The Chief Minister of Delhi, Smt. Sheila Dikshit, today launched “Solekshaw”, the solar-electric rickshaw for eco-friendly urban transport, at a function organized on the occasion of Gandhi Jayanti near the Chandni Chowk Metro Station here in the august presence of Shri Kapil Sibal, the Vice-President, Council of Scientific and Industrial Research, CSIR and Union Minister of Science & Technology and Earth Sciences. Prof. Samir K. Brahmachari, the Director General, CSIR was among the other dignitaries who were present on the occasion.

The dual-powered *Soleckshaw* is the CSIR’s solution for the dual problem of *decent employment generation for the masses* and *mitigation of global warming*. More than 60% of the increase in the green house gas (GHG) emission is from the transport sector. Currently, no powered vehicle or transport system is free from carbon dioxide emission. *Soleckshaw*, with its zero carbon foot print and the trend of widespread use, is expected to reverse global warming and protect the planet from the perils of the climate change. Its worldwide use would also enhance energy security by reducing the world’s dependence on limited fossil fuel. Equipped with novel features, this pedicab is easy to drive, both on plain as well as uphill road, without any strain of imbalance, which all of the current cycle rickshaws suffer from.

Born out of the recent CSIR vision, appropriately titled, *CSIR-800* aimed at empowering 800 million Indians by way of S&T intervention, the Mark I version of *Soleckshaw* has been designed, developed and prototyped by the CSIR’s national laboratory, the Central Mechanical Engineering Research Institute (CMERI) at Durgapur, in a record time of eight months. The accompanying solar charging station for swapping the batteries has been set up by the Central Electronics Limited (CEL), a Govt. of India undertaking. The specifically designed robust low power high torque brushless DC motor has been developed for the first time in India by the Crompton Greaves based on the specifications provided by CMERI.

The Advanced Materials & Process Research Institute (AMPRI), another constituent laboratory of CSIR, has provided excellent support for the Technology Demonstration Project (TDP) at Chandni Chowk. AMPRI’s fly ash jute-polymer composite-based instant housing unit houses the battery bank. The Centre for Rural Development (CRD), an NGO working on rickshaw banks in different cities, has joined the TDP as a partner for wider deployment of Soleckshaw. The Delhi Metro Rail Corporation (DMRC) has provided the facility for accommodating the solar charging station at its Delhi Metro Station at Chandni Chowk. The MCD has further facilitated the TDP by allowing necessary construction in Yudhbir Singh Park and its use for a period of one year. The synergy among the above organizations reflects the ethos of CSIR in true *Team India* spirit.

Robust and ergonomically designed to take the drudgery out of the rickshaw driving, the prototypes of *Soleckshaw* were earlier flagged off at CMERI, Durgapur, by Prof. Brahmachari, on August 17, 2008.

With better aesthetics and ergonomics, the cost-effectiveness of *Soleckshaw* has been engineered by optimizing the system around the most appropriate commercially available components. This would also minimize the capital requirement for a mass manufacturing unit. Only the novel sub-assemblies like the differential drive, the special hub motor with regenerative feature and the light weight solar panel need to be

manufactured apart from the chasis designed for comfortable ride even for the senior citizens and physically challenged. Innovative business model is being evolved with NGOs, banks, environment-loving corporates and manufacturing organizations to make the rickshaw available to the drivers at the cost of an ordinary rickshaw.

Technical Features

Power source Solar and human

Drive	Motor-assisted pedal-driven
Electric motor	BLDC hub motor: 240-350 W, 36 V with regenerative capabilities
Transmission	Chain drive with differential and two ratios
Brakes	Three-wheel braking
Seating capacity	Two passengers
Payload (excluding driver)	200 kg
Speed limit	15 kmph

The advanced versions of *Soleckshaw* Mark II and Mark III with better aesthetics, ergonomics, speed and recumbent driving position is expected to be ready for launch during the Commonwealth Games in 2010. Several R&D projects are slated to be launched in the areas of storage batteries, charge and speed controller, solar photovoltaics and hybrid transmission, in a network mode to make the future Soleckshaw, an engineering marvel.