

**No. DSIR/MS/2017/01**  
Government of India  
Ministry of Science & Technology  
Department of Scientific & Industrial Research  
**MONTHLY SUMMARY FOR THE CABINET**  
(For the month of **January 2018**)  
(Part-I Unclassified)

**Ministry / Department : Department of Scientific and Industrial Research (DSIR)**

**MAJOR ACHIEVEMENTS DURING THE MONTH OF JANUARY, 2018:**

**DEPARTMENTAL ACTIVITIES**

**1. Industrial R&D Promotion Programme**

**Recognition/ Registration and renewal of In-house R&D in Industry**

- 10 in-house R&D units of industries were granted recognition as well as registration certificates.
- 02 in-house R&D units of industries were granted renewal of registration certificates.

**Scientific and Industrial Research Organization (SIROs)**

**Recognition/ Registration and Renewal of SIROs**

- 02 SIROs were granted recognition as well as registration certificates.

**Public Funded Research Institution (PFRIs)**

**Registration and Renewal of PFRIs**

- 01 PFRI was granted renewal of registration.

**Fiscal Incentives for Scientific Research**

- 07 industries were approved for issuance of form 3 CM under Section 35(2AB) of IT Act under weighted tax deduction.
- 49 reports in form 3CL submitted to CCIT under Section 35(2AB) of IT Act for weighted tax deduction on industrial R&D involving a total amount of Rs.127761.2 lakhs.

**AUTONOMOUS BODIES**

**1. Council of Scientific & Industrial Research (CSIR)**

**1.1 CSIR-CBRI, Roorkee and NETRA : Developed Geo-Polymer Concrete Roads**

CSIR-CBRI, Roorkee and NETRA (NTPC Energy Technology Research Alliance) have jointly developed high strength fly ash based geo-polymer concrete for use in road construction. Indian Road Congress (IRC), New Delhi has accredited the construction of road by 'Geo-polymer Concrete'. The process involves use of Fly Ash as a binder in place of conventional

cement and does not require water curing. Unlike in conventional concrete roads, cracks would not appear in Geo-polymer concrete road as it is having negligible shrinkage. The road is more environment friendly as it is made of waste generated from power plant and steel plants and it will avoid CO<sub>2</sub> emissions by using fly ash in place of the cement for road construction.

## **1.2 CSIR-IGIB: Protein Regulating Melanoma Growth Pigmentation**

CSIR-IGIB, New Delhi has identified a calcium sensor protein (STIM1) that independently regulates both skin cancer and pigmentation. The STIM1 protein does so by activating two independent signaling pathways. Different parts of the STIM1 protein activate the two independent signaling pathways that control melanoma growth and pigmentation. This opens up the possibility of developing drug molecules that target specific sites in the STIM1 protein to control tumour growth and regulate pigmentation.

## **1.3 CSIR-IICT: Discovered Antibiotic Producing Bacteria**

CSIR-IICT, Hyderabad has discovered a novel strain of bacterium that produces compounds with antibiotic properties. The novel strain, called RAB 12, produces the chemical compounds RSP 01 and RSP 02 that showed antimicrobial activity. Both these compounds have exhibited antibiotic activity ten times more potent than Actinomycin D which is the drug currently used for treatment of cancer.

## **1.4 CSIR-NAL: SARAS PT1N Aircraft Taxi Trials Conducted**

CSIR-NAL, Bengaluru had been conducting engine ground runs and handed over the aircraft to Indian Air Forces for carrying out low speed and high speed taxi trials. SARAS PT1N has additional features like a New Nacelle design, stall warning system, larger rudder power, high power engine, an improved FCS and other features as compared to PT2. The indigenous aircraft with a range of 1,200 km, altitude up to 3,000 feet, and speed of 500 km/h has multiple applications for military transportation, air ambulance, maritime patrolling, border surveillance, commutation for regional connectivity and special missions.

## **1.5 Strategy to Produce Green Crackers**

Several CSIR Laboratories have come together to formulate a robust S&T strategy for development of eco-friendly firecrackers and fireworks. The first phase would cover removal of pollutants from the compositions of crackers.

## **1.6 CSIR-CSIO : Technology to Control Devices by Blinking of Eye**

CSIR-CSIO, Chandigarh has developed a man-machine interface that can be operated using electric signals generated during blinking of eye. The system could potentially be used for persons with locomotive and other disabilities for performing day-to-day activities. The brain produces signals which can be captured from the scalp in the form of electroencephalography (EEG) signals. These signals can be processed using a microcontroller and based on how it is programmed, it can take a decision to perform desired tasks by actuating a corresponding device from several devices connected to it. An important feature of the system is that it can be adapted to particular needs of the user and can be attached or detached for actuation of different appliances according to one's requirements.

### **1.7 CSIR-CFTRI and IIFPT : Artificial Small Intestine to Study Food & Drug Absorption**

CSIR-CFTRI, Mysore and Indian Institute of Food Processing Technology (IIFPT), Thanjavur, Tamil Nadu have developed an artificial small intestine system to test the level of absorption of micronutrients and other bioactive compounds from food. While the artificial system requires just two hours to analyse the intestinal absorption, the methods currently in use are time consuming and not suitable for studying large number of compounds.

### **1.8 CSIR-AMPRI : Developed Hybrid Green Composite Materials**

CSIR-AMPRI, Bhopal has developed a new class of hybrid green composite material, which is free from corrosion, fire moisture, termite, fungus, and insects attack. The major raw materials required for manufacturing these materials are natural fibers, polymer and industrial waste particulates such as marble wastes or thermal power plant fly ash or aluminum industry bauxite residues. The innovative composite materials have variety of applications such as for use as doors, false ceiling, floor tiles, wall tiles, partition and furniture.

### **1.9 CSIR-IICT: Developed Pheromone Traps to Kill Pests in Agricultural Fields**

CSIR-IICT, Hyderabad has developed a pheromone trap which can kill insects in the fields itself, restricting their multiplication without application of any toxic chemical. This device uses pheromones to attract a particular pest which gets trapped and killed in the process.

### **1.10 CSIR-IICB : Identified Stress Induced Gastric Ulcer Causing Mechanisms**

CSIR-IICB, Kolkata has identified the molecular mechanism using a rat model subjected to cold restrained stress by which acute mental stress causing gastric ulcer or stress related mucosal disease can be prevented. CSIR-IICB has traditionally used drugs that specifically act on mitochondria present in the stomach to prevent gastric ulcer caused by stress.

### **1.11 CSIR-CMERI: Launched Ginger Processing Project in Mizoram**

CSIR-CMERI, Durgapur has launched ginger processing project in Mizoram under the CSIR Rural Societal Development Scheme. Mizoram produces lot of good quality ginger, but due to lack of postharvest processing, the farmers do not get good value of their produce. The output of the project was in the form of three machines-washing unit, slicer unit and dry unit. To pass the benefit of the project to rural people, the laboratory installed and commissioned the machines at site. They also provided training to farmers on the operation of the machine.

### **1.12 Visit of Hon'ble Minister to CSIR-NGRI**

The Honourable Union Minister for Science and Technology and Environment, Dr Harsh Vardhan visited CSIR-NGRI, Hyderabad. Dr Harsh Vardhan praised the research work of CSIR-NGRI in the fields of groundwater, seismic hazards, exploration of hydrocarbon and mineral resources. He put forward a challenge to the CSIR-NGRI scientists to focus their research work in solving the problems of North-East regions of India.

### 1.13 CSIR Tieup With AIST, JAPAN

Dr. Girish Sahni, DG, CSIR has led the CSIR delegation to Japan to vitalise CSIR's ongoing partnership with Japanese National Institute of Advanced Science & Technology (AIST) in Tsukuba. CSIR in collaboration with AIST, Japan is in the process of setting up a unique low cost semiconductor device fabrication scheme – Minimal Fab, which will not require setting up of costly clean room and chip fabrication facility. CSIR, with this facility, will be creating an avenue for Electronics System Design Manufacturing (ESDM) sector industries to fabricate semiconductor chips meeting the demand of IOT devices in India and abroad

### 1.14 CSIR Intellectual Property

The Patent position for this month is given below:

Patents Filed		Patents Granted	
India	Abroad	India	Abroad
13	10	16	19

### 1.15 Honors & Awards

- (i) Dr. Nilruda Mandal and Dr. Biswanath Mondal, Scientists, CSIR-CMERI, Durgapur have jointly been awarded with 'Production Engineering Division Prize' by Institution of Engineers for their paper published in Journal of IE (India): Series C in the year 2016.
- (ii) Dr. Debendra Kumar Mohapatra, CSIR-IICT, Hyderabad has received the NASI Reliance Industrial Platinum Jubilee Award 2017 for Application Oriented Innovations in the area of Physical Sciences.

### 1.16 Significant Events

#### (a) Conferences, Workshops Organized

- (i) CSIR-CGCRI, Kolkata has organized a two-day International Conference on Water Resources Management with Satellite Session on: Emerging concepts & Technologies for Enhancing Water Resource Creation & Waste water Recycling.
- (ii) CSIR-CMERI, Durgapur developed technologies were displayed in a Tableau for the people of Durgapur on the occasion of 69<sup>th</sup> Republic day Celebrations, 2018 at Gandhi Maidan, Durgapur.
- (iii) CSIR-IICT, Hyderabad and Sujana Foundation, NTR Trust, NRDC and Govt. Andhra Pradesh has jointly organized awareness programmes on entrepreneurship development in science and technology. CSIR-IICT also inaugurated at the 78<sup>th</sup> All India Industrial Exhibition "Numaish". During the 45 days of exhibition, CSIR-IICT has showcased Reverse Osmosis filtration of ground water to drinking water, enzymatic degumming of rice bran oil, Anaerobic Gas Lift Reactor (AGR) Wealth to waste and Pehromones technology. All the other R&D activities of the institute are also displayed in the form of huge poster.

- (iv) CSIR-IIP, Dehradun, CSIR-NML, Jamshedpur and CSIR-CECRI, Karaikudi jointly organized a two-day workshop on Managing Corrosion in the Oil and Gas sector in association with Federation of Indian Petroleum Industry (FIPI).
- (v) CSIR-NML, Jamshedpur has organized a four day interactive programme on Coal for metallurgical and thermal appraisal of its characterization and utility (CMTA).

#### **(b) Agreements/Memorandum of Understanding Signed**

- (i) CSIR-CMERI, Durgapur has signed a technology transfer agreement with (i) M/s S.S.Udyog, Kanchrapara, Kolkata, WB ; and (ii) M/s Bargahiya Cluster of Metal Product, Bargachiya, Howrah, WB on Intelligent & Powered Wheel Chair; and a Memorandum of Student Exchange signed with Hiroshima University, Japan on implementation of the exchange of undergraduate and graduate students under the “International Linkage Degree Program (ILDLP) for Developing Innovators Transforming Advanced Technology to Social Goals”.
- (ii) CSIR-IIP, Dehradun has signed an MoU with Indian Institute of Technology, Roorkee, on ‘Edible Oil Blend from Lignocellulosic Pentosans and other Inexpensive raw materials’.

### **2. Consultancy Development Centre (CDC)**

#### **2.1 Plan Project**

- Certificate programme in Technical Consulting and Management Consulting under Franchise Scheme - The MOU between CDC and Dronacharya Group of Institutions, Greater Noida has been extended for six months from January 2018 to June 2018.
- Content Development for the Course-Certificate for programme in Technology Management - The Programme Advisory Committee meeting was held to review the revised course material.

### **PUBLIC SECTOR ENTERPRISES**

#### **1. National Research Development Corporation (NRDC)**

- NRDC has licensed two technologies (i) Fermented & dehydrated ready mixes for Idli & Dosa batter and (ii) Instant pickles and chutneys to M/s. Saarya Enterprises India Pvt. Ltd., A.P. NRDC has collected a premia of Rs. 0.75 Lakh from licensing of these technologies during January, 2018.
- NRDC has also collected a royalty of Rs. 31.53 Lakh during January, 2018.

#### **2. Central Electronics Limited (CEL)**

- Central Electronics Limited continued its activities in the area of solar photovoltaic systems, electronic gadgets for Railway and other electronic equipment/components etc. The company has manufactured electronic components/systems/ SPV products worth Rs.1799.79 Lakhs and realized sale of such items worth Rs. 1915.27 Lakhs during January, 2018

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