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SCIENCE DIPLOMACY**

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# NEWS ALERT

*Forum for Indian Science Diplomacy*

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## **GLOBAL**

### **Revolutionary new intelligent transistor developed**

TU Wien (Vienna) researchers have developed a new transistor that may usher in a new era of chip technology. In the novel transistor, both electrons and holes are manipulated simultaneously in a very special way by connecting two electrodes with an extremely thin wire made of germanium, via extremely clean high-quality interfaces. Above the germanium segment, is a gate electrode and a further control electrode, which is placed on the interfaces between germanium and metal. This device architecture makes it possible to control electrons and holes separately. With the help of the control electrode, new degrees of freedom are available. This increased adaptability increases the speed and energy efficiency of the circuits. These new possibilities are particularly interesting for applications in the field of artificial intelligence. With new adaptive transistors, it is now possible to change circuits directly on the chip in a targeted way. The materials used are already used in the semiconductor industry today, and no completely new manufacturing processes are necessary.

### **Selective separation could help alleviate critical metals shortage**

MIT researchers have found a process to separate rare metals from mining ores and recycled materials using selective adjustments in a chemical process called sulfidation. This processing technique allows the metals to remain in solid form and be separated without dissolving the material. The researchers developed processing conditions for 56 elements and tested these conditions on 15 elements. The chemical reaction exploited by the researchers reacts a material containing a mix of metal oxides to form new metal-sulfur compounds or sulfides. By altering factors like temperature, gas pressure and the addition of carbon in the reaction process, they could selectively create a variety of sulfide solids that can be physically separated by a variety of methods. The team used selective sulfidation to separate out economically important metals like cobalt in recycled lithium-ion batteries and dysprosium

from rare-earth-boron magnets, or from the mixture of oxides available from mining minerals such as bastnaesite. The team has built a reactor that can process about 10 kilograms of raw material per day and is looking to scale it up.

### [World's longest flexible fiber battery](#)

Researchers from MIT have developed a rechargeable lithium-ion battery in the form of an ultra 140 metre long fiber that could be woven into fabrics. The battery could enable a wide variety of wearable electronic devices, and might even be used to make 3D-printed batteries in virtually any shape. The new fiber battery is manufactured using novel battery gels and a standard fiber-drawing system that starts with a larger cylinder containing all the components and then heats it to just below its melting point. The material is drawn through a narrow opening to compress all the parts to a fraction of their original diameter, while maintaining all the original arrangement of parts. This system embeds the lithium and other materials inside the fiber, with a protective outside coating, thus directly making this version stable and waterproof. The 140-meter fiber produced so far has an energy storage capacity of 123 milliamp-hours. The fiber device is only a few hundred microns in thickness. The team has already applied for a patent on the process.

### [Green energy as a by-product of sugarcane in Brazil](#)

Comércio Indústria Canaã Açúcar e Alcool Ltda. (Cocal) of Brazil has launched a project for large-scale production of biomethane, i.e. refined biogas, a renewable and clean equivalent of natural gas. In addition to sugar and ethanol, electricity is generated from sugarcane bagasse, and biogas and other by-products are also created, such as biofertilizers, carbon dioxide gas and dried yeast, leftovers from alcohol fermentation, which, when processed, serve as protein-rich animal feed. The biomethane, produced is being supplied to three cities with a combined population of 264,000 people. The technology processes vinasse, the liquid residue from the ethanol (or alcohol) distillery to make biogas during harvest season, in horizontal biodigesters. During off harvest periods, another waste product, cachaça or filter cake, a dark sludge resulting from the processing of sugarcane juice to make sugar is processed in two vertical biodigesters. With biomethane, Cocal seeks to reduce the greenhouse gases emitted in its ethanol production. Replacing diesel with green gas decarbonizes the activity by 95 percent. In addition, the waste from which the biogas is extracted is converted into clean biofertilizers, which emit 75 percent less carbon than chemical fertilizers. This technology could be useful for other sugarcane growing countries across the world.

### [NTU team develops energy saving 'self-adaptive' glass](#)

An international research team led by Nanyang Technological University (NTU) Singapore has developed a 'self-adapting' energy saving glass material that can heat or cool rooms. The glass automatically responds to changing temperatures by switching between heating or cooling. It was developed using layers of vanadium dioxide nanoparticles composite, Poly(methyl methacrylate) (PMMA) and low-emissivity coating to form its unique structure. The energy saving glass, which has no electrical components, works by exploiting the spectrums of light responsible for heating and cooling. During summer it suppresses solar heating (near infrared light) while boosting radiative cooling (long-wave infrared) – a natural phenomenon where heat is emitted through surfaces to cool the room. In winter, it does the opposite to warm the room. The NTU team believes its innovation offers a convenient way to conserve energy in buildings since it doesn't rely on moving components, electrical mechanisms or blocking views to function.

### [Promising new target for tuberculosis treatment](#)

Researchers at Weill Cornell Medicine have found that a Mycobacterium tuberculosis (Mtb) enzyme that had never been studied in depth before, is crucial for breakdown of available fatty acids to supply energy and molecular building blocks for growth and survival. Deleting just that one enzyme, which they called EtfDMtb, rendered Mtb unable to sustain an infection in mice. The enzyme is an attractive drug target for TB - silencing it not only starves the bacterium but also has an additional toxic effect on it. The researchers also plan additional studies to determine whether EtfDMtb or closely related enzymes could be good drug targets in other disease-causing bacteria.

### [AI detects fractures on x-rays](#)

A new study has found that artificial intelligence (AI) can help physicians in interpreting x-rays after an injury and suspected fracture. The AI algorithm can quickly and automatically detect x-rays that are positive for fractures and flag those studies in the system so that radiologists can prioritize reading x-rays with positive fractures. The system also highlights regions of interest with bounding boxes around areas where fractures are suspected. This can potentially contribute to less waiting time at the time of hospital or clinic visit before patients can get a positive diagnosis of fracture. AI can be a powerful tool to help radiologists and other physicians to improve diagnostic performance and increase efficiency, while potentially improving patient experience at the time of hospital or clinic visit.

### [Novel effective treatment for Cancer](#)

The team of scientists at Cleveland Clinic, United States have hinted at a novel effective treatment process of cancer without chemo and radiation therapies. After successful experiments on mice, efforts are now being intensified to do the same for human trials. However, it has not yet got approval for human trials. The study may give relief to cancer patients undergoing chemotherapy. Chemotherapy uses radiation and other drugs which have many side effects and evoke an immune system response that causes severe pain and allergic reactions. Our team had earlier developed knockout mice (a lab mouse in which one or more genes have been turned off or “knocked out” using genetic engineering) for miR-21. While experimenting on mice, the team injected its anti-sense (non-coding DNA strand of a gene) into mice to make miR-21 ineffective. After this, it was found that the tumour formed in the body of the mice gradually became smaller. Some tumours even disappeared.

## COVID-19

### COVID-19 (WORLD)

#### [Omicron variant surges across the world](#)

In the weeks since omicron emerged, the variant has been identified in more than 89 countries. Omicron is responsible for nearly all new COVID-19 cases in South Africa, and is already the predominant version of the coronavirus in London. The variant was responsible for an estimated 73.2 percent of new infections across the US for the week ending December 18, up from an estimated 12.6 percent the previous week and 0.7 percent the week ending December 4. An exposed person develops symptoms after three days on the average. Omicron seems to replicate particularly well in bronchial cells and symptoms like coughing could release a lot of viruses into the air. Immune cells called T cells recognize parts of omicron with mutations, and can help protect people. Omicron seems more likely to cause reinfections than delta. Early studies suggest that vaccines will still protect, especially after getting a booster.

### **Coating surfaces with copper can kill COVID-19 virus**

University of Waterloo researchers have discovered that using a thin-film coating of copper or copper compounds on surfaces could enhance copper's ability to inactivate or destroy the SARS-CoV-2 virus responsible for COVID-19. The Waterloo team partnered with Wilfrid Laurier University researchers, who tested the effectiveness of the antiviral coatings on glass and N95 mask fabric. Along with the masks, The researchers' antiviral coating could also be applied to high-touch public surfaces. The Waterloo research group is developing coating techniques for masks and is continuing to explore the dissolution process for smaller droplet sizes, as well as investigating how to control the adhesion of copper films to various surfaces.

### **Methods to estimate strength of COVID-19 variants developed**

Scientists at Los Alamos National Laboratory have developed methods to quantify how transmissible the variants are, which could have far-reaching implications for public health. They showed that it is possible to calculate new strains' transmission advantage while accounting for alternative explanations such as migration and random genetic drift. Their collection of methods helps to look both broadly at the global situation and in greater detail at specific countries using publicly available genetic sequence data. These approaches showed that the pattern of emerging and rising COVID-19 variants globally was driven by large increases in the transmissibility of the virus over time. The methods also clearly established that early detection of variants of concern is possible even when the global frequency of new variants is as small as 5 percent.

### **Shark antibody-like proteins neutralize COVID-19 virus**

US Researchers collaborated with Elasmogen, a biomedical company that is developing therapeutic Small, unique antibody-like proteins known as VNARs. The researchers identified three candidate VNARs from a pool of billions that effectively stopped the Covid 19Tvirus from infecting human cells. The three shark VNARs were also effective against SARS-CoV-1, which caused the first SARS outbreak in 2003. These new potential drug molecules against SARS-CoV-2 differ in their mechanism of action compared to other biologics and antibodies targeting this virus. This new class of drug is cheaper and easier to manufacture than human antibodies, and can be delivered into the body through various routes, but has yet to be tested in humans. They can prevent the virus that causes COVID-19, its variants, and related coronaviruses from infecting human cells.

### **Evidence of COVID-19 in Deer**

The University of Texas at El Paso team has found COVID-19 present in white-tailed deer in Texas. The reported evidence of SARS-CoV-2 infection in deer from Texas widens the previously reported geographical range of COVID-19 among deer in the United States, further confirming that infection was common among the species. The team found SARS-CoV-2 neutralizing antibodies in more than a third of the samples, including a significant prevalence among deer that were 1.5 years old, indicating that the disease is rampant among one of the most abundant wildlife species, particularly among males. This suggests deer could be a possible source of human infection

### **FDA authorizes COVID-19 pill**

The US Food and Drug Administration (FDA) has granted emergency authorization to Pfizer's Covid treatment pill, Paxlovid, to treat Covid-19. It is the first antiviral Covid-19 pill authorized in the US for ill people to take at home, before they get sick enough to be hospitalized. It would be an important tool in reducing hospital admissions and death.

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

### **ICMR research team designs kit for Omicron detection**

The Indian Council of Medical Research (ICMR) has designed a diagnostic kit for detection of Omicron variant of the coronavirus and has invited manufacturers for undertaking transfer of technology for its development and commercialization. The novel technology uses real-time RT-PCR assay for detection of Omicron (B.1.1.529) variant of SARS-CoV2 and a kit for the same. According to the World Health Organization (WHO), Omicron has been detected in 89 countries. It is spreading significantly faster than the Delta variant including in countries with high levels of population immunity.

### **World's first DNA Covid vaccine from India**

ZyCoV-D – the world's first plasmid DNA vaccine, produced by Ahmedabad-based vaccine manufacturer Zydus Cadila has obtained Emergency Use Approval (EUA) from the Drugs Controller General of India in August 2021. Initial results from Phase III clinical trials showed approximately 66 percent efficacy for symptomatic cases. The DCGI has given its permission for the vaccination to be given to children aged 12 to 17. The ZyCoV-D was created by inserting a fragment of virus DNA into the human body, which, once inside, causes the virus to manufacture a crucial component that the immune system can recognise and so encounter. Instead of using regular syringes, the world's first DNA vaccination will be administered using a needle-free applicator called "PharmaJet." ZyCoV-D was found to be safe, well tolerated and immunogenic in the Adaptive Phase I/II clinical trials, monitored by an independent Data Safety Monitoring Board (DSMB). The cost of ZyCoV-D is \$3.5 per dose, with the needle-free applicator costing approx \$1.2 per dose.

### **DCGI approves CORBEVAX**

India's first indigenously developed protein sub-unit vaccine against COVID-19, CORBEVAX received the approval from the Drugs Controller General of India (DGCI). It is a "recombinant protein sub-unit" vaccine, developed from the receptor binding domain (RBD) of the spike protein on the virus's surface combined with Dynavax's CpG 1018 adjuvant with alum, which helps the body build the immune response against the virus. The vaccine has been developed by Biological E. Limited in collaboration with Texas Children's Hospital Center for Vaccine Development (Texas Children's CVD) and Baylor College of Medicine (Baylor) in Houston, Texas. It has completed two Phase III clinical trials involving more than 3000 subjects between the ages of 18 and 80 at 33 study sites across India. The vaccine was found to be safe, well tolerated and immunogenic. Biological E. plans to start production at a rate of 75 million doses per month, anticipating 100+ million doses per month from February 2022.

### **ICMR-NIV isolates Omicron strain**

ZyCoV-D – the world's first plasmid DNA vaccine, produced by Ahmedabad-based vaccine manufacturer Zydus Cadila has obtained Emergency Use Approval (EUA) from the Drugs Controller General of India in August 2021. Initial results from Phase III clinical trials showed approximately 66 percent efficacy for symptomatic cases. The DCGI has given its permission for the vaccination to be given to children aged 12 to 17. The ZyCoV-D was created by inserting a fragment of virus DNA into the human body, which, once inside, causes the virus to manufacture a crucial component that the immune system can recognise and so encounter. Instead of using regular syringes, the world's first DNA vaccination will be administered using a needle-free applicator called "PharmaJet." ZyCoV-D was found to be safe, well tolerated and immunogenic in the Adaptive Phase I/II clinical trials, monitored by an independent Data

Safety Monitoring Board (DSMB). The cost of ZyCoV-D is \$3.5 per dose, with the needle-free applicator costing approx \$1.2 per dose.

## INDIA – SCIENCE & TECHNOLOGY

### [Malabar tamarind seeds can yield edible oil](#)

Scientists at the Jawaharlal Nehru Tropical Botanic Garden and Research Institute in Thiruvananthapuram have found that Malabar tamarind is a good source of edible oil. The tamarind variety, called *Garcinia gummi-gutta* scientifically, is found in almost all parts of Kerala with an abundance in the central Travancore region. The study shows that the seeds have a yield of 35 to 40%, or about 350 to 400ml of oil from a kilogram of seeds. The new variety of oil was found good for cooking though it was not as tasty as coconut oil. It was found ideal for cosmetics and soap production as well. At present, hundreds of tonnes of the seeds are wasted in the state after the rinds are harvested.

### [Silica nanoparticles for better drug delivery systems](#)

Researchers from the Centre for Nano and Soft Matter Sciences, Bengaluru have developed silica nanoparticles with pores tuned to absorb hydrophobic drugs with more stable surface and effective absorption properties that can improve drug delivery systems (DDS) to deliver a therapeutic agent at a specific site in the body where it is needed at the exact dose required and avoid the side effects of a systemic high drug dose. The team modified surface functionalized mesoporous silica nanoparticles (SNP) to an amphi-functional system making the MSNs more stable under physiological conditions. The work could lead to better drug delivery systems.

### [Detecting circulating tumour cells that spread cancer](#)

Researchers at the Sree Chitra Tirunal Institute for Medical Sciences and Technology in Thiruvananthapuram have developed a technology for the detection of metastasis, wherein cancer cells travel through the blood and form new tumours. They found that the presence of circulating tumour cells (CTC) in the blood sample can be detected by using a special testing kit. The CTC aggravates cancer and causes cancer recurrence in those who have recovered from the illness. The team is planning for clinical trials using this technology, which uses a gold-graphene nanotag, attached with the antibody against CTC, to isolate CTC from all the other components in the blood. A microscopic examination of the part can detect the presence of the CTC. The method uses liquid biopsy, that using blood samples. Breast cancer cells up to 5 tumor cells/mL could be identified from whole blood without any sample pretreatment.

### [IIT Mandi develops landslide monitoring and early warning system](#)

The Indian Institute of Technology (IIT) Mandi has developed a landslide and early warning system to prevent natural disasters and various tragedies in higher altitude areas. The device detects soil movements and alerts via hooters and blinkers installed on the road through a text message. The system predicts landslides 10 minutes before their occurrence. Besides preventing landslides, the system also cautions about the rainfall in advance if more than 5 mm of rain is forecast. It also alerts about extreme weather conditions with the help of artificial intelligence (AI) and machine learning. The low-cost equipment is a great alternative to the conventional monitoring system.

### [New Technique for efficient quantum computing](#)

Researchers from the Raman Research Institute have discovered that spin coherence in atomic systems is long-lived at extremely low temperatures. The technique allows better



implementation of quantum operations and logic gates, so that a system becomes a better quantum sensor compared to systems with short-lived coherences. This new behaviour of quantum systems at low temperatures can be used for efficient quantum sensing and quantum information processing for application in quantum computation and secure communication. The technology could help make devices that can detect small magnetic fields that have applications in mining and prospecting. This also has applications in the biomedical imaging industry, where time-resolved measurements of small magnetic fields are desired.

## IN BRIEF

### [Study finds 55 chemicals of high-concern used in building materials](#)

A [study funded by the GEF](#) has identified Fifty-five substances as chemicals of high concern, underscoring the need for more refined investigations to select safer alternatives. The study suggests that inhalation is the dominant exposure route, followed by dermal intake, while dust ingestion is negligible. Chemicals are used in building materials such as flooring, drywalls, and ceiling panels, and serve as plasticizers, flame retardants, adhesives, stabilizers, and preservatives/biocides. The study undertook a screening-level human exposure assessment for chemicals in building materials for more than 300 unique chemical-product combinations.

### [Perovskite solar cell with ultra-long stability](#)

Researchers from Germany have developed a perovskite variant that has special stability. In tests at elevated temperature and illumination over 1450 hours of operation, the perovskite-based cell retained 99 percent of its initial efficiency. The perovskite solar cell could be operated for more than 20,000 hours under normal conditions. Improved stability at the contact point was achieved by a new double-layer polymer structure. This architecture protects the very sensitive interface to the perovskite, and it shows exceptionally stable conductivity, even at elevated temperatures. With an efficiency of 20.9 percent, the tested cell is close to the potential. 24 to 25 percent should be possible in future.

### [CAR T cells to serve as 'micropharmacies' for cancer drugs](#)

Scientists at Sloan Kettering Institute (SKI) have developed new chimeric antigen receptor (CAR) T cells that can make drugs. These new cells called Synthetic Enzyme-Armed KillER cells can deliver a toxic drug payload directly to a tumor, killing both tumor cells that contain the cancer marker as well as those cancer cells nearby that do not. Also, the engineered cells can produce the drug even after they become exhausted, and the drug is not suppressed by the cancer. The team linked the cancer drug called AMS to another chemical that "masks" its function. The inactive version of the drug, called a prodrug, is injected into the bloodstream, it circulates through the body. The enzyme produced by the CAR T cells acts like a scissor, releasing the active part of the prodrug at the site of the tumor. The technology has been licensed to develop the CAR T cell technology for human trials.

## RESOURCES AND EVENTS

### [Commission fleshes out plans for Horizon missions](#)

The European Commission announced how it will spend the first €673 million on 19 research calls to roll out five Horizon Europe missions in health, climate and the environment. The calls, the first of which are due to launch on 22 December, aim to support regions and communities as they adapt to climate change; develop new methods and technologies in cancer screening and early detection; restore marine and freshwater ecosystems and biodiversity; start up the

transition towards climate-neutral cities; and validate and develop indicators for soil health. In the next two years, each mission will get at least €320 million from the Horizon Europe research programme to fight cancer, help Europe adapt to climate change, protect seas and rivers, promote carbon neutral cities and foster soil. The next work programme update with more money from the EU's 2022 budget is expected in April.

#### **India-Vietnam agreement in information technology**

India and Vietnam signed a MoU on cooperation in the field of Information Technology during the visit of the Minister for Information and Communications of Vietnam. The MoU intends to foster active cooperation and exchange between private entities, Governments, institutions involved in enhancing capacity building and other public and private organizations of the two countries in the field of ICT. The two Ministers agreed to explore further cooperation and digital trade between the two sides.

#### **India-US 'Technology-based Energy Solutions: Innovations for Net Zero' programme announced**

A programme to support India-US S&T-based entrepreneurial initiatives that address the development and implementation of next-generation clean and renewable energy, energy storage, and carbon sequestration has been announced to tackle climate and clean energy challenges. The programme titled 'Technology-based Energy Solutions: Innovations for Net Zero' constitutes a call for Ignition Grants by the United States-India Science & Technology Endowment Fund (USISTEF), in partnership with Social Alpha, a non-profit organisation promoting S&T entrepreneurship. It will identify and support 'technology showstoppers' or promising joint India-US S&T-based entrepreneurial initiatives in this area. The new program aligns with the goals of the U.S.-India strategic Clean Energy Partnership and will be administered by the bi-national Indo-U.S. Science and Technology Forum (IUSSTF). The IUSSTF is a bilateral organization under the Department of Science and Technology (DST), Government of India, and U.S. Department of State.

#### **James Webb Space telescope launched**

The James Webb Space Telescope, an international partnership between NASA, ESA and the Canadian Space Agency (CSA), launched at 1220 GMT on December 25, 2021, on an Ariane 5 rocket from Europe's Spaceport in French Guiana. Following launch and separation from the rocket, the spacecraft deployed its solar array and is in good condition, marking the launch a success. A critical step was completed with the huge 5 layer sunshield being deployed on 31 December. In the coming month, Webb will travel to its destination: the second Lagrange point of the Sun-Earth system (L2), 1.5 million kms from Earth. The telescope with a 6.5 metre main mirror, can detect infrared light generated by galaxies as they formed more than 13.5 billion years ago, in the aftermath of the Big Bang. Webb had to be carefully folded into the specially adapted Ariane 5 for launch, which jettisoned away about 3 minutes after liftoff. Ariane 5 then began a special roll maneuver to protect Webb from the Sun's radiation. After 27 minutes the telescope was released and the upper stage boosted away.

### **SCIENCE POLICY AND DIPLOMACY**

#### **A new type of powerful artificial intelligence could make EU's new law obsolete**

The EU's proposed artificial intelligence act fails to fully take into account the recent rise of an ultra-powerful new type of AI, meaning the legislation will rapidly become obsolete as the technology is deployed in novel and unexpected ways. Foundation models trained on gargantuan amounts of data and then adapted to a wide range of tasks, are the infrastructure

on which other applications are built. That means any deficits in these models will be inherited by all uses to which they are put. The fear is that foundation models could irreversibly embed security flaws, opacity and biases into AI. Because these models scrape public data from the internet, attackers can inject information online, fooling the AI system into changing its outputs in a move known as “data poisoning”. The EU’s proposed AI act does not deal adequately into issues of foundation models underlying these applications, and scrutinizes the “intended use” rather than “the technology as such”. In contrast to the EU, the US is taking a more comprehensive view of AI that will examine the underlying foundation models, not just the applications built on top of them. The US NIST is looking at technical and socio-technical risk. AI systems should be accurate with a low error rate, but at the same time secure to different vulnerabilities, privacy preserving, biases mitigated, etc.

### **UN fails to agree on 'killer robot' ban**

Autonomous weapon systems (killer robots) may have killed human beings for the first time ever last year, according to a recent United Nations Security Council report. The United Nations Convention on Certain Conventional Weapons (1983) debated the could not reach consensus on the question of banning autonomous weapons at its review meeting in Geneva December 13–17, 2021. Meanwhile, militaries around the world are investing heavily in autonomous weapons research and development. Disruptive autonomous weapons technologies could have destabilizing impacts. Some challenges are - (a) Autonomous weapons inability to distinguish between hostile soldiers and civilians (b) low-end proliferation by creation and widespread sale of weapons (c) high-end proliferation. by development of increasingly devastating versions of autonomous weapons, including use of chemical, biological, radiological and nuclear arms. (d) Autonomous weapons increase risks of wars because they will decrease risks to civilians and soldiers. Asymmetric wars are likely to become more common. (e) Autonomous weapons will undermine the international laws of war. (f) Autonomous weapons will lead to a serious accountability gap.

### **Ministerial statement at WTO on phase out of fossil fuel subsidies**

A group of 15 World Trade Organization (WTO) members – Chile, Costa Rica, the EU, Fiji, Iceland, Liechtenstein, Moldova, Montenegro, New Zealand, Norway, Switzerland, Tonga, the UK, Uruguay, and Vanuatu – issued a ministerial statement on fossil fuel subsidies. The statement recognizes that the WTO can play a central role in addressing inefficient fossil fuel subsidies, which lead to “wasteful consumption” and put renewable energy and investment in energy efficiency at a disadvantage. The document notes that in 2019, fossil fuel subsidies were estimated at around USD 500 billion, and that “diverting funding from such subsidies will support a just transition towards a green, sustainable economy, contribute to the temperature goal of the Paris Agreement, and reduce climate risks globally. The statement recognizes developing countries’ specific conditions and the need to minimize the possible adverse impacts on their development. It expresses the intention to develop “concrete options to advance this issue” at the WTO ahead of the 13th Ministerial Conference.

### **Ministerial statement highlights environmentally sustainable trade**

A large group of 57 members of the World Trade Organization (WTO) issued a ministerial statement on trade and sustainability on 15 December. The statement recognizes “sustainable development and the protection and preservation of the environment” as “fundamental goals of the WTO,” and the role of international trade in supporting environmental and climate objectives and promoting more sustainable consumption and production. It also notes the importance of multilateral environmental agreements (MEAs) in furthering these goals. The statement outlines further actions such as (a) expanding opportunities for environmentally

sustainable trade”; (b) explore ways in which trade-related climate measures can contribute to climate and environmental objectives; (c) facilitate trade in environmental goods and services to meet environmental and climate objectives; (d) support the WTO’s role in addressing, “the environmental effects and trade impacts of relevant subsidies.”

### **[Ministerial statement addresses plastic pollution, plastics trade](#)**

A group of World Trade Organization (WTO) members issued a ministerial statement, supported by 67 members, to “explore how improved trade cooperation, could contribute to domestic, regional, and global efforts to reduce plastic pollution and transition to a more circular and environmentally sustainable global plastics economy. The statement notes that trade in plastics accounts for approximately 5 per cent of global trade, or more than USD 1 trillion in 2019, and notes that addressing plastic pollution is part of “broader WTO discussions to advance shared trade and environmental sustainability objectives,” and lists further steps such as (a) Enhancing cooperation in areas such as definitions, scope, standards, design, and labeling; (b) Identifying effective trade policies and measures to support implementation of actions on plastics under other international processes (c) hold dedicated discussions to share best practices and experiences on how trade cooperation could reduce plastic pollution.

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### **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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