

The top 65 ways Israel is saving our planet

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When 22-year-old Emmanuel Buso was pulled barely-alive from the rubble of a three-story building 10 days after an earthquake devastated the island of Haiti, the first faces he saw were those of the Israeli rescue workers who had flown across the world to save lives.

For Haji Edum, from Zanzibar, his life-saving moment came twice, when he was flown at age 15, and then again at 23, to Israel for open-heart surgery. He is just one of thousands of youngsters to receive emergency heart care from volunteer doctors in Israel.

War veterans suffering post-traumatic stress in the US; farmers in Senegal, India and China; young women in South Sudan; the wheelchair-bound in Africa; cardiac patients in Gaza and Iraq – all have received life-changing help and expertise from Israeli specialists.

Today we all know the story of Israel the startup nation. News of its technological prowess and incredible innovation has spread far and wide. But what many people don't know is that Israel is exporting far more than just technology. It is also sharing its experience and skills in a whole range of humanitarian and environmental fields to help people everywhere live better, fuller and healthier lives.

Since Israel was founded in 1948, the country has set itself the goal of becoming a light unto the nations. In the early years of the state, despite austerity rationing, the Israeli government founded MASHAV, the Israeli Ministry of Foreign Affairs' Center for International Cooperation, as a vehicle to share Israel's creative solutions with the rest of the developing world.

Israel remains true to that vision and every year, with little fanfare, and sometimes very little press attention, Israelis work long hours to find solutions and offer relief to some of the most pressing problems of our times.

From environmental breakthroughs that will help reduce greenhouse emissions, to technologies that can increase food production and save vital crops, to humanitarian aid missions in the wake of catastrophic natural disasters, Israelis are providing significant assistance.

To celebrate Israel's 65th birthday, ISRAEL21c takes a look at some of the many creative and varied ways Israel is helping to enrich and improve our planet.

The list comes in no particular order, and is by no means exhaustive. There are hundreds, if not thousands, more worthy projects going on every day. If you've got a project worth hearing about, we'd be delighted if you include it in our comments section at the end.

1. An Israeli company is developing a [toilet that needs no water](#), and generates its own power to turn solid waste (including toilet roll) into sterile and odorless fertilizer in 30 seconds. Liquid waste is sterilized and then used to flush the toilet. Developer Paulee CleanTec has been [awarded a grant](#) by the Bill & Melinda Gates Foundation, which reports that about 80 percent of human waste goes into rivers and streams untreated, and 1.1 billion people don't use a toilet.

2. Fifty years ago, [Lake Victoria carp](#) was a significant part of the diet of Ugandan villagers. But when Nile perch was introduced to the lake, it decimated the carp population. Villagers had neither the equipment nor the expertise to catch the huge perch, and symptoms of protein deficiency started becoming apparent in their children.

Prof. Berta Sivan of the Hebrew University of Jerusalem came to the rescue with a multiyear project to help these African families. Using expertise developed in Israel, her project not only successfully spawned carp on Ugandan fish farms, but also provided training on how to dig and fill ponds and raise the small fish. Now local children have an abundant supply of protein.

3. About 50 percent of every grain and pulse harvest in the developing world is lost to pests and mold, but an Israeli scientist has developed a surprisingly simple and cheap way for African and Asian

farmers to [keep their grain market-fresh](#). International food technology consultant Prof. Shlomo Navarro invented huge bags, now marketed by US company GrainPro, which keep both water and air out. The bags are in use all over the developing world, including Africa and the Far East, and even in countries that don't have diplomatic ties with Israel.

4. In January 2010, Israel won international praise for the speed and expertise with which it responded to a devastating 7.0-magnitude [earthquake in Haiti](#) that killed 300,000 people, injured hundreds of thousands and laid waste to the poverty-stricken country.

A [team of 240](#) Israeli doctors, nurses, rescue and relief workers arrived in Haiti just days after the quake, bringing medicines, communications and medical equipment. Israel Defense Forces (IDF) volunteers set up the country's [most advanced and well-equipped field hospital](#) in the capital of [Port-Au-Prince](#). Israeli search-and-rescue missions pulled survivors from the rubble, saving many Haitians, including a [man trapped for 10 days](#).

The delegation included volunteers from IsraAID, the IDF, ZAKA, Magen David Adom (MADA), Tevel B'Tzedek, the Negev Institute, and Alyn Hospital. It was the largest Israeli civilian [relief mission](#) ever assembled, and was one of the [biggest and most skilled](#) on the island.

In the wake of the disaster, Israel continues to send aid and assistance, including [educational projects](#), trauma programs, micro-financing, development and relief work, rebuilding of communities and schools, aid packages, empowerment for women, and [medical assistance](#).

5. The invention of drip irrigation by Israeli Simcha Blass and its development by Netafim, and later Plastro and NaanDan Jain, has completely revolutionized agriculture across the world, enabling farmers to increase their yields with less water. Constantly upgraded Israeli drip-irrigation techniques are regularly shared with other countries through MASHAV, Israel's Center for International Cooperation.

6. [Tal-Ya Water Technologies](#) has developed reusable plastic trays to collect dew from the air, reducing the water needed by crops or trees by up to 50 percent. The square serrated trays, made from non-PET recycled and recyclable plastic with UV filters and a limestone additive, surround each plant or tree. With overnight temperature change, dew forms on both surfaces of the Tal-Ya tray, which funnels the dew and condensation straight to the roots. If it rains, the trays – which are now on sale – heighten the effect of each millimeter of water 27 times over.

7. About 1.6 million children under the age of five die from untreated drinking water in developing nations every year. An Israeli company has developed a water purification system that delivers [safe drinking water from almost any source](#), including contaminated water, seawater and even urine.

WaterSheer's Sulis personal water purifier is a small 10-gram mouthpiece that attaches to the top of a water bottle. The company has also developed systems to treat large quantities of water.

Sulis has been used in Taiwan, Myanmar and Haiti, and will be part of contingency plans in case of disaster at the 2016 Olympic Games in Brazil.

8. Israel is building a [model agricultural village](#) in South Sudan to teach local farmers about Israeli agricultural methods and technologies to help the fledgling African nation thrive.

9. In plants in China, Italy and the United States, Israeli company [Seambiotic](#) is using algae to turn carbon dioxide emitted by power plants into fuel and nutraceuticals. The company's algae ponds, which are nourished by power plant effluent and sunlight, generate 30 times more feedstock for biofuel than do crop alternatives. The algae are a good source of valuable nutraceuticals, especially popular in China and the East.

Seambiotic is also working with the US National Aviation and Space Administration (NASA) to develop a commercially feasible biofuel variety from algae that has a higher freezing point than biofuels from corn or sugarcane.

10. The lives of thousands of endangered animals in West and Central Africa are being saved thanks to the tireless efforts of Israeli law enforcement activist Ofir Drori, who founded the Last Great Ape Organization (LAGA) in Cameroon, the first [wildlife law-enforcement](#) NGO in Africa.

The organization helped propagate a zero-tolerance approach to illegal wildlife trafficking in Cameroon, which has resulted in hundreds of arrests and prosecutions. The model has been replicated throughout West and Central Africa in activities that go beyond nature conservation to the defense of human rights.

11. Israel is the only country that permanently opens its arms to [children sick from radiation](#) caused by the Ukrainian nuclear disaster in Chernobyl over 27 years ago. More than 2,755 affected children, ages eight to 15, have been brought to Israel for treatment and resettlement.

12. Israeli researchers and farmers have combined the best of Israel's agri-tech and clean-tech innovation to create a new [artificial desert oasis](#) that could help feed millions of desert-dwellers.

The oasis was developed by researchers from Ben-Gurion University and the Central and Northern Arava Research and Development center, and uses Israel's expertise in growing salt-resistant crops in the Negev desert with little rain under a harsh sun. The oasis uses low-cost desalination technology that runs on solar power to turn brackish water into sweet water.

13. An Israeli company is developing a new contraceptive with the potential to provide a safer, long-acting, non-invasive solution for women in developing nations. Hervana [recently won](#) a \$1 million grant from the Bill & Melinda Gates Foundation for its accessible, cheap and socially acceptable LJ-102 suppository, which has to be applied only once or twice a month via a non-hormonal vaginal preparation.

According to the World Health Organization, there are at least 220 million women who don't have access to effective contraception, and some 50 million abortions per year in the developing world.

14. In the wake of Superstorm Sandy, the White House and the Federal Emergency Management Agency (FEMA) called on Israeli company Waze to use its real-time traffic navigation updates in an effort to bring [fuel to New Jersey](#) residents suffering from shortages at the gas pump.

15. An Israeli company has developed an [alternative seed treatment](#) that could revolutionize farming, protecting vegetable seeds from infestation, fungus, bacteria and even drought, without the side effects of genetic engineering (GMO).

Morflora's product, TraitUP, "inoculates" any seed from foreseeable challenges without altering its genetic makeup in new generations — just like a mumps or measles shot in humans. The product has won international awards and goes on the market this year.

16. Doctors from Israel are restoring the gift of sight to hundreds of people in developing countries thanks to Israeli non-profit [Eye from Zion](#).

The organization sends eye doctors from Israel to do free cataract removal operations in places such as Vietnam, China, Myanmar, the Maldives and even Muslim countries including Azerbaijan. The doctors are all volunteers, and most of the people arriving at their mobile clinics are blind in either one or both eyes. The organization also brings doctors from developing countries to Israel for training.

17. Overfishing and pollution are seriously depleting the number of fish in the sea and threatening some fish species with extinction, but now an Israeli company, [Grow Fish Anywhere](#) (GFA) has found a way to raise saltwater fish anywhere, even in the desert, without any of the usual problems of pollution. The company has facilities in Israel and New York.

18. An international charity is building a \$6 million factory in Africa to build [cardboard wheelchairs](#) designed and developed in Israel. The wheelchairs are the brainchild of Israeli entrepreneur Nimrod Elmish of I.G. Cardboard Technologies, and are made entirely of cheap, recycled materials. The charity, which is dedicated to providing free wheelchairs for the disabled in developing nations, spends more than \$6 million annually on buying metal wheelchairs from China and sending them to Africa.

19. With its plentiful year-round sunshine, it's no surprise that Israeli companies are leading the way in creating viable and successful new solar energies that are already helping reduce the world's dependence on pollution-causing oil.

Israel has become a startup nation for the sun with dozens, if not hundreds, of companies operating in this field, many of them driven by the early solar pioneers [Zvi Tabor](#) and Levi Yissar, and then later ones David Faiman, [Jacob Karni](#) and Avi Kribus.

Aside from BrightSource, mentioned in an item below, solar companies to watch include [Aora](#), HelioFocus and [Arava Power](#).

20. Israeli educational entrepreneur Shai Reshef founded [University of the People](#), the world's first tuition-free, online academic institution offering a recognized bachelor's degree. More than 3,000 professors from major universities volunteer as lecturers and tutors for students from many countries, including China, Pakistan, Haiti, Rwanda, Mali, Peru, Nepal, Saudi Arabia and South Sudan. "I believe

that if you educate one person, you can change a life; if you educate many, you can change the world," Reshef says.

21. The Health Ministry in Kenya has adopted the [model of Terem](#) – a chain of independent emergency medical centers in Jerusalem that provides critical care within the community, dramatically reducing hospital visits. Kenya is setting up a chain of 50 such clinics in a move that will revolutionize the African country's healthcare system. Some 35 million people live in Kenya, but hospitals are few and far between.

22. Norway is sending teachers to Israel to learn how to revitalize the [Lapp language of Sámi](#). Of about 10 Sámi dialects once spoken in the country, only four are still known among the estimated 100,000 Sámi-speakers of Lapland and current teaching methods are not successful.

Israel is considered an expert in reviving old languages because of its experience recreating Hebrew. Israeli language experts have worked with experts in Scotland and Wales, where long-suppressed minority languages are now making a comeback.

23. A professional dancer who lost his right leg in the 2010 earthquake in Haiti is dancing once more thanks to the help of Israeli father and son, Yisrael and Yehuda Pilosof, who specialize in manufacturing [precision artificial limbs](#). After the quake, Yehuda Pilosof flew to Haiti to help at an Israeli rehab center. He made limbs for 15 people, including the dancer who was flown to Israel for treatment. Since then the Pilosofs have led a seminar on prosthetics in Peru, and have made artificial limbs for soldiers in Sri Lanka on an Israeli humanitarian mission.

24. IsraAID is an Israeli humanitarian organization that gathers Israeli professionals from 17 different relief and activist organizations to respond to emergencies. Founded in 2001, it offers targeted help including disaster relief, search and rescue, rebuilding communities and schools, aid packages, medical assistance, micro-financing and post-psychotrauma care.

In 2004, IsraAID sent search-and-rescue teams and doctors to [tsunami victims](#) in Sri Lanka. In 2007, it sent medical staff to Peru after a major earthquake, and provided assistance at a refugee camp in Somalia.

In 2008, members flew to Myanmar after a major cyclone, and the following year IsraAID sent medical assistance to the Philippines after [two devastating typhoons](#). IsraAID helped in the wake of the Haiti earthquake, and has provided [aid in South Sudan](#).

25. Traumatized US war veterans are now being healed thanks to a novel treatment developed by Israeli-American psychologist Edna Foa. In the United States, an estimated half million war veterans from Vietnam, and another 300,000 from Afghanistan and Iraq, suffer from post-traumatic stress disorder (PTSD).

Foa, honored by TIME magazine as one of the most influential people in 2010, developed a treatment called [PE](#) (Prolonged Exposure), designed to help patients focus on the thoughts and feelings that elicit the highest levels of fear, and then works with them to enable them to confront those fears, moving gradually from the minor to the major terrors.

26. MASHAV, the Center for International Cooperation, runs a variety of programs, but is best known for its training seminars in Israel and wherever needed -- Africa, the Middle East, South America, Central America, India, China -- on techniques ranging from greenhouse management and irrigation to fish farming and dairy farming. MASHAV has trained some 200,000 people from about 140 countries and has set up dozens of [demonstration projects](#) in fields of Israeli expertise. MASHAV also sends [medical aid around the world](#).

27. Israeli public health activist Dr. Zvi Bentwich, director of the Center for Emerging Tropical Diseases and AIDS at Ben-Gurion University of the Negev (BGU), has been laboring for years to eradicate common parasitic infestations that contribute to Africa's AIDS and tuberculosis epidemics. In 2011 he won a Lifetime Achievement Award from the Israeli government for his groundbreaking medical contributions in Israel and among Africans.

28. A three-year-old British charity, [Tag International Development](#), runs more than 20 health, agriculture, disaster preparedness and community development projects in developing nations. All of the knowledge and experience for these projects comes from Israel.

Israeli volunteers and professionals with Tag have launched beekeeping and road safety projects in Myanmar; empowerment seminars for Bedouin women in Israel and Jordan; emotional resilience,

healthcare and weaving projects in Azerbaijan; model farm and agricultural training center in Sri Lanka; rain harvesting in Kenya; a safe drinking-water project in Pakistan, and a homecare project for the elderly in Indonesia.

29. When Japan was rocked by an earthquake and tsunami in March 2011, which killed nearly 16,000 people, the IDF sent doctors and other volunteers to set up a field hospital in one of the areas worst hit by the island nation's worst-ever natural disaster. The facility had wards for pediatrics, surgery, maternity, gynecology, ophthalmology and intensive care, as well as a lab and a pharmacy. Israel also sent over tons of [aid to Japanese communities](#).

Since then, Israel has continued to send regular delegations of specialists on post-trauma missions to help the victims of the disaster, training local teachers and mental health workers, and setting up youth leadership training programs for students from Japan's [Tohoku earthquake-affected region](#).

30. The Israeli company Pythagoras Solar has developed a new [solar window that can generate power](#), reduce energy consumption and let in daylight, promising a green revolution in the construction industry.

The world's first transparent photovoltaic glass unit, which won the prestigious GE Ecomagination Challenge, can easily be integrated into conventional building design. Existing office blocks can be retrofitted with the new material to take the place of energy-seeping glass windows.

31. With pollution growing to dangerous levels in the Mediterranean Sea, Israel's [EcoOcean research and educational organization](#) trains local youngsters on land and sea, and provides local and international marine researchers with an at-cost vessel for advanced marine science studies in the Mediterranean, Red and Black seas.

Jean-Michel Cousteau's [Ocean Futures Society](#) sought out educational collaboration possibilities with EcoOcean to make global progress in saving the seas, badly in distress from global warming and other manmade causes.

32. The Israeli organization [Save a Child's Heart](#) has brought more than 3,000 children from all over the developing world, including about 1,500 from Gaza and the West Bank, to Israel for vital heart operations at Wolfson Medical Center in Holon. All 70 to 80 doctors and nurses working with the non-profit organization give their time as volunteers.

Aside from their work in Israel, medical staff fly on missions abroad to carry out heart operations, and to teach local doctors the latest surgical techniques. The organization also trains physicians from abroad in Israel.

33. US veterans suffering PTSD after being wounded in combat are experiencing [emotional and spiritual healing](#) thanks to a new program from the Heroes to Heroes Foundation, that brings the wounded vets to Israel to meet Israeli peers.

34. The Israeli organization [ZAKA \(Disaster Victim Identification\)](#) provides expert search-and-rescue assistance after natural and manmade disasters around the world. In late 2004 and early 2005, members of ZAKA provided help in Thailand, Sri Lanka, India and Indonesia in the aftermath of the Indian Ocean earthquake.

Forensic teams dubbed the group "the team that sleeps with the dead" because they toiled nearly 24 hours a day at Buddhist pagodas transformed into morgues in Thailand. ZAKA volunteers flew to Mumbai, India, after terror attacks there in November 2008; assisted with search and recovery after the 2010 Haiti earthquake, rescuing eight students trapped in rubble; and also aided search-and-rescue efforts in Japan in March 2011.

35. Students in several countries are scoring higher marks in math and algebra tests thanks to the help of Israeli professor Michal Yerushalmy. Yerushalmy developed [VisualMath and Math4Mobile](#), which help students score better on standardized tests, out-perform peers in solving algebra word problems and complex new problems, and devise superior strategies for identifying and correcting mistakes.

36. A new Israeli-developed [tooth varnish](#) is saving the lives of kangaroos in captivity, who often fall victim to a contagious, and sometimes fatal, gum condition called lumpy jaw disease.

Veterinarians at Jerusalem's Biblical Zoo and the northern Gan Garoo Park – which lost 40 percent of its marsupials to this disease – teamed up with dentists and pharmacists from the Hebrew University

of Jerusalem to create a tooth varnish that successfully prevents the condition. After receiving requests worldwide, the veterinarians published the recipe for the treatment online.

37. An Israeli research team has found a way to [mate male prawns](#) and increase yields and profitability for farmers. The revolutionary advanced gene-silencing biotechnology for aquaculture was developed at BGU and can reverse the sex of the crustacean, helping local farmers increase their income. The technology is already being put to use in Vietnam.

38. The 27-year-old Jerusalem AIDS Project (JAIP) is helping to educate millions of people across the globe about AIDS with its training program that teaches people in developing countries how to [protect themselves from the deadly HIV](#) virus.

The unique JAIP program is being used in about 30 countries, including Latin America, Asia, Africa and Eastern Europe, in coordination with groups such as the World Health Organization and UNAIDS. JAIP was commended by the United Nations in 2006 for its approach.

39. Israeli doctors are flying to Africa to help train local medical personnel in male medical circumcision with the organization [Operation Abraham](#), in an effort to halt the AIDS epidemic there. Currently some 22 million people in Africa are living with HIV and AIDS – two-thirds of the entire world's population of HIV sufferers.

Studies suggest that more than half of all HIV infections could be stopped if men were circumcised. Operation Abraham is a consortium of Israeli institutions, including Hadassah Medical Organization and JAIP, teaching local doctors how to carry out the procedure.

40. Israeli aid organizations Israel Flying Aid, IsraAID and Israeli Humanitarian Aid-Latet put Israeli know-how to work getting food, fuel, generators and other critical supplies to emergency workers and victims after [Hurricane Sandy](#) devastated the US east coast in 2012.

Israeli volunteers delivered fuel to hospitals in the stricken area, prepared emergency food convoys and helped clear debris. An Israeli delegation of trained rescue volunteers also flew to the disaster area. The effort was financed by young Israelis and Israeli companies with partner US companies.

41. A simple mobile-phone imaging system was invented in Israel to diagnose and monitor malaria, a mosquito-borne disease that is the second leading cause of death in Africa, killing an estimated 1,900 children under the age of five every day.

The system uses an ordinary mobile phone camera with a \$15 specialized lens that can detect malaria by imaging the eye or skin to look for hemozoin, a pigment generated by the malaria parasite. The [imaging system](#), whose developer won a grant from the Bill & Melinda Gates Foundation, can also determine the stage of the disease. Images can be sent immediately to labs in Africa and overseas for diagnosis by experts.

42. Israel is the world-recognized leader in raising [therapeutic clowning](#) to the level of a standardized, research-backed healthcare discipline. Its internationally renowned Dream Doctors Project has trained and placed nearly 100 practitioners at 22 hospitals in Israel. Dream Doctors worked with the University of Haifa to establish the world's only academic degree program in clown therapy as a paramedical profession. Much of the groundbreaking research on the measurable effects of medical clowning is being done in Israel and shared in [international forums](#).

43. Water-purification technologies developed in Israel to recycle the country's limited water resources are now being used to help [save India's sacred Noyyal River](#).

The 160-kilometer Noyyal River once provided water for around 20,000 acres of rich agricultural land, but toxic waste from textile factories has choked the river, destroying local agriculture and wildlife, and polluting groundwater in more than 95 villages in the region.

The Indians are using Israeli-developed nano-filtration to remove dissolved pollutants. Israeli desalination expert, BGU Prof. Yoram Oren, is spearheading the effort.

44. Earlier this month, Israel set up a [field hospital](#) along its border with Syria to treat Syrians wounded in the country's bloody civil war. Though Syria is an enemy nation, Israeli army medics have been treating dozens of wounded Syrian civilians at the makeshift hospital and in past months Israeli hospitals have treated refugee Syrians as well. According to the UN, about 1.2 million Syrians have been internally displaced, and hundreds of thousands of refugees have fled to neighboring countries.

45. Rambam Healthcare Campus in Haifa runs a yearly [trauma-care training course](#) for

participants from Africa, South America and the Far East in cooperation with Israel's Foreign Ministry. The medical center also offers [fellowships](#) to African doctors specializing in areas including plastic surgery, pediatrics and AIDS, funded by partners such as MASHAV, the Foreign Ministry, international NGOs and the host countries.

46. Israeli engineers and medical specialists have erected a [state-of-the-art emergency room in Kisumu](#), Kenya, servicing a population of six million. The facility, at the Kisumu East District Hospital, was built in less than a month and is the hospital's first fully-equipped ER. It will be a center for both regional emergency treatment and professional training.

The effort was led by MASHAV, which has been working in Kenya since the 1950s, when it set up ophthalmology field clinics. Since then, the organization is also involved in projects on food security, health, education and empowerment of women.

47. Israel's Galten Global Alternative Energy has developed a method of obtaining biofuel from the seeds of the [jatropha](#), a plant that doesn't compete with food crops. Plantings have already begun in Ghana. Currently only one ton of biofuel can be extracted from 2.5 acres of edible crops such as corn or soybeans, whereas three tons of biofuel can be produced from the same amount of soil growing jatropha plants.

48. The Hadassah Medical Organization works in coordination with the Israel Foreign Ministry and other Israeli agencies on a range of humanitarian projects around the world including a volunteer HIV/AIDS education and treatment program in Ethiopia and Kazakhstan; eye surgery for needy African patients; adult male circumcision for HIV prevention in Africa; and public health education in Kathmandu.

[Hadassah](#) medical personnel have also participated in Israeli rescue operations around the world since 1960. Among the disaster scenes where they've brought critical care expertise are Armenia, Turkey, Greece, Haiti, Sri Lanka, Nairobi and Tanzania. Recently, the government of Panama hired Hadassah as a consultant to build a state-of-the-art trauma unit there.

49. In November 2012, the IDF and MADA sent rescue and medical personnel to help when a [shopping mall collapsed](#) in the Ghanaian capital of Accra. The IDF group consisted of 18 healthcare workers, engineers and communication experts to assist in the rescue operation. MADA sent another delegation of doctors, paramedics and emergency medical personnel to set up a field hospital.

50. Water is such a precious resource in Israel that engineers and innovators have developed a slew of technologies to make sure every drop counts. Israel is a world leader in reusing its wastewater, with some 70 percent recycled and funneled into agriculture projects. That technology is being sought out abroad as countries elsewhere try to reduce water consumption.

Large companies such as the [Tahal Group](#) offer low-tech and high-tech software solutions to make wastewater treatment processes more efficient and relevant. [Aqwise](#) makes small plastic beads to aerate wastewater so bacteria can work better, a solution now being used at the Taj Mahal in India. Another Israeli company sparking interest worldwide is Applied Clean Tech, whose product removes solids from wastewater.

51. [BrightSource](#) might look all-American, but one of the world's largest solar thermal power plants, about to fire up its 370-megawatt Ivanpah facility in the Mojave Desert in California this summer, is built on Israeli expertise started in the 1980s by a company called Luz. The technology which sprawls over 35,000 acres, uses thousands of software-controlled mirrors to direct sun to three collection towers that power a turbine.

Since utilities companies in California need to deliver one-third of their power from renewables by 2020, BrightSource has placed its bets to be part of an even larger solar energy installation to go live by 2016.

Based in Oakland with R&D in Israel, BrightSource is partnering with the Spanish company Abengoa Solar to build and operate a new solar 500-megawatt installation in Riverside County, California. The company is in the final stages of securing a contract in Israel, and is also seeking opportunities in South Africa, Saudi Arabia, Morocco and China.

52. Israeli volunteer organization Yad Sarah, which [lends medical equipment](#) to people throughout Israel, is serving as a model for countries like Turkey, Jordan, the Palestinian Authority, Angola, Cameroon, China, El Salvador and Hungary. The NGO has become the world's largest lender of medical devices such as respirators, crutches, oxygen tanks, wheelchairs and hospital beds, and is a recognized

UNESCO advisory body. With more than 100 branches across Israel, Yad Sarah offers free rehabilitation centers, meals on wheels, free home repairs, legal aid for the elderly and other services.

53. The Mediterranean's two remaining species of sea turtles are in danger of extinction, but an Israeli organization is hoping to reverse the trend. Part hospital and part stud farm, the [Israeli Sea Turtle Rescue Center](#) at Michmoret treats injured turtles, incubates eggs and increases awareness of the turtles' plight.

A century ago, some 2,000 to 3,000 green and loggerhead turtles used to nest along Israel's shores. Now the numbers are estimated at 180 loggerheads and fewer than 30 green turtles. Thanks to the work of the rescue center, the number of loggerhead turtles is now [rising](#).

54. Hebrew University's Prof. David Levy has developed [new strains of potatoes](#) that thrive in hot, dry climates, and can be irrigated by saltwater. Potatoes are one of the top sources of nutrition in the world, but they never before grew well in hot, desert regions like the Middle East. Now farmers in these regions can grow potatoes as a cash crop.

55. Israeli neonatologists have established two [new neonatal units in Kumasi](#), the second largest city in Ghana. The city has a population of 1.5 million people, but only one hospital. Of the 28,000 babies born in the city every year, some 4,800 died. Israeli specialists are now training local doctors and nurses to help save infants' lives.

56. In October 2011, despite a severe diplomatic crisis in the wake of the deadly Gaza flotilla raid over a year earlier, Israel sent a package of [aid to Turkey](#) after a massive 7.2 magnitude quake hit the country's eastern region. Israel was the first country in the world to offer Ankara assistance in the aftermath of the disaster. It sent portable buildings to help homeless survivors in the quake-ravaged area.

Israel has sent rescue teams to Turkey before. In 1999, Israeli rescue teams pulled 12 people out of earthquake rubble and recovered 140 bodies. Israel also set up a field hospital and treated more than 1,000 victims.

57. The United Nations' Economic and Social Council (ECOSOC) awarded Israel's non-profit disabilities organization [Beit Issie Shapiro](#) special consultative status in 2012, allowing it to share research and solutions more widely, and to assist ECOSOC in formulating recommendations to the UN and member states concerning policy for people with disabilities. Hydrotherapy, ground-breaking multisensory rooms and inclusive playgrounds are among the special-needs services implemented by the 32-year-old organization.

58. Asian countries have turned to Israel for help as they look to increase domestic milk production and consumption. Israel set up a demonstration dairy farm near Beijing to show Israeli dairy farming technology. The site became a training center for thousands of dairy farmers in China and from neighboring countries.

China and Vietnam have awarded huge contracts to kibbutz-based company SAE Afikim, whose AfiMilk and AfiFarm computerized systems for [modern dairy farm and herd management](#) are globally recognized for their technology and efficiency. Afikim sends personnel to build dairy farms and teaches local workers how to run them, and in cooperation with the Israeli government hosts Asian workers for intensive training in Israel.

59. Israeli start up GlobeLight & Water System is helping keep roads safer in Africa and South America with [solar-powered light fixtures](#). The theft-proof product highlights blue-and-white ingenuity with its built-in microprocessor that monitors and regulates bulb temperature and battery charge.

The environmentally friendly light fixtures do not rely on electricity infrastructures, need maintenance once every three years, and can be used in any climate.

60. The United Nations turned to an Israeli company to help [purify water for Syrians](#) suffering water contamination during the country's current violent conflict. Medentech, Israel Chemicals' Ireland-based subsidiary, produces AquaTabs, the world's best-selling effervescent tablets, which are considered a better alternative to boiling water to remove contaminants. The Israeli government blessed the deal despite a law nixing trade with an enemy state.

61. IsraAid has launched a [social-worker training program](#) in the new African state of South Sudan, considered one of the most undeveloped in the world, in cooperation with Israeli NGOs FIRST and Operation Blessing-Israel.

Three Israeli experts on sexual violence flew to Juba to train 30 South Sudanese social workers with the tools to identify and address gender-based violence, such as rape and forced marriage. Violence against women is considered one of the biggest challenges in the region.

62. Faced with chronic water shortages, Israel pioneered new [membrane technology and solar desalination plants](#) to make salty and polluted water safe for human consumption and crops.

IDE Technologies mega-installations can now be found in countries all over the world, from the United States to the Caribbean. In China, IDE has built the country's largest and greenest desalination plant to meet the country's expanding energy needs.

63. Airports around the world are a great deal safer now, thanks to a technology developed by Israel's [XSight Systems](#), which detects [foreign object debris \(FOD\) on the runway](#) – that's birds, small animals and fragments that break off planes.

The system, which is effective in all weather and visibility conditions, is already in use at international airports in Boston, Paris, Bangkok and Tel Aviv, with more to follow.

Think FOD isn't that significant? In 2000, the supersonic jetliner Concorde crashed killing 113 people when it hit debris dropped onto the runway by a DC-10 just before it took off. FOD is estimated to cost about \$14 billion in direct and indirect damage every year.

64. Strawberries, sweet peppers, cucumbers and eggplants are just some of the crops that are much healthier today because of some tiny little insects and mites bred in Israel. Kibbutz-based Bio-Bee breeds beneficial insects for [biological pest control](#), which enable farmers to reduce the use of chemical pesticides by 75 percent. The company exports eight different species of biological control agents, plus pollinating bumblebees, to 32 nations from Japan and the US to Chile. The company's subsidiary, Bio-Fly, also sells sterile Mediterranean fruit flies to control this major pest in fruit trees, and collaborates with Jordanian and West Bank Palestinian Authority agricultural experts.

65. An Israeli scientist has developed the world's first [vaccine against canine monocytic ehrlichiosis \(CME\)](#), a sometimes fatal tick-borne disease in dogs. CME is one of the most common infectious diseases in canines, affecting not only pets but also foxes, wolves, jackals and other wild dogs. It is prevalent worldwide, and currently cannot be prevented aside from tick control. If dogs are infected they need a lengthy course of antibiotics. This is the first vaccine to be proven effective against the disease.

With additional reporting by Viva Sarah Press, Abigail Klein Leichman and Karin Kloosterman.

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