



## Council of Scientific and Industrial Research

**For Prelims:** CSIR, National Mission for Electric Mobility, Research and Development, Shanti Swaroop Bhatnagar

**For Mains:** Initiatives taken by CSIR, Government Policies & Interventions

### Why in News?

Senior electrochemical scientist Nallathamby Kalaiselvi has become the **first woman director general** of the **Council of Scientific and Industrial Research**.

- Kalaiselvi's research work of more than 25 years is primarily focused on electrochemical power systems and in particular, development of electrode materials, and electrochemical evaluation of in-house prepared electrode materials for their suitability in energy storage device assembly.
- Kalaiselvi also made key contributions to the [National Mission for Electric Mobility](#). She has more than 125 research papers and six patents to her credit.

### What is CSIR?

- **About:**
  - Council of Scientific and Industrial Research (CSIR) is the **largest research and development (R&D) organisation in India**.
  - CSIR has a pan-India presence and has a dynamic network of **37 national laboratories, 39 outreach centres, 3 Innovation Complexes and 5 units**.
  - CSIR is funded by the Ministry of Science and Technology and it operates as an autonomous body through the Societies Registration Act, 1860.
- **Scope:**
  - CSIR **covers a wide spectrum of streams** – from radio and space physics, oceanography, geophysics, chemicals, drugs, genomics, biotechnology and nanotechnology to mining, aeronautics, instrumentation, environmental engineering and information technology.
    - It provides **significant technological intervention in many areas with regard to societal efforts which include the environment**, health, drinking water, food, housing, energy, farm and non-farm sectors.
- **Established:** September 1942
- **Headquarters:** New Delhi

### What is the Structure of the Organisation?

- **President:** Prime Minister of India (Ex-officio)
- **Vice President:** Union Minister of Science and Technology (Ex-officio)
- **Governing Body:** The Director-General is the head of the governing body.
  - The other ex-officio member is the finance secretary (expenditures).
  - Other members' terms are of three years.

## What are the Objectives?

- The objectives of the Council are **scientific and industrial/applied research** of national importance.
- The activities include:
  - **Promotion, guidance and coordination of scientific and industrial research** in India including the institution and the financing of specific researchers.
  - **Establishment and assistance to special institutions** or departments of existing institutions for the scientific study of problems affecting particular industries and trade.
  - Establishment and award of **research studentships and fellowships**.
  - Utilization of the results of the research conducted under the auspices of the Council towards the development of industries in the country.
    - Payment of a share of **royalties arising out of the development of the results of research** to those who are considered as having contributed towards the pursuit of such research.
  - Establishment, maintenance and **management of laboratories, workshops, institutes and organisations** to further scientific and industrial research.
  - Collection and dissemination of information in regard not only to research but to industrial matters generally.
  - Publication of scientific papers and a journal of industrial research and development.

## What is the Vision & Strategy 2022?

- **Vision:** Pursue science which strives for global impact, the technology that enables innovation-driven industry and nurtures trans-disciplinary leadership thereby catalyzing inclusive economic development for the people of India.

## What are Awards Associated with the Organisation?

- **Shanti Swarup Bhatnagar (SSB) Prize** for Science and Technology is named after the founder Director of the CSIR, the late Dr Shanti Swarup Bhatnagar.
- It was instituted in 1957 as the most coveted and revered prize in the field of science and technology in the country.

## Who was Dr Shanti Swarup Bhatnagar?

- He was the **Founder Director (and later first Director-General) of CSIR** who is credited with establishing twelve national laboratories.
- He played **a significant role in the building of post-independent Science and Technology infrastructure** and in the formulation of India's S & T policies. He concurrently held a number of important positions in the Government.
  - He was the **first Chairman of the University Grants Commission (UGC)**.
- He was conferred with **Order of British Empire (OBE)**. He was Knighted in 1941 and elected Fellow of the Royal Society, London in 1943.
- He was awarded the Padma Vibhushan in 1954 by the President of India.

## What are the Initiatives taken by CSIR?

- **Covid-19:**
  - CSIR has set up five technology verticals for addressing the emerging situation due to **pandemic**:
    - Digital and Molecular Surveillance.
    - Rapid and Economical Diagnostics.
    - Repurposing of Drugs, Vaccine and Convalescent Plasma Therapy.
    - Hospital Assistive Devices and PPEs (Personal Protective Equipment).

- Supply Chain and Logistics Support Systems.

- **Strategic:**

- **Head-Up-Display (HUD):** It developed indigenous Head-Up- display (HUD) for Indian Light Combat Aircraft, **Tejas**. HUD aids the pilot in flying the aircraft and in critical flight maneuvers including weapon aiming.

- **Energy & Environment:**

- **Solar Tree:** It occupies minimum space to produce clean power.
- **Lithium Ion Battery:** India's first **lithium ion battery** fabrication facility based on indigenous novel materials for making 4.0 V/14 h standard cells has been established.

- **Agriculture:**

- **Samba Mahsuri Rice Variety:** It developed a Bacterial Blight Resistant Rice.
- **Rice Cultivar (Muktashree):** A rice variety has been developed which restricts assimilation of Arsenic within permissible limits.
- **White-fly resistant Cotton variety:** Developed a transgenic cotton line which is resistant to whiteflies.

- **Healthcare:**

- **Genomics and other omics technologies for Enabling Medical Decision - GOMED:** It has been developed by the CSIR which provides a platform of disease genomics to solve clinical problems.

- **Food & Nutrition:**

- **Ksheer-scanner:** It detects the level of milk adulteration and adulterants in 45 seconds at the cost of 10 paise.
- **Double-Fortified Salt:** Salt fortified with iodine and iron having improved properties developed and tested for addressing anaemia in people.

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