



NEWS ALERT

Forum for Indian Science Diplomacy

RIS Science Diplomacy News Alert is your fortnightly update on Indian and global developments in science research, technological advancements, science diplomacy, policy and governance. The archives of this news alert are available at <http://fisd.in>. Please email your valuable feedback and comments to science.diplomacy@ris.org.in

GLOBAL

[IPBES Global Assessment Report released](#)

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) have launched Global Assessment Report at the 7th Session of the IPBES Plenary meet held in Paris, during 29th April to 4th May 2019. The comprehensive report compiled by 145 authors from 50 countries over the past three years is based on the systematic review of about 15000 scientific and government sources. The report provides an illustrative list of possible policy actions and pathways pointing towards following an integrated approach in biodiversity conservation.

[49th Session of the IPCC held in Tokyo, Japan](#)

The 49th Session of the Intergovernmental Panel on Climate Change (IPCC-49) took place in Tokyo, Japan from 8th to 12th May 2019. The panel adopted the Overview Chapter of the 2019 Refinement to the 2016 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement). There were objections by several oil producing countries over the differences in treatment of fugitive emissions from coal, oil and gas production activities. It also adopted decisions on the terms of reference of the Task Group on Gender Policy and Gender Implementation Plan, use of Scholarship Programme Fund and beginning preparatory work on the sixth assessment cycle. IPCC-50 will be held in Geneva, 2-6 August 2019.

[4th Annual meet of the STI Forum 2019](#)

The fourth annual multi-stakeholder Forum on Science, Technology and Innovation for Sustainable Development Goals (STI Forum) took place on 14th and 15th May 2019 at UN Headquarters, New York. The theme of the forum was "STI for ensuring inclusiveness and equality" with a special focus on SDGs 4, 8, 10, 13 and 16. The STI Forum is a part of the Technology Facilitation Mechanism mandated by the 2030 Agenda and the Addis Ababa Action Agenda. The TFM seeks to promote science and technology applications to help achieve the SDGs.

[Joint Statement by the G-7 science academies](#)

Three joint statements have been issued by the national science academies of the G-7 countries to their respective governments. The science academies meet every year to develop policy recommendations to be delivered to the leaders of each country, ahead of the G-7 Summit. The themes selected for 2019 are: Science and trust, Artificial Intelligence and society, and Citizen science in the Internet era.

[Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions ends](#)

The 2019 joint Conferences of the Parties (COP) to the Basel, Rotterdam and Stockholm Conventions which ended on 10 May, achieved several notable outcomes, including (1) the establishment of a compliance mechanism under the Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. This came after 15 years of discussions. At the final stage, the proposal had to be adopted by a vote of 120 (for) to 6 (against). (2) The listing of dicofol and perfluorooctanoic acid (PFOA), its salts, and PFOA-related compounds under the Stockholm Convention on Persistent Organic Pollutants; and (3) the adoption of an amendment to address certain plastic wastes under the Basel Convention (BC) on the Control of Transboundary Movement of Hazardous Wastes and their Disposal; as well as technical guidelines on environmentally sound management of electrical and electronic wastes (e-wastes). The next joint Conference of the Parties to the BRS Conventions will be held Nairobi, Kenya, on 17-28 May 2021.

[Recyclable plastic developed by Berkeley Lab](#)

A group of scientists from the US Department of Energy's (DOE) Lawrence Berkeley National Laboratory (Berkeley Lab) have developed a recyclable plastic material, called the poly (diketoenamine) or PDK. It can be disassembled into its constituent parts at the molecular level and then reassembled into a different shape, texture and colour repeatedly without loss of performance or quality. Findings of the breakthrough discovery were reported in the journal *Nature Chemistry* and generate hopes for a circular plastic future. The adverse impact of plastic waste on the environment and the marine food chain has been causing increasing global concern.

[Six species of plants native to South East Asia useful for cancer treatment](#)

A team of researchers from the National University of Singapore (NUS) has recently discovered that the extracts of the leaves of Bandicoot Berry (*Leea indica*), South African leaf (*Vernonia amygdalina*) and Simpleleaf Chastetree (*Vitex trifolia*), which are favourite nectaring plants of butterflies, do more than attract butterflies have been found to be effective in stopping the growth of seven types of cancers, namely breast, cervical, colon, leukemia, liver, ovarian and uterine cancers. More research is required to identify the active components responsible for the anti-cancer effects.

[Potassium- Oxygen batteries for clean energy storage](#)

Researchers at Ohio State University have developed a more efficient, more reliable potassium-oxygen battery. They showed that the batteries could be more efficient than lithium-oxygen batteries while simultaneously storing about twice the energy as existing lithium-ion batteries, by incorporating polymer layers into the battery. The battery can be charged at least 125 times -- giving potassium-oxygen batteries more than 12 times the longevity they previously had with low-cost electrolytes. The finding offers an alternative to lithium-ion batteries and others that rely on cobalt, a material that is highly toxic. The estimated cost of this potassium-oxygen battery is about \$44 per kilowatt hour, less than half of Lithium ion batteries.

[Underwater power generation from seawater](#)

Researchers from China have designed an underwater power generator for direct electrochemical extraction of energy from seawater. This device offers the advantage of handling short spikes in power demand while maintaining longer term steady power. With

applications in underwater vehicles, diving robots and detectors that require their own energy supply to operate for long periods independent of ships. The system uses a cathode made of Prussian blue, an open framework structure with cyanide ions as "struts" and iron ions as "nodes," which can easily accept and release electrons. When combined with a metal anode, this structure can be used to generate electricity from seawater. This new system is very stable in corrosive seawater and can withstand numerous mode switches.

INDIA

Major collaboration between PM-STIAC and IIT-Delhi on waste management

The office of the Principal Scientific Adviser (PSA) to the Government of India and the Indian Institute of Technology (IIT) Delhi have collaborated for setting up a Centre of Excellence for Waste to Wealth Technologies. The joint effort commemorates the 150th birth anniversary of Mahatma Gandhi and is intended towards application of sustainable, scientific and technological solutions for waste management.

Workshop on "Space Warfare and Technology" held by the Directorate of IDU

Two-day workshop was held by the directorate of Indian Defence University (IDU) in New Delhi on 2nd and 3rd May 2019. The workshop was organised for senior and middle level officers from the three services and covered various topics such as; weaponisation and militarisation of space; space innovations and technology exploitation; adversarial capability in space domain and way forward for the Indian Armed Forces, among other relevant areas. The workshop featured useful talks from eminent speakers from the industry, academia, IITs, DRDO, ISRO, think-tanks and services to share their pragmatic knowledge about warfare technology.

Breakthrough in Semiconductors by IISc Bangalore

Indian Institute of Sciences (IISc) Bangalore have developed India's first ever e-mode Gallium-Nitride Power Transistor in a major breakthrough research study marking India's strong presence in the niche field of semiconductors. The transistors made of gallium can operate at very high voltages, switch ON and OFF faster and occupy less space as compared to silicon-based transistors and hold potential of reducing the import costs and making India self-reliant in transistor technology. The project is funded by the Advanced Manufacturing Technology (AMT) initiative of Department of Science and Technology (DST), Government of India.

CSIR-IICB, Kolkata designs novel compounds for cancer treatment

Researchers from the Indian Institute of Chemical Biology (CSIR-IICB) and the Indian Association for the Cultivation of Science (IACS) have synthesised 25 quinoline derivatives showing potent anti-cancer activity. The compounds are found to be effective against breast and colon cancer, as suggested by preliminary studies. Results of the study have been published in the Journal of Medicinal Chemistry.

Cost-effective, natural bio-fertiliser developed by IIT-Kanpur

Researchers from IIT-Kanpur have developed biomolecule-based fertiliser that can help address the drawbacks of chemical fertilisers. The cost-effective bio composite is made up of iron carbon nanofibers and the biomolecule N-acetyl homoserine lactones; have a favourable impact on the germination of seeds and also protect the plants against from fungal infections such as rusts and anthracnose.

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@risd.org.in
Website: www.risd.in

Disclaimer:

Opinions and recommendations in the report are exclusively of the author(s) and not of any other individual or institution including FISD. This report has been prepared in good faith on the basis of information available at the date of publication. All interactions and transactions with industry sponsors and their representatives have been transparent and conducted in an open, honest and independent manner as enshrined in FISD Memorandum of Association. FISD does not accept any corporate funding that comes with a mandated research area which is not in line with FISD research agenda. The corporate funding of an FISD activity does not, in any way, imply FISD endorsement of the views of the sponsoring organisation or its products or policies. FISD does not conduct research that is focused on any specific product or service provided by the corporate sponsor.

To unsubscribe please [click here](#)