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# CSIR-SERC Transfers Pioneering Technologies to Industry Partners

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CSIR-Structural Engineering Research Centre (CSIR-SERC), a premier national laboratory under CSIR, has successfully transferred three innovative technologies: the "Emergency Retrieval System" (ERS), the "High Velocity Multi-Hit Resistant Movable Protective Booth/Shack for Security Personnel," and the "Portable Lightweight Foldable Module for Make-Shift Hospitals (PoliTal-M)."

The technologies were transferred to M/s. Hi-Tech Systems & Services Ltd., Kolkata, and M/s. Hemagni Build-Pro Industries Pvt. Ltd., Hosur, during the inaugural function of the Innovation Complex in Mumbai. The event was attended by esteemed dignitaries, Dr. N. Kalaiselvi, DG, CSIR, Dr V K Saraswat, & Dr VK Paul, Members of NITI Aayog, Dr Ram A Vishwakarma Distinguished Scientist, and the Honourable Minister of State for S & T and Earth Sciences Dr. Jitendra Singh (addressing remotely).

The technology transfer agreement of ERS was signed by Dr. N. Anandavalli, Director, CSIR-SERC, with Mr. Bibhu Ranjan Parida from M/s. Hi-Tech Systems & Services Ltd., Kolkata, and the Security Booth and PoliTal-M was signed by Dr. N. Anandavalli, Director, CSIR-SERC, with Mr. Subramani Reddy G from M/s. Hemagni Build-Pro Industries Pvt. Ltd., Hosur. The inventor of ERS technology Dr. R.P. Rokade, Senior Principal Scientist participated in the event.

This achievement signifies a major step forward in delivering cutting-edge solutions to enhance safety, mobility, and emergency response capabilities in critical sectors.

## Emergency Retrieval System

CSIR-SERC has developed an indigenous ERS technology for power lines, which allows for the quick restoration of power transmission in the event of a transmission line tower failure. The technology creates a bypass corridor, ensuring temporary power restoration while permanent repairs are made in the main corridor.

## Key Features of the ERS:

- The ERS developed by CSIR-SERC stands out for its unique design, featuring lightweight modules connected via an innovative system and supported by a novel two-pin gimbal joint and an easily constructible foundation.
- This scalable system is designed for transmission lines ranging from 33 to 800 kV, making it the first of its kind in India.
- Aligned with the 'Make in India' and 'Atmanirbhar Bharat' initiatives, the ERS promotes self-reliance and innovation.
- Additionally, it serves as an import substitute, contributing to reduced dependency on foreign technologies.
- This indigenous development has led to the filing of two patents, both in India and internationally.

### Security Booth/Shack

CSIR-SERC has developed a modular security booth/shack for military and security personnel, constructed using steel fiber-reinforced cementitious composite panels mounted within a steel frame. The booth is designed to provide NIJ level-III protection, capable of withstanding multiple hits from 7.62 AP projectiles in accordance with NIJ standards.

### Key Features of the Booth/Shack:

- Multi-impact resistance (NIJ level-3) with enhanced ricochet resistance
- Pre-engineered, precast, and fully indigenous modular design, ensuring easy assembly and disassembly within an hour without the need for heavy machinery
- Simple to repair, reuse, and replace, offering cost-effectiveness and long-term durability
- High mobility and easy repositioning, combined with an attractive aesthetic appearance.

### PoliTal-M

In response to the urgent need for temporary or quarantine hospitals in remote areas, CSIR-Structural Engineering Research Centre (CSIR-SERC) has developed PoliTal-M, a fast, lightweight, modular, and easily transportable solution. Designed for COVID-19 hospital units, this innovative technology allows for the rapid construction of a 100-bed hospital, complete with essential amenities, in just a few days. Leveraging CSIR-SERC's expertise in lightweight structures, PoliTal-M is highly stable, material-efficient, and suitable for various applications such as emergency shelters, construction site accommodations, and remote area facilities.

### Key Features of the PoliTal-M:

- **Compact and Transportable:** The modular unit measures 6.0m x 3.0m x 2.8m in size, with a customizable length ranging from 3m to 6m, and is foldable for easy transport to remote locations.

- **Simple and Quick Assembly:** The modules are delivered fully folded and can be quickly erected at the site, requiring only two to three workers and taking less than one hour for full installation. Once the site is leveled, the module is placed using a crane, with the roof and walls lifted sequentially for proper alignment.
- **Versatile and Modular:** The unit can accommodate two beds with essential hospital amenities and can be stacked together for expanded capacity. Openings allow for easy movement between units, and some modules can be converted into toilet core units to serve four to five modules.
- **Efficient Design:** The wall panels consist of four foldable cladding panels with heavy-duty hinges for ease of use, allowing them to fold flat to the ground. All electrical provisions, including lighting, are integrated into the structure, even while the unit is in its folded condition.
- **Customizable:** The PoliTal-M unit's design can be tailored to meet specific requirements, with options for foldable tables within the frame to enhance functionality.



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VJ/KV

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