

**ADDRESS BY THIRU BANWARILAL PUROHIT, HON'BLE GOVERNOR OF
TAMIL NADU AT THE INAUGURATION OF LI-ION CELLS PRODUCTION LINES,
INDIA'S FIRST INDIGENOUS TECHNOLOGY AT CSIR MADRAS COMPLEX,
TARAMANI, CHENNAI ON 24TH JULY AT 11.00 AM**

Anaivarukkum Kaalai Vanakkam

**Dr. Vijayamohan Pillai,
Director – CSIR**

**Dr.Santosh Kapuria
Director – CSIR**

**Mr. KimHyung Tae
Consul General of South Korea**

**Thiru. Narasimhan,
Chairman Raasi Group**

Thiru. B.C. Datta

Thiru. Shaji John

Distinguished Invitees

Ladies & Gentlemen

I am happy to be here at the Chennai complex of the Council of Scientific and Industrial Research for the inauguration of the production line for lithium ion cells, being jointly developed by the Central Electric Chemical Research Institute and Raasi group.

Make in India a Swadeshi movement covering 25 sectors of the economy was launched by the Government of India on 25 September 2014 to encourage companies to manufacture their products in India and also increase their investment.

As a result, India emerged as the top destination globally in 2015 for foreign direct investment (FDI), surpassing the USA and China, with US\$60.1 billion.

Owing to initiatives aimed at encouraging transparency India has also moved up in the World Bank's Ease of Doing Business Index. The

Government has appointed the United Nations Development Programme(UNDP) and the National Productivity Council "to sensitise actual users and get their feedback on various reform measures". As a result, now there is competition among the states of India to improve their current ranking in the ease of doing business index.

With a huge market, a large scientifically trained man power and conducive weather conditions India is an ideal destination for the manufacturing sector. The make in India initiative is designed to increase the share of the manufacturing sector to a level of 25% in the nation's GDP. The growth of the manufacturing sector will in turn result in a multiplication of employment opportunities leading to greater prosperity and growth. Such a development oriented cycle is possible with the right combination of investment, skill development and technological advancement through research.

The role of the Council of Scientific and Industrial Research in the fields of science & technology is well recognised.

CSIR, as everybody knows, has a dynamic network of 38 national laboratories, 39 outreach centres, 3 Innovation Complexes, engaged in offering end-to-end technology solutions related to prime areas such as drinking water, affordable healthcare, clean energy, farmer friendly engineering tools, chemicals, game changing genomics, innovative information technology and sustainable biotechnology. All these have one common goal namely national development.

The demand for electricity is growing rapidly in India. With a high growth rate and a youthful population the consumption of energy is expanding in all parts of India. Consequently there is a need to place emphasis on the use of better technologies for power generation and storage.

In its pursuit of clean energy research, the Central Electro Chemical Research Institute of CSIR has developed an indigenous technology for Lithium - ion batteries in partnership with CSIR-National Physical Laboratory (CSIR-NPL) New Delhi, CSIR- Central Glass and Ceramic Research

Institute (CSIR-CGCRI) Kolkata and Indian Institute of Chemical Technology (CSIR-IICT) Hyderabad.

A lithium-ion battery is a type of rechargeable battery in which lithium ions move from the negative electrode to the positive electrode during discharge and back when charging.

Lithium-ion batteries are common in home electronics. They are one of the most popular types of rechargeable batteries for portable electronics, with a high energy density, and low self-discharge. These batteries are also growing in popularity for electric vehicle, military and aerospace applications.

Lithium ion batteries provide lightweight, high energy density power sources for a variety of devices.

There include

- a) Portable devices such as phones and smartphones, laptops and tablets, digital cameras and camcorders, handheld game consoles and torches.
- b) Power tools such as cordless drills and a variety of garden equipment and
- c) Electric vehicles including electric cars, hybrid vehicles, electric bicycles, personal transporters and advanced electric wheelchairs.

Lithium ion batteries are also used in telecommunication applications.

Judged from the pollution angle lithium ion batteries contain less toxic metals than other types of batteries which may contain lead or cadmium. Hence they are generally categorized as non-hazardous waste. The battery elements in lithium ion unit include iron, copper, nickel and cobalt which are considered safe for incinerators and landfills. These metals can also be recycled.

The Government of India recognizes the urgency to look at sustainable mobility solutions to reduce dependency on imported energy sources, reduce GHG emissions and mitigate adverse impacts from transportation. In order to mitigate these, a portfolio of interventions has been planned which includes

fuel efficiency improvements, improving inspection and certification systems for reducing emissions from onroad vehicles, urban planning to reduce travel demand, improving mass transport, shift to alternative fuels and technologies including biofuels and electric vehicles, and overall system efficiency of infrastructure.

The National Electric Mobility Mission Plan was announced to incentivize use and production of electric vehicles in India with a view to mitigate adverse environmental impacts of vehicles and to enhance energy security

Considering India's aspiration to achieve 100 percent electric vehicle sales by 2030, there is a well founded expectation that we will be among the top countries in the world in manufacturing and consumption of lithium ion batteries. Since the cost of the battery accounts for about one-third of the total purchase price of an electric vehicle today, driving down battery costs could be a key element of long-term success for India's automotive sector. India's market for EV batteries alone could be worth as much as \$300 billion from 2017 to 2030, as the country moves towards achieving its goals for a rapid transition towards being an economy focussed on low carbon emissions.

Raasi Group has associated with CSIR-CECRI to manufacture lithium ion batteries using indigenous technology and scale up the production in the coming years. I wish them well end congratulate the partners in this initiative to build on the 'Make in India' initiative.

Efforts such as these reinforce our faith in public private partnerships aimed at promoting national development. The benefits of the demographic dividend will be fully realized when the youth of the nation receive the right kind of skill training and are provided gainful employment. Global capital investment is increasingly moving towards India, seeing the strides in infrastructure and transparency that are being focussed upon. With capital and labour availability coupled with technical advancement the field is fertile for rapid economic transformation. This is the vision for the future and I am happy that these assembled on stage have seen the potential quite early. I

extend my best wishes and greetings to them and once again applaud them for coming together in this praiseworthy effort to serve science and industry and through that, the state and the nation. Let us all join together in realising the vision of the Make in India initiative of our Honourable Prime Minister.

Nandri Vanakkam

Jai Hind