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**FORUM FOR INDIAN  
SCIENCE DIPLOMACY**

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## NEWS ALERT

*Forum for Indian Science Diplomacy*

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## GLOBAL

### [Quantum dots boost perovskite solar cell efficiency and scalability](#)

Researchers from the Korea Institute of Energy Research have found an innovative way to increase the performance of perovskite solar cells and maintain it at a high level even at large scales. They replaced the titanium dioxide electron-transport layer of the perovskite cells with a thin layer of polyacrylic acid-stabilized tin (IV) oxide quantum dots, nanometer-sized particles that act as semiconductors, and emit light of specific wavelengths (colors) when illuminated, and found that it enhanced the devices' light-capturing capacity, while also suppressing nonradiative recombination, an efficiency-sapping phenomenon. By using the quantum dot layer, the researchers found that perovskite solar cells of 0.08 square centimeters attained a record power-conversion efficiency of 25.7 per cent (certified 25.4 per cent) and high operational stability, with possibility of scale-up. When increasing the surface area of the solar cells to 1, 20, and 64 square centimeters, power-conversion efficiency measured at 23.3, 21.7, and 20.6 per cent respectively. Perovskites show great potential in a range of applications, e.g. LED lights, lasers, and photodetectors, but their major contribution is in solar cells, where they are poised to overtake the market from their silicon counterparts.

### [Game changer in xeno-transplantation](#)

The University of Alabama at Birmingham researchers tested the first human preclinical model for transplanting genetically modified pig kidneys into humans. The study recipient had two genetically modified pig kidneys transplanted in his abdomen after his native kidneys were removed. The pig kidneys transplanted were taken from pigs that had been genetically modified with 10 key gene edits that may make the kidneys suitable for transplant into humans. This process demonstrates the long-term viability of the procedure and how such a transplant might work in the real world. The transplanted kidneys filtered blood, produced urine and, importantly, were not immediately rejected. Gene editing in pigs to reduce immune rejection has made organ transplants from pigs to humans possible, which could offer help to thousands of people who face organ failure, disease or injury.

### [Key elements for fault-tolerant quantum computation in silicon spin qubits](#)

Researchers from RIKEN and QuTech have achieved a key milestone toward the development of a fault-tolerant quantum computer. They discovered that a property called the Rabi frequency - a marker of how the qubits change states in response to an oscillating field - is key to the performance of the system, and they found a range of frequencies for which the single-qubit gate fidelity was 99.8 per cent and the two-qubit gate fidelity was 99.5 per cent, clearing the required threshold. For building fault-tolerant computers - using electron spin qubits in silicon, which are promising for large-scale quantum computers as the nanofabrication technology for building them already exists.

### **Breakthrough in power conversion efficiency for solar cell technology**

A team of researchers led by the National University of Singapore (NUS) have demonstrated the power conversion efficiency of solar cells made using perovskite and organic materials. The study aimed to improve the power conversion efficiency of perovskite/organic tandem solar cells. The research demonstrated power conversion efficiency of 23.6 per cent which is the best performance for this type of existing solar cells. This technological breakthrough paves the way for flexible, light-weight, low cost and ultra-thin photovoltaic cells which could have wide-ranging applications for powering vehicles, boats, blinds and other applications.

### **Development of a lithium-air battery with high energy density**

National Institute for Materials Science, Japan and Softbank Corp. have developed a lithium-air battery with an energy density over 500Wh/kg, significantly higher than currently lithium ion batteries. The battery can be charged and discharged at room temperature. In addition, the team found that the battery developed by the team shows the highest energy densities and best cycle life performances ever achieved. These results represent a major step toward the practical use of lithium-air batteries. The team is currently developing higher-performance battery materials and plans to integrate them into the newly developed lithium-air battery with the aim of greatly increasing the battery's cycle life. The team then plans to expedite efforts to put the battery into practical use at the NIMS-SoftBank Advanced Technologies Development Center.

### **Catalyst for synthesis of propylene**

Researchers have developed an innovative catalyst for the synthesis of propylene, which has potential benefits for the chemical industry and carbon recycling. The team developed a catalyst made from three different metals (platinum, cobalt and indium), each chosen for its specific properties. Platinum was selected as the main active metal because of its ability to break chemical bonds between carbon and hydrogen, enabling the dehydrogenation reaction. Cobalt accelerates CO<sub>2</sub> capture and activation, while indium enhances the catalyst's selectivity. The metals were fixed to a support made from cerium oxide, a compound commonly used in car catalytic converters. They found that the catalyst increased the reaction rate approximately five fold compared to the typical values reported from other systems. The reaction produced a higher ratio of propylene and utilized more CO<sub>2</sub> at 550°C compared to previous catalysts. The catalyst also showed good long-term stability and reusability. This study provides new insights into the design of highly efficient catalysts for petrochemical production, and has potential benefits for carbon recycling and greenhouse gas reduction.

### **Microscope to image microbes in soil and plants**

Lawrence Livermore National Laboratory (LLNL) scientists have developed a custom microscope to image microbes in soil and plants at the micrometer scale which could help scientists understand how microbial cells interact with minerals, organic matter, plant roots and other microorganisms. The LLNL researchers turned to optical methods—imaging with light in the ultraviolet, visible and infrared spectrum—that allowed them to image microbes in soil and plants. The team developed a label-free multiphoton nonlinear optics approach using multiple imaging modes to generate contrast and chemical information for soil microorganisms in roots and minerals. This method enables a strong signal for general microbe, plant and mineral imaging; high contrast, label-free chemical imaging that can target diagnostic biomolecules and minerals; very strong signals from specific minerals and some biomolecules; and higher information content, deeper penetration, less scattering, and less photodamage compared to confocal microscopy.

### [Zika vaccine shows promising results in preclinical studies](#)

Researchers led by the Trudeau Institute have developed a vaccine to prevent the Zika virus from passing to the foetus from the mother in preclinical animal studies. In the current study, four marmosets were immunized with the ZPIV vaccine. After they became pregnant, they were exposed to Zika virus. Only 1 of 12 offspring tested positive for Zika virus, demonstrating more than 90 per cent effectiveness. The researchers are already testing what happens when the vaccine is administered during pregnancy.

## COVID-19

### COVID-19 (WORLD)

#### ['Decoy' protein works against multiple SARS-CoV-2 variants](#)

A drug that acts as a decoy against SARS-CoV-2 was highly effective at preventing death and lung damage in humanized animal models of severe COVID-19 disease, according to researchers at the University of Illinois Chicago. The drug treatment consists of an artificially engineered ACE2 protein designed with unprecedented high binding capacity for the spike protein of SARS-CoV-2, which competes for the spike protein and soaks up viruses before they can bind and enter cells. In animal studies of severe COVID-19, the researchers found that mice receiving the treatment showed markedly reduced death and no significant evidence of severe acute respiratory syndrome. The mice receiving the drug also regained appetite and weight, which are signs of recovery. The researchers tested how well the decoy would bind and neutralize multiple variants of SARS-CoV-2, such as the alpha, beta, gamma, delta and epsilon variants. They also found that it bound equally, if not better, to the variants than it did to the original strain of the virus. The protein could be delivered by inhalation directly to the lungs of mice. The drug has the potential to be used in combination with other drugs, especially those that prevent replication of the virus that has already entered cells or drugs that prevent an excessive immune response, which itself can worsen COVID-19 complications.

#### [Nano-bubble evACE2 fights new variants](#)

Scientists at Northwestern Medicine and The University of Texas MD Anderson Cancer Center have identified natural nano-bubbles containing the ACE2 protein (evACE2) in the blood of COVID-19 patients and discovered these nano-sized particles can block infection from broad strains of SARS-CoV-2 virus in preclinical studies. The study shows that evACE2 proteins are capable of fighting the new SARS-CoV-2 variants with an equal or better efficacy than blocking the original strain. The researchers found these evACE2 nano bubbles exist in human blood as a natural anti-viral response. The more severe the disease, the higher the levels of evACE2 detected in the patient's blood. The mouse studies demonstrate the therapeutic potential of evACE2 in preventing or blocking SARS-CoV-2 infection when it is delivered to the airway via droplets.

#### [Fast, cheap test can detect COVID-19 virus' genome without PCR](#)

Researchers at the University of Washington have developed a new Harmony COVID-19 test that combines the speed of over-the-counter antigen tests with the accuracy of PCR tests. The test is low-cost and simple enough to be used anywhere. The test uses a 'PCR-like' method to detect the presence of the SARS-CoV-2 RNA genome in a nasal swab sample with the aid of a small, low-cost detector. A smartphone is used to operate the detector and read the results. The detector can handle up to four samples at a time and would fit into a standard car's glove compartment. Initial results show that the Harmony kit is 97 per cent accurate for nasal swabs. The Harmony kit detects three different regions of the virus' genome. If a new variant has many mutations in one region, the new test can still detect the other two. It can, for example, detect the omicron variant, which has dozens of mutations in the region of the genome that encodes the so-

called spike protein. The test uses a PCR-like method known as RT-LAMP, which does not have the same stringent temperature-cycling requirements as PCR. A new company, Anavasi Diagnostics, will develop the Harmony prototype kit into a product and scale up manufacturing to help address the ongoing shortage of COVID-19 diagnostic tests.

#### **[New protein that enables SARS-CoV-2 access into cells identified](#)**

A team of researchers from the Boston University School of Medicine (BUSM) has identified extracellular vimentin as an attachment factor that facilitates SARS-CoV-2 entry into human cells. Vimentin is a structural protein that is widely expressed in the cells of mesenchymal origin such as endothelial cells. The researchers found that depletion of vimentin significantly reduces SARS-CoV-2 infection of human endothelial cells. In contrast, over-expression of vimentin with ACE2 significantly increased the infection rate. These findings may lead to the development of new antiviral therapeutics against COVID-19.

#### **[Transforming a smartphone into COVID-19 / flu detection system](#)**

UC Santa Barbara researchers have developed a new cell phone app and lab kit which transforms a smartphone into a COVID-19/flu detection system. The detection system is rapid, sensitive, affordable and scalable and can be readily adapted for other pathogens. It also provides a platform for inexpensive home-based testing. The system succeeded in achieving rapid and accurate diagnosis of COVID-19, COVID variants, and flu viruses. The app uses a smartphone's camera to measure a chemical reaction and determine a diagnosis in 25 minutes at a fraction of the cost of current diagnostic methods. The app and methodology are free and openly available to all. The lab kit can be produced for less than \$100, and it requires little more than a smartphone, a hot plate and LED lights. The screening tests can be run for less than \$7 each versus \$10 to \$20 per rapid antigen test and \$100 to \$150 per PCR test. The process, termed smaRT-LAMP, is simple and straightforward. A small volume of the patient's saliva is collected and analyzed by the smartphone app using the phone's camera and the diagnostic kit. No additional specialty materials are required.

### **COVID-19 (INDIA)**

#### **[India's first mRNA vaccine against COVID-19](#)**

India's first messenger RNA, or mRNA, vaccine, made by Pune-based Gennova Biopharmaceuticals is set for human trials. The vaccine candidate, known as HGC019, has been developed in collaboration with the US-based HDT Biotech Corporation. Regulators in India had approved further human trials of the Gennova vaccine after it was found to be safe and effective in initial studies. The HGCO19 vaccine uses the self-amplifying mRNA platform which gives it the advantage of a low dosing regimen, and the vaccine is stable at 2-8 degrees Celsius meeting the logistical requirements for storage and transportation in India. The vaccine also contains the code for the virus enzyme, which enables it to create multiple copies of the virus RNA once it is in cells, leading to quicker protein production and works with lower doses than those for mRNA.

#### **[Patent-free Corbevax promises vaccine equity](#)**

Corbevax, a new vaccine against COVID-19, may have better success in achieving vaccine equity because it carries no patents, relies on long-established recombinant technology for manufacture and has the support of the US and Indian governments. The vaccine already has emergency use approval in India and the Hyderabad-based collaborator, Biological E Limited is set to produce 100 million doses a month, starting February. India's Biotechnology Industry Research Assistance Council (BIRAC) helped see Corbevax through the pre-clinical stage and the Phase III clinical studies. Once WHO clearances come through, Biological E is confident that it can scale up



manufacturing to deliver 300 million doses and an additional one billion doses globally. Corbevax's development is owed mainly to a long-standing partnership to produce various vaccines between Biological E, the Texas Children's Hospital Center for Vaccine Development, and the Baylor College of Medicine in Houston, Texas. Corbevax is easy to manufacture and distribute because the recombinant technology used has been employed for decades to produce, for example, the Hepatitis-B vaccine. Corbevax can be stored and transported at 2—8 degree Celsius, allowing countries with limited resources to store and distribute it. It could prove ideal for booster doses for which trials are now being conducted in India. Biological E affirmed that the vaccine was found to be safe, well-tolerated and immunogenic following the completion of phase III clinical trials involving more than 3,000 subjects between the ages of 18 and 80 at 33 sites across India. Emergency use approval for Corbevax was granted in India on 28 December.

#### **[DCGI approves Bharat Biotech's nasal booster dose trials](#)**

The Drug Controller General of India gave approval to conduct Phase-III clinical trials of Bharat Biotech's intranasal booster dose on people who have received both doses of Covaxin. The nasal vaccine, BBV154, stimulates immune responses at the site of infection - the nose -and is very effective in blocking infection and transmission of COVID-19. The trials will evaluate BBV154 nasal vaccine for both the second dose primary schedule and booster dose schedule. It has also underlined how easily a nasal vaccine can be administered and the fact that it would not need trained healthcare workers. The trials will be conducted at nine locations in the country.

### **INDIA – SCIENCE & TECHNOLOGY**

#### **[Indian power company invites bids to build 900MW of solar parks in Cuba](#)**

State-owned NTPC Ltd, India's largest integrated energy producer, has invited bids until May to develop 900MW of solar parks in Cuba. The solar parks will be spread across 175 locations in the island nation's 15 provinces. Cuba is a member of the International Solar Alliance (ISA). The Cuban government, through its Ministry of Energy and Mines (MINEM), has sought support from the ISA for development of the solar generation capacity. NTPC was chosen as preferred partner to help with implementation of the Cuban solar project last year and will partner with state-owned Cuban utility Union Electrica de Cuba. NTPC is already helping bring about 500MW of photovoltaics in Mali, 100MW in Malawi, 285MW in Togo, and 50MW in Niger.

#### **[Indian battery cell production scheme gets bids for 130 GWh](#)**

An Indian Ministry of Heavy Industries tender to develop 50 GWh of advanced-chemistry battery cell manufacturing units in India under its production-linked incentive (PLI) scheme has secured bids for 130 GWh of capacity. Bids were received from a total of 10 companies, including Reliance New Energy Solar, Hyundai Global Motors, Ola Electric Mobility, Lucas-TVS, Mahindra & Mahindra, Amara Raja Batteries, Exide Industries, Rajesh Exports, Larsen & Toubro and India Power. Under the scheme, the selected bidders will have to set up manufacturing facilities within two years from the appointed date. The incentive will be disbursed thereafter over a period of five years on the sale of batteries manufactured in India.

#### **[BrahMos supersonic cruise missile tested with enhanced capability](#)**

BrahMos supersonic cruise missile, with increased indigenous content and improved performance, was successfully test-fired off the coast of Odisha on January 20, 2022. The missile followed the predicted trajectory, cruising at supersonic speed for its maximum range and all mission objectives were met. The missile was equipped with the advanced indigenous technologies and followed a modified optimal trajectory for enhanced efficiency and improved performance. Teams from DRDO and NPOM, Russia participated in the test. The Philippines has approved a \$375 mn contract for the

purchase of three batteries of shore-based anti-ship variant BrahMos missiles and negotiations are on with Indonesia and Thailand for sale of these missiles. The range of the missile was originally capped at 290 km, but is being extended to 450 km and to 600 km at a later stage. The missile is capable of being launched from land, sea, sub-sea and air against surface and sea-based targets and has been long inducted by the Indian armed forces.

### **3D printing tech to reduce concrete use by 75 per cent**

Researchers at the Indian Institute of Technology (IIT) Guwahati have manufactured 3D printed urban furniture utilising construction material made from local industrial waste. They have also developed cementitious mix compositions, amenable for 3D printing. The innovation is expected to reduce concrete use by 75 per cent. The 3D printer is capable of printing components up to 1 m long, 1 m wide, and 1 m tall. The concrete printer completed the cycle for urban furniture in nearly 20 minutes. The printed piece has dimensions of 0.4 m of height, 0.4 m of width, and arched-shaped support modelled and sliced using SolidWorks and Simplify3D, respectively. The complete unit was printed layer by layer at a speed of 80 mm/s with a height of 100 mm. After the unit's print, it was wrapped with moist gunny bags for seven days to cure before bringing to use. 3D concrete printing allows for the creation of optimum designs without the need for mould and with 75 per cent reduced use of concrete. The team aims to explore underwater concrete printing and the possibility of printing functional reinforced concrete using low carbon materials.

### **Cooperation between Indian and France in Human Health**

An MoU was signed between CSIR and Institut Pasteur for cooperation in health research on emerging and re-emerging infectious diseases and inherited disorders and delivery of effective and affordable healthcare solutions. The MoU provides for developing potential scientific and technological cooperation and networking in advanced and emerging areas of human health between scientists and institutes/laboratories of CSIR and Institut Pasteur and its international network.

## **IN BRIEF**

### **410 W solar panel with 22.2 percent efficiency**

Japanese electronics manufacturer Panasonic has launched a new residential heterojunction panel series that is compatible with its Evervolt lithium-ion storage solution for residential solar installations. The 410W/400W EverVolt H series is made with 66 half-cut cells and features a power output ranging from 400 to 410 W. It also shows a power conversion efficiency of 21.6% to 22.2%. The panel's temperature coefficient is -0.26% per degree Celsius and the manufacturer offers a 25-year product guarantee and a 25-year power output guarantee. The panels are said to be able to operate at 92% of their original performance at the end of the guarantee period.

### **Nitrogenous fertilizer from air with PV**

Nitricity is US company has used intermittent solar electricity in a non-thermal plasma reactor to convert nitrogen directly from air to produce 1 per cent nitric acid, a critical nutrient in fertilizer. The process enables decarbonization, decentralization and privatization of fertilizer manufacturing, made possible by affordable, off-grid, intermittent solar electricity. The company installed its first commercial project in October. The off-grid 2.4 kW solar power system was coupled directly with a sub-surface irrigation system for a tomato crop. The new process directly competes with industrial ammonia production – a process which directly creates more CO<sub>2</sub> than any other human-driven chemical process. In nature also, lightning produces nitric acid from the air.



### [Portable solar storage solution in Europe](#)

North American manufacturer Ecoflow has brought what it claims to be the fastest charging residential battery in the world to Europe. The portable battery solution can be combined with solar panels and has a capacity of 3.6 to 25kWh. The product is now available in 35 countries and regions across Europe. The entire system has enough power – on a single charge – to meet the emergency power use of an average family for about a week. The portable version uses a 400Wp solar panel, which can fully charge the battery in 12 to 24 hours. The charging time is 2.8 to 5.6 hours for the 3.6kWh battery. The battery can also be connected to a house's power system, a gas generator, or a car charger.

### [New technique boosts efficiency, sustainability of large-scale perovskite solar cells](#)

An international team of researchers has demonstrated a technique for producing perovskite photovoltaic materials on an industrial scale, which will reduce the cost and improve the performance of mass-produced perovskite solar cells. The technique is low-cost, simple, energy-efficient, and should pave the way for creating perovskite solar cells. This strategy involves the usage of a high volatility co-solvent (tetrahydrofuran (THF)), which dilutes perovskite precursors to a lower concentration (<0.5 M) while retaining similar film quality and device performance as a high concentration (>1.4 M) solution. More than 70% of toxic waste and material cost can be reduced. The new technique was used to produce modules that are tens of centimetres across with excellent uniformity and performance. The team is seeking to commercialise the process and accelerate the development of perovskite solar cell technologies.

## RESOURCES AND EVENTS

### [India to host 5 events in 2022 under BRICS S&T cooperation](#)

At the 15th meeting of the BRICS Science Technology Innovation (STI) Steering Committee on 17th January 2022 India agreed to host five events in 2022, namely BRICS Startups Forum meeting, Working Groups meetings on Energy, Biotechnology & Biomedicine, ICT & High-Performance Computing, STIEP (Science, Technology, Innovation and Entrepreneurship Partnership) Working Group Meeting and the launching of BRICS innovation Launchpad as a microsite (Knowledge Hub). India handed over the BRICS Chairmanship to China from January 2022. The theme for BRICS 2022 is “Foster High-Quality BRICS Partnership Usher in a New Era for Global Development”. A total of 25 events have been planned in 2022. The BRICS Young Scientist Conclave will be held in September 2022 with a focus on Carbon peak neutralization, Biomedicine, Artificial Intelligence, Material Science, Modern Agriculture. China will host the 10th BRICS S&T Ministerial meeting and Senior Official Meeting in September 2022.

### [Switzerland joins Square Kilometre Array Observatory](#)

Switzerland has joined the Square Kilometre Array Observatory (SKAO), becoming the first to sign up since the seven founder members of the project agreed to the intergovernmental treaty of the SKAO in March 2019. The array in South Africa will be composed of 197 dishes, each 15 metres in diameter, while the telescope in Australia will be composed of 131,072 two metre-tall antennas. Costing around Euro 1.9 billion to build and operate until 2030, the project is expected to give a view of space unprecedented in detail. SKAO has an agreement with CERN to collaborate in handling and analysing the huge amounts of data the telescopes will generate. Switzerland's Federal Council approved funding of nearly Euro 24 million to ensure Swiss participation until 2030. The Observatory's founding members are Australia, China, Italy, the Netherlands, Portugal, South Africa and the UK. Switzerland is the first non-

founder to join as a full member Canada, France, Germany, India, Japan, South Korea, Spain and Sweden are currently observers, and are expected to join in the coming years.

### **[James Webb Space Telescope reaches its destination](#)**

NASA's James Webb Space Telescope has reached into orbit around the Earth-sun Lagrange Point 2, a gravitationally stable spot in space about 1.5 million kilometres from earth. First science images from JWST are expected in about five months. The Webb team will precisely align the 18 hexagonal segments that make up Webb's 6.5 metres primary mirror, an exacting process that will take about three months. The team will then align it with the 0.74 m secondary mirror, Webb's instruments will need to be checked out, cooled down and calibrated, a time-consuming activity.

## **SCIENCE POLICY AND DIPLOMACY**

### **[India & Denmark agree to work together on green fuels](#)**

India & Denmark have agreed to initiate joint research and development on green fuels including green hydrogen, during the recent Joint S&T Committee meeting which focused on green solutions of the future - strategy for investments in green research, technology, and innovation. The committee agreed to organise 3-4 webinars for partnership development and stressed on promoting call for proposals in green fuels, including green hydrogen. The Joint Committee also reviewed the progress of the ongoing projects of the last two joint calls being implemented in the areas of energy research; water; cyber-physical systems, and bioresources & secondary agriculture.

### **[India-Israel Industrial R&D & Technological Innovation Fund \(I4F\) discussed](#)**

Experts from India and Israel deliberated on widening the scope of India-Israel Industrial R&D and Technological Innovation Fund (I4F) at its 8th Governing Body meeting. They approved 3 joint R&D projects worth 5.5 million \$ and suggested measures to create a broader India-Israel collaborative ecosystem. The approved projects were 'Centrally Monitored IoT Nanosensors for Molecular Diagnostics in Healthcare and Screening Applications', 'NoMoreMos- a mosquito control biological solution' and 'IoT enabled satellite communication for real-time collection of agriculture and environment data across India'. Israel side introduced the new I4F website and matchmaking platform. The strategy for the new phase of I4F 2.0 includes technical feasibility and market acceptability of new products or technologies, co-developing products or technologies for commercialization, co-test products or technologies for commercialization in R&D and pilot areas. It also included co-developing disruptive technologies in strategic sectors together with research performers involving academia as well.

### **[India & Sri Lanka extend science and tech cooperation for next 3 years](#)**

India-Sri Lanka 5th Joint Committee on S&T Cooperation has extended the bilateral programme of cooperation for 3 years with focus on new areas such as waste-water technologies, biotech, sustainable agriculture, aerospace engineering, robotics, big data analytics, artificial intelligence as well as industrial collaborations. Both sides also reviewed the ongoing collaborative activities in the nine areas spanning food technology, plant-based medicines, meteorology, space research & applications, industrial electronics, renewable energy, waste management, information and communication technology. Under India's e-ITEC program since April 2020, 550 Sri-Lankan nationals have benefitted from training in various Indian institutions in areas like biotech, medical research, renewable energy.

### **[China to allow gene-edited crops in push for food security](#)**

China has published trial rules for the approval of gene-edited plants, paving the way for faster improvement of crops as it seeks to bolster its food security. The new

guidelines, published by the Ministry of Agriculture and Rural Affairs come amid several measures aimed at overhauling China's seed industry, seen as a weak link in food security. Beijing has also recently passed new regulations that set out a clear path for approval for genetically modified (GM) crops. The draft rules stipulate that once gene-edited plants have completed pilot trials, a production certificate can be applied for, skipping the lengthy field trials required for the approval of the GM plant. This means that it could take only a year or two to get approval for a gene-edited plant compared with around six years for GM ones. Chinese researchers have used gene-editing to create lettuce seeds rich in vitamin C and herbicide-resistant rice.

### [Persistent Organic Pollutants reviewed](#)

The seventeenth meeting of the Persistent Organic Pollutants Review Committee (POPRC 17) met in Geneva during 24-18 January to discuss action on certain chemicals under the Stockholm Convention. These were the pesticide methoxychlor, Dieldrin, a flame retardant, and UV-328, a stabiliser used in plastic products. It also discussed proposals regarding Chlorpyrifos, certain Chlorinated paraffins and Long-chain perfluorocarboxylic acids, their salts and related compounds. The POPRC is a 31-member expert committee established tasked with reviewing proposals for listing a new substance under the Stockholm Convention under a three-stage review process. The POPRC recommendations are considered by the Conference of the Parties (COP).

We welcome your comments and valuable suggestions. Please write to us for receiving publications, updates and notices regarding seminars, conferences etc.



### **Research and Information System for Developing Countries**

Core IV B 4th Floor, India Habitat Centre, Lodi Road, New Delhi 110003, India

Tel:-011- 24682176, E-mail: [science.diplomacy@ris.org.in](mailto:science.diplomacy@ris.org.in)

Website: [www.fisd.in](http://www.fisd.in)

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