

MOROCCAN VAULT PROTECTS SEEDS FROM CLIMATE CHANGE AND WAR

RABAT: Should a doomsday agricultural crisis hit the world's driest environments, scientists and farmers will turn to an up-and-coming research center and seed bank in Morocco to restock their harvests. Tucked away in the university hub of Irfane in Rabat, the International Center for Agricultural Research in the Dry Areas, or ICARDA, hosts the largest collection of seeds in North Africa. "If for any reason, a particular community lost all their resources, we are capable of providing them with the seeds for restoration and rehabilitation," says Ahmed Amri, head of ICARDA's Genetic Resources Unit.

The crucial role of seed banks in protecting biodiversity is receiving increasing attention because of climate change, which threatens to wipe out crops as dry areas of the world get even hotter and drier. The impact on African agriculture is among the topics being discussed at UN climate talks taking place through next week in Morocco. The site in Rabat has become ICARDA's primary center of storage and research after its previous hub in Aleppo, Syria, was seized by an Islamist rebel group in September 2015.

"We couldn't continue doing this work because of the situation in Syria, so we decided to make arrangements to move elsewhere to continue our work," says Amri, who used to work in Aleppo, but is now leading genetic research efforts in Rabat. While many of the research activities moved to Rabat, 98 percent of the Aleppo center's seeds were safely transferred to ICARDA's center in neighboring Lebanon. Duplicates were also sent to a "doomsday" seed vault in Svalbard in the Norwegian Arctic, which serves as a backup for other seed banks worldwide.

Rebels from the ultraconservative Ahrar Al-Sham group have occupied the Aleppo center since September 2015, cutting off access to its 75 employees. Amri has daily contact with the five staff members who remain in Aleppo, including associate scientist Ali Shehadeh. "With the cease-fire, it's stable and unstable at times," Shehadeh told The Associated Press from Aleppo in a Skype interview facilitated by Amri. The Rabat center holds tens of thousands of seeds spanning from

wheat and barley to lentils and chickpeas inside a vault in near-freezing temperatures. The seed bank not only preserves these essential staples but develops them to become more resistant to disease and a warming climate.

Last year, Morocco faced an unprecedented drought that scientists and the government and have linked to climate change, with drier and warmer winters in Morocco and neighboring countries. Domestic grain production dropped, forcing the government to drop tariffs on imports to avoid shortages and stem rising prices. Last month, the government decided to temporarily remove import duties for lentils to lower the price just in time for the winter season - a time when lentils are widely consumed in Morocco. Scientists at the Rabat center work closely with farmers in Marchouch, a nearby rural town. The scientists provide seed samples to farmers who allocate about 2 percent of their own farm land to test the seeds and provide feedback to scientists.

"We are looking for science-based solutions for farmers' problems," says Shiv Kumar Agrawal, a lentil breeder with ICARDA. These problems include contending with droughts, invasive insects and increasing production. Farmers report back to scientists on the results of the harvest yielded from the seed samples, after which further tests are conducted to improve the seeds' durability and production yield. Farmer Abdellah Slimani, 48, president of a farmers' cooperative in Marchouch, believes the feedback loop has helped him and fellow farmers to improve their own methods as climate change continues to impact harvests.

"We hope that this year's harvest will be better, God willing," Slimani says. Bruce Campbell of the Consortium of International Agricultural Research Centers says the climate conference in Marrakech offers a unique opportunity to address the impact of climate change on African agriculture. "Considering all African countries have included agriculture in their climate adaptation strategies, (the conference) will be the ideal setting to discuss how the most promising solutions can be deployed and indeed, funded," he says. — AP



MARRAKECH: Hundreds protest against climate change and urge world leaders to take action, in a march coinciding with the Climate Conference, known as COP22, taking place in Marrakech, Morocco. — AP

SWELTERING 2016 TO SET HEAT RECORD

GLOBAL WARMING STOKES MORE FLOODS AND RISING SEA LEVELS

MARRAKESH: The world is set to notch up a new heat record in 2016 after a sizzling 2015 as global warming stokes more floods and rising sea levels, the UN weather agency said yesterday at climate change talks overshadowed by Donald Trump's election win. President-elect Trump has called climate change a hoax and a source in his transition team says he is seeking quick ways to pull the United States out of the 2015 Paris Agreement, which aims to shift the world economy away from fossil fuels towards renewable energy.

The World Meteorological Organization (WMO) said this year would be the warmest since records began in the late 19th century, with average surface temperatures 1.2 degrees Celsius (2.2 Fahrenheit) above pre-industrial times. Sixteen of the 17 hottest years recorded have been in this century. "Another year. Another record," WMO Secretary-General Petteri Taalas said in a statement in Marrakesh, Morocco, where almost 200 nations are discussing ways to slow climate change.

The heat, with impacts such as melting Greenland ice and damage to Australia's Great Barrier Reef, was stoked by an El Nino weather event in the Pacific early in the year and by man-made greenhouse gases, mainly from burning fossil fuels. "The extra heat from the powerful El Nino event has disappeared. The heat from global warming will continue," he said. The WMO said it was "very likely" that 2016 would be the hottest, barring a freak chill in coming weeks.

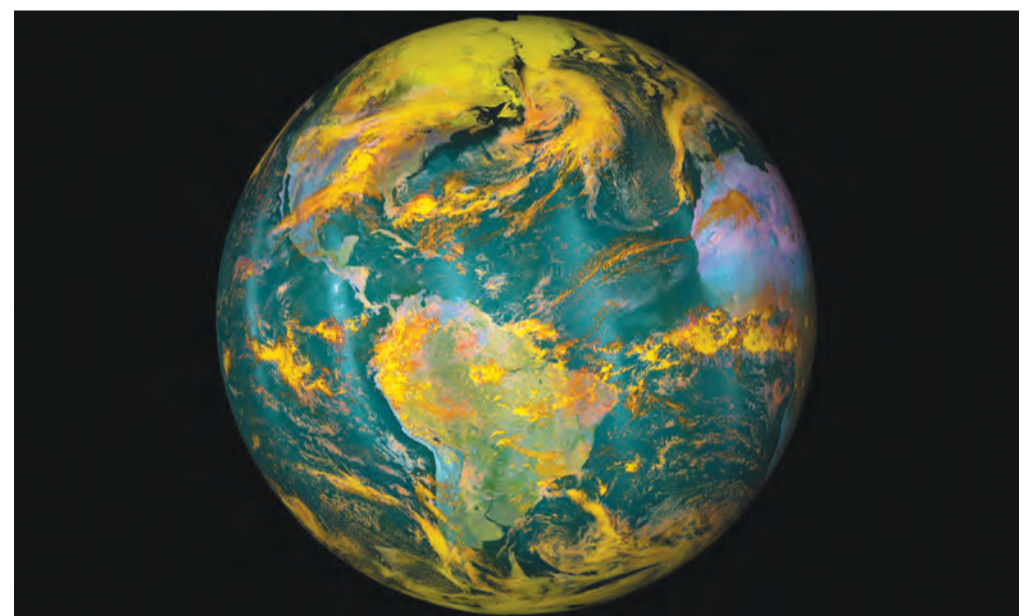
Paris deal

The Paris deal, backed by almost 200 nations including the United States but rejected by Trump, has an overriding goal of limiting the rise in temperatures to "well below" 2C (3.6F) above pre-industrial times, ideally 1.5C (2.7F). Earlier on Monday a scientific report projected that world

carbon dioxide emissions were expected to stay flat for the third year in a row in 2016 and that US emissions would fall by 1.7 percent in 2016, driven by declines in coal consumption.

US President Barack Obama has made fighting climate change a key policy and the United States was the driving force behind the design of the Paris Agreement. "Because of climate change, the occurrence and impact of extreme events has risen," Taalas said. "Once in a generation" heat waves and flooding are becoming more regular. Sea level rise has increased exposure to storm surges associated with tropical cyclones," he said.

The most damaging weather event in 2016 was Hurricane Matthew, which killed more than 500 people in Haiti, it said. The Yangtze basin in China had its worst summer floods since 1999, killing 310 people and causing an estimated \$14 billion in damage. Record daily temperatures were recorded from South Africa to Thailand. Canada had its worst recorded wildfire in May around Fort McMurray, Alberta. Data from the UN refugee agency said 19.2 million people were displaced by weather, water, climate and hazards such as earthquakes in 2015, more than twice as many as for conflict and violence, it said. — Reuters



IN SPACE: NOAA/NASA image shows planet Earth. Carbon emissions from burning fossil fuels have been nearly flat for three years in a row a 'great help' but not enough to stave off dangerous global warming, a report said on November 14, 2016. — AFP



A man shops for vegetables at a Berber weekly market in Asni, a small town in the High Atlas region, near Marrakech, Morocco. — AP

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