the State of Israel, David Ben-Gurion, also recognized the potential of desalination and encouraged R&D investment in this field. By the mid-1950s, desalination was already being used to provide drinking water in Eilat. In the 1960s, Israel began exporting various desalination technologies, including the vacuum freezing vapor compression (VFVC) process devised by Prof. Alexander Zarchin's R&D group. This group of scientists became the nucleus of the government-owned Israel Desalination Engineering (Zarchin Process) company, which is now privately held as IDE Technologies.

IDE Technologies has certainly proved to be worth its salt in the field of desalination: The company has deployed some 400 plants in 40 countries, with a total output of 2 million cubic meters of potable water per day. In Israel, IDE launched the world's largest sea water reverse osmosis (SWRO) plant in Ashkelon in 2005 and inaugurated an even bigger SWRO facility in Hadera in 2010. The company has also won a tender to build a 150 million cubic meter SWRO plant in Soreq. IDE's overseas activity includes a project to build China's largest desalination facility.

Desalitech aims to take SWRO desalination to the next level with its patented hydrostatic closed circuit desalination (CCD) technology. The company says its modular and scalable system can cut water production costs by more than 25% through energy savings and lower outlays for equipment and maintenance. Desalitech completed a successful pilot project in 2010 and is conducting joint research with General Electric, funded by the U.S.-Israel BIRD Foundation.

ROTEC Reverse Osmosis Technologies is a water treatment company developing novel technologies for improving desalination of brackish groundwater. The company's patented flow reversal (FR) technology is used to prevent scaling and bio-fouling (unwanted build-up of algae, microorganisms, etc.) in membrane desalination systems. Based on research originally conducted at Ben-Gurion University, the technology was chosen for two pilot desalination plants in Israel and Jordan under a NATO grant.

Water Security

Whitewater Security draws from Israel's expertise in two fields - security and water technologies - to help governments, municipalities, water utilities and high-risk facilities secure their water against accidental and intentional contamination threats.

The company's WaterWall water security management system offers a holistic range of solutions, tailored for each customer. Whitewater Security says its mission is to become the world's foremost source for water security solutions by combining cutting-edge technologies with unrivalled expertise in water security issues facing the world in the 21st century. The company is playing an active role in formulating new international water security guidelines and serves as a consultant to the United Nations.

According to the UN, some 20% of the planet's population faces water shortages and this scarcity is expected to become even more acute during the coming decades. In fact, water is the world's most rapidly depleting resource and some analysts are calling water the new oil of the 21st century: The international water market is estimated at $450 billion and is growing at 7%-8% annually.

In light of the country's long experience in contending with water scarcity and its broad base of water tech know-how, Israel is well positioned to tap into this global market.

Water Technology

Dozens of Israeli companies are active in water technology. The Ashkelon Technological Incubator nurtures water startups, and the government's NEWTech (Novel Efficient Water Technologies) initiative is promoting Israel's water tech companies by providing R&D funding and marketing tools.

The Israeli water tech industry also benefits from innovative research conducted at Israeli universities, including Ben-Gurion University's Zuckerman Institute for Water Research, Hebrew University's Department of Soil and Water Sciences and the Technion's Grand Water Research Institute

Kinrot Ventures, an Israeli venture capital firm specializing in water tech startups, recently signed a strategic collaboration agreement with General Electric to help commercialize innovative water technologies. Kinrot's startup portfolio includes:

• Aqua Digital: innovative digital solutions for monitoring and measuring flow rates in water systems.

• Aquarius Spectrum: water leak detection system for municipalities. Innovative algorithms power the online monitoring system and uses distributed signal processing.

• Evina Biotech: unique biotechnological solution to filter out the acidic byproduct of chlorine that accumulates in swimming pools.

• Cool Tek-2-Go: on-demand instant water cooling or heating for use by soldiers, athletes, hikers and others engaged in outdoor activities.

• TACount: innovative technology that can detect a microbial infection in water in just minutes, instead of hours or days.

• Kolmir Water Technologies: ultrasonic technology for water and wastewater treatment that offers a significant reduction in treatment chemicals, lower operating costs and downsizing of operation modules.

• Diffusaire: low-cost and highly efficient aeration systems for the wastewater treatment industry. The technology offers a 50% savings in power consumption and capital costs compared to conventional aeration systems.

• HydroSpin: unique solution based on micro-generators inserted into water pipes to supply electricity for water monitoring and control systems in remote areas where other energy solutions are not available.

• EcoChemTech: multi-stage sedimentation process to produce high-value chemicals from desalination plant emissions, thus accelerating the return on investment in desalination plants.

• SPC Tech: smart pressure control system, based on a sophisticated two-stage pressure valve, designed to significantly reduce leakage and burst risks in residential water pipes.

• Wadis: technology for water and wastewater disinfection that promises to significantly reduce the total cost for water treatment. The company's ecological disinfection method is based on electrical pulse discharge.

• Eltav Wireless Monitoring: revolutionary remote valve monitoring, using advanced wireless technologies.

• PML (Particle Monitoring Technologies): patented electro-optical particle size analyzer (PSA) that checks for microbes and viruses in water. The laser-based technology enables automatic and continuous monitoring and differentiation of particles in water, before and after filtration.

Mekorot's WaTech Ventures Center provides beta testing facilities and technical and marketing support for water tech startups, including:

• Aquilyzer: modeling software for accurate evaluation and prediction of all essential hydrological parameters in wells and aquifers.

• Atlantium: hydro-optic disinfection system - an enhanced method of ultraviolet-based disinfection that incorporates advanced hydraulic and fiber-optic principles.

• Blue I Water Technologies: comprehensive analytical systems for use by municipalities and industry for total water quality management.

• CheckLight: innovative early warning solutions for rapid detection of contamination in drinking water, through the use of sensitized luminescent bacteria.

• Lesico Cleantech: novel electro-dialysis method for a number of desalination applications.

Arrow missile test in Pacific succeeds

A joint test today by Israel and the US of the Arrow anti-ballistic missile over the Pacific Ocean succeeded in intercepting and destroying a missile, which simulated an Iranian ballistic missile, above the atmosphere.

The test of the upgraded Arrow 2 missile, manufactured by Israel Aerospace Industries Ltd. (IAI) (TASE: ARSP.B1), completes a series of tests conducted in the past few months aimed at dealing with the more sophisticated missile being developed by Iran and Syria.

The Israel Air Force, Ministry of Defense's Homa Missile Defense Agency and the US Missile Defense Agency jointly conducted the test.

Elbit unveils new UAV command center

Elbit Systems says it has successfully flight-tested its Hermes 450 and Hermes 900 unmanned aerial vehicles from one ground control station, greatly enhancing the operational flexibility of the long-range drones amid a growing global market for the aircraft.

The tests underlined how Israel's high-tech defense industry is developing a wide range of unmanned robot systems for air, land and sea. These include Nahshson, a remote-controlled land vehicle that can tote 2 tons of cargo.

This is an advanced variant of the Guardium robot vehicle developed by G-NIUS Unmanned Ground Systems, a joint venture by Elbit and state-owned Israel Aerospace Industries. The Guardium has been in operated by the Israeli military since 2008.

Elbit said the Hermes tests were conducted from the company's new universal ground control station using a single operator for both UAVs.

Joint flight control and management of two different unmanned aircraft systems provides users with enhanced operational flexibility, adapting each UAS to a specific mission and enabling management of highly complex missions in diverse arenas, Elbit said.

The Hermes 450 is a tactical long-endurance UAV that is the backbone of the Israeli air force's drone fleet, with more than 200,000 operational flight hours.

It's capable of flying at altitudes up to 20,000 feet. The latest variant is quieter than its predecessors and carries a heavier payload.

The Hermes 900 has longer endurance, a silenced engine, a maximum altitude of 30,000 feet and a larger payload capacity of 770 pounds.

Israel's defense industry has become a major producer of UAVs, along with the United States.

According to Jacques Chemia, chief engineer of IAI's UAV division, Israel is the world's leading exporter of drones, with more than 1,000 sold in 42 countries.

Under a ground-breaking April 2009 contract with Moscow, worth $53 million, IAI, flagship of

Israel's defense industry, sold Russia 12 short-range Bird-Eye 400, I-View MK150 and long-range Searcher II UAVs.

It was Russia's first purchase of a foreign weapons system and emphasized its technology shortfall following the sharp reduction of spending on research and development in the 1990s when the Cold War ended.

That contract led to a $400 million deal between IAI and Russia's Oboronprom OPK Group in October under which the Russians will eventually manufacture the Heron 1, one of Israel's most advanced UAVs capable of strategic missions.

IAI has developed the more advanced Heron TP, dubbed the Eitan which is Hebrew for Strong.

This long-range UAV weight 4.5 tons, has a wingspan of 86 feet -- about that same as a Boeing 737 airliner -- and can stay aloft for 20 hours at high altitude.

This unique UAV, a major technological breakthrough for the Israelis, has a 1,200 horsepower turbojet, a maximum altitude of 40,000 feet and can carry hundreds of pounds of equipment, such as high-resolution cameras, electronic surveillance systems and presumably weapons.

The Heron TP is capable of reaching Iran, although it's not known whether it has done so on surveillance missions, or whether it can be refueled in air.

The Hermes 900 is also reported to be able to reach Iran.

The ground-based robot systems are now widely deployed with the Israeli military. The Guardium has notched up thousands of operational hours since 2008.

The Nahshon, the latest UGV being developed by UGS, is able to operate on its own in combat zones. The Nahshon team believes it is close to producing a completely autonomous guidance system for the cargo vehicle.

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