



OCTOBER 2007

## 21<sup>st</sup> NATIONAL CONFERENCE ON IN-HOUSE R&D IN INDUSTRY

15-16 November 2007, New Delhi

### Introduction

The “National Conference on in-house R&D in Industry” was first organised by the Department of Scientific & Industrial Research, Government of India in April 1987. So far, 20 National Conferences on in-house R&D in Industry have been organised. These conferences have always addressed contemporary issues pertaining to industry and the in-house R&D system. The Conference has become an important forum for exchange of ideas amongst industrial R&D system, National R&D system and the Government. The Department of Scientific & Industrial Research (DSIR) is organising the 21<sup>st</sup> National Conference on in-house R&D in Industry in association with the Federation of Indian Chambers of Commerce and Industry (FICCI) during 15-16 November 2007 in New

Delhi. The **theme** of this year's conference is “**R&D Innovations: For Indian Growth Dynamics**”.

The tradition of giving DSIR Awards for Outstanding Achievements by in-house R&D units of industry, which was one of the major recommendations of the first National Conference, will be maintained and awards for the year 2007 will be presented in various sectors / areas for specific achievements.

The Conference would have four Technical Sessions with keynote addresses in each session by eminent panelists from Industry, Government and R&D institutions followed by discussions, questions and comments by participants.

### Participation

Participants in the 21<sup>st</sup> National Conference are expected to be heads of research organisations, chief executives of companies, senior R&D

An Information Update from  
**Department of Scientific & Industrial Research**  
 Ministry of Science and Technology  
 New Delhi

personnel from industry, directors and senior scientists from national laboratories, and other publicly funded R&D institutions, faculty members from universities and technical institutions, chief executives and senior managers from consultancy organisations and senior officials from concerned Government agencies involved in policy making and implementation of national development programmes.

### Invitation for Technical Notes

Participating organisations are invited to report specific R&D achievements and special developments. These must be written in the form of a short note not exceeding 500 words in two typed quarto pages double-spaced. Title of the note, author's name and name of the organisation should be typed at the top of the front page. Notes conforming to these requirements received before **2 November, 2007** will be reproduced and distributed amongst the participants at the time of registration.

### Programme

#### 15 November 2007

0900-1000 hrs.      **Registration**

1000-1100 hrs.      **Presentation of Awards and Inauguration**

**Plenary Session: “R&D Innovations: For Indian Growth Dynamics”**

(1130-1330 hrs.)

Independent India has entered the growth phase about 25 years back. The role of R&D and innovation in the industrial growth cannot be ignored, especially in this era of globalization. It is

being realised more that innovation is essential for achieving high profit margins. To be at the forefront of any sector, businesses need constant revitalization of knowledge and expertise. Critical centre-staging of innovation in R&D plays a vital role in technologically sophisticated and ever-globalizing commercial environment.

The session may discuss how R&D innovations in various sectors are making contributions to the economic growth of the country.

### Session I: Creating Infrastructure for R&D Innovations

(1430 - 1700 hrs.)

The state-of-the-art infrastructure plays a vital role for realization of R&D and development of precision technologies. India ranks third after US and China as a preferred destination for R&D. Currently, a number of MNCs are carrying out their cutting edge research in India stimulated by the cost advantage and supply of dynamic manpower.

Session may address the options that India has in terms of R&D infrastructure. The session may also focus on providing a platform to discuss how state-of-the-art infrastructure contributes to the development of world-class R&D innovations. Case studies can be cited.

#### 16 November 2007

### Session - II: Innovative R&D: Some success stories

(1000 - 1130 hrs.)

Indian Industry has been creating wealth for the nation as also making a mark in the international arena. A number of Indian trans-nationals have also

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been acquiring or setting up their manufacturing facilities abroad. However, for the growth momentum to continue, every effort would have to be made to spread the message wide. This is as much a challenge for the government as it is for corporate India.

The session may focus on success stories of the some companies as an example to motivate the upcoming innovators and entrepreneurs.

### **Session III: Innovative R&D: Inclusive Growth**

(1145 - 1330 hrs.)

The current high growth in the economy would be very short lived if the larger sections of our population are left out of this growth process. Innovation is the key to growth and then to translate growth into wealth. For this growth and sustainability of Indian economy, it is imperative that every segment of society and every region are included in this growth process. The challenges to India's development are unique and therefore the nation would have to find innovative solutions to its problems and make this an inclusive phenomenon.

The session may focus on providing a platform to discuss how innovative R&D has helped in inclusive growth of India. Issue like the need for an Innovation policy, structured framework to encourage innovation, delivery mechanism, evolution of PPP model may be addressed.

### **Session-IV: Government Incentives for Innovative R&D**

(1430 - 1530 hrs.)

Government has evolved from time to time, fiscal incentives and support measures to encourage

R&D in industry and increased utilization of locally available R&D options for industrial development. Many tax incentives and funding mechanisms are also available to industries for development of technologies and products. R&D institutions also have a definite role in this development process.

The session may focus on providing a platform to discuss how these incentives have helped the industry for doing innovative R&D.

1545-1630 hrs. **Valedictory Session**

**Venue:** FICCI Golden Jubilee Auditorium, Tansen Marg, New Delhi

### **Delegate Fee**

Rs. 4000/- per delegate. Cheque/Demand Draft to be made in favour of Federation of Indian Chambers of Commerce & Industry, New Delhi. The fee covers registration, tea / coffee / lunch, background notes and Conference Proceedings on their publication.

### **Information and Registration**

**For further information** regarding the Conference, write to:

Shri RRAbhyankar  
Scientist - G and Head (RDI)  
Department of Scientific & Industrial Research  
Technology Bhavan, New Delhi - 110016  
Phone : 26863805 Fax : 26529745; 26960629  
Email: rra@nic.in

**For registration**, write, enclosing the registration form, to:

Shri Sumeet Gupta  
Deputy Director  
Federation of Indian Chambers of

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Commerce & Industry  
Federation House, Tansen Marg,  
New Delhi - 110 001  
Phone : 23316527 (D); 2373 8760 70 (ext.323)  
Fax : 011 - 2332 0714, 2372 1504  
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## **OUTSTANDING IN - HOUSE R & D ACHIEVEMENTS**

The Department of Scientific & Industrial Research (DSIR), in the Ministry of Science and Technology, is the nodal Government Department for granting recognition to in-house R&D centres in industry. At present there are around 1400 in-house R&D centres in industry, having valid recognition by DSIR. These centres taken as a whole constitute an important segment for our S&T infrastructure. They employ around 60,000 R&D personnel. The in-house R&D centres have made significant contributions in terms of product development, process development, commercialisation of indigenous technologies and absorption and upgradation of imported technologies. Outstanding R&D achievements of some of the in-house R & D centres and their contributions to the industrial development in the country in the past few years are outlined below :

### **LAILA IMPEX , VIJAYAWADA (AP)**

Laila R&D has successfully developed patented and commercialized 5-Loxin/ Boswin in the area of anti-inflammatory and anti-arthritic products.

5-Loxin is a unique and synergetic composition of boswellic acids which is several times more potent than the traditional *Boswellia serrata* extracts. 5-Loxin is a very potent non-competitive non-redox type 5-lipoxygenase inhibitor. The discovery and

development of 5-Loxin has come at an extremely critical juncture and gained significance as many of the selective Cox-2-inhibitors like were shown to have serious adverse effects. 5-Loxin was proven to be efficacious against several conditions like asthma, benign prostate hyperplasia, IBD, Crohns disease, osteo arthritis etc. It was also shown to be a unique cartilage protective agent. The scientific evidence for the efficacy was established at genetic level, cellular level, animal models and human systems.

Its therapeutic dose is 10 to 15 times lower than regular boswellia products. The daily dosage is significantly lower when compared to the only FDA approved pharmaceutical 5-Lipoxygenase inhibitor, Zileutin. 5-Loxin is also cost effective. The product has notched exports of over 8 million USD. This is significant achievement for Indian Herbal & Natural product industry in receiving world-wide recognition for a well researched product. This innovation is duly protected through several patents world over.

### **PEST CONTROL (INDIA) PRIVATE LIMITED, BANGALORE**

PCI established the country's first full fledged facility for pheromone synthesis and launched sex pheromone lures of 4 different sugarcane tissue borers. This involved development of protocols for synthesis of 8 different pheromone compounds of high purity on laboratory scale, scaling up for commercial production, blending them in the appropriate ratios and production of lures. It also designed and patented a unique, cost effective and easy to use portable water trap, for use with sex pheromone lures. Over 1.5 lakh lures and 92,000 water traps were sold in the first 3 years for mass trapping sugarcane borers, as a stand alone and

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environment-friendly method of managing these noxious pests.

PCI has also worked with national and international research organisations for synthesis and supply of lures for managing different noxious pests such as coffee white stem borer, coconut beetles and cocoa pod borer. Pheromones of several insect pests synthesized indigenously by PCI and traps are being sold within the country and also exported.

### **UNITED PHOSPHORUS LTD. (CHEMO ELECTRONIC LABORATORY), VAPI, GUJARAT.**

The CEL of United Phosphorus Limited has successfully developed and commercialized Gas Monitoring Devices for fumigation industry, Flammable Gas Detection Devices for industrial and domestic segment, Breath Alcohol Analyzer for traffic police, railways, hospitals etc.. Indigenous technology was developed for the first time for producing Electrochemical Sensors for many gases like  $\text{PH}_3$ ,  $\text{CO}$ ,  $\text{SO}_2$ ,  $\text{H}_2\text{S}$ ,  $\text{Cl}_2$ , and  $\text{NO}_2$  etc.

Fumigation industry, which uses highly toxic fumigants like  $\text{PH}_3$ ,  $\text{MBr}$  etc requires a variety of detection devices. There was no single point source for these products. With the five recently developed instruments for this application UPL has become the only manufacturer in the world who produces all the necessary detection devices for this industry. The other products developed for flammable gases and breath alcohol analysis are unique in their features and no one in India produces similar instruments.

The instruments and sensors have a great market potential. Instruments worth more than Rs. 375 Lakhs have been sold in India and abroad.

### **MINDA INDUSTRIES LTD., GURGAON**

The In-house R&D of Minda Industries Ltd. has designed, developed, patented and commercialized Intelligent backlit non contact handle bar switch with self cancellation blinker for Two-wheelers

This advanced control system has got Body control unit with in built microprocessor controller including 173 SMT & PTH components that can be programmed as per customer needs and requirements for the first time in world. Safety feature such as self-cancellation blinker have been incorporated for the first time in India in 2-wheelers. An automatic intelligent blinker mechanism not only cancels automatically but also senses the direction of turn. New control switch has got another safety feature in the form of illuminated symbols that glows at night and facilitates the rider man machine interaction during night riding. For the first time in handle bar switches conventional contact mechanism switch has been replaced by Non-contact switch mechanism that enhances the product life by 10 times and also provide smooth soft feeling during switch operation. All these features are well ergonomically designed and packaged in consoles with stunning looks.

This new innovation has brought in business worth Rs.50 crores for Minda Industries Ltd. in last nine months since it's commercialization. 400,000 units have already been sold and running successfully on Indian Roads.

### **CROMPTON GREAVES LTD , MUMBAI**

Crompton Greaves has developed a new technology platform of electronically controlled Brush Less Direct Current (BLDC) Motor technology that has yielded a series of motor applications which are energy efficient (

typically 50% input power of that of the conventional motors), very compact ( 55% less weight ), of less noise ( 5 dB less ), substantially maintenance free, & having a very efficient speed control. Developed with an extensive in-house R&D effort of over 50 man-years at the CG Global R&D Centre, the technology is already deployed in railway coach fan, telecom shelter cooler fan & ceiling fan. The motor technology is now being applied for electric vehicles, electric pumps, and a series of energy efficient motion applications. The development has been awarded 6 Patents, 2 Design Registrations, & an Innovative Product Award. 4 international technical publications have also resulted from the development.

The first series of products have been commercialised in 2005. With over 35000 motors in the field so far, the technology has potential to save over Rs 250 Crores per year by way of energy saving to the customers when commercially fully exploited in the next few years. This Technology Programme is one of the 5 Technology Mission Programme run by the CG Global R&D Centre, each focussing on development of energy efficient products and process technologies.

### **ANANTH TECHNOLOGIES LIMITED, HYDERABAD**

Ananth Technologies Ltd has developed a 12 channel rotary telemetry system for monitoring the strain and temperatures from the blades of a rotating turbine. This system uses “non-contact” technology for power and data transfer. This system developed first time in India has many advantages compared to conventional slip ring system.

The telemetry system consists of a rotor mounted to the shaft of the rotating turbine. The rotor consists of non-contact inductively coupled power

circuit, programmable signal conditioners, PCM encoder, RF transmitter and antenna. The rotor along with the electronics rotates at high rpm (13,000). A stator is mounted with a small air gap from the rotor and it houses the primary power coil.

An advanced data acquisition and processing system is placed in a control room at a distance of 50m. The parameters such as gain, bridge balancing and shunting are done thro software from the ground station housed in control room.

The telemetry system has undergone rigorous qualification tests such as 3 axis vibration, thermal, spin test etc., Since it is a non-contact technology, the system can be operated for longer duration without any wear and tear which is a severe limitation in the conventional slip ring system.

This development has placed our country in self reliance in a highly critical technology. It has many spin-off benefits to various other industries and has great export potential.

### **SASKEN COMMUNICATION TECHNOLOGIES LTD. BANGALORE**

Sasken Communication Technologies has Conceptualised, Designed and Developed an optimized Multimedia Subsystem. The Multimedia Subsystem is an Indian product that has been indigenously developed and carries Indian IP. It is a highly commendable R & D effort as the software product is the best in its class globally, as evidenced by its deployment in commercially released mobile handsets by many tier-I vendors. This product is the effort of an in-house R & D team of 300 people deployed full time at Sasken.

Sasken's multimedia subsystem is a complete range of compelling multimedia applications and codecs that enable handset manufacturers to bring out sharply differentiated products in a cluttered

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marketplace. It is Highly optimized software, exploiting the full power of the platform, Designed for easy integration and requiring minimum customisation, Pre-integrated on select platforms, reducing time to market, Field proven, Available through a single licensing arrangement that includes 3rd party components and Backed by comprehensive support from Sasken from design through launch and beyond.

The Sasken Multimedia Subsystem IP ships on 45+ models and over 48 million phones across networks in Australia, China, Europe, Hong Kong, Japan and Taiwan earning development and maintenance license fees as well royalties for Sasken.

Sasken Multimedia Subsystem has made a difference to the society by making multimedia communication accessible to a larger customer base on affordable handsets. The software helps people not only in satisfying the basic need of personal communication, but also adds multidimensional uses such as entertainment and spontaneous capture of images and video. This has the potential to be the pivotal technology for driving further adoption of the mobile handset, thus increasing the overall connectivity, which is paramount in countries with low teledensity such as India.

The learning and challenges in developing the multimedia subsystem in mobile phones has effectively been used in development of the company's other products. The team is already engaged in enhancing the system to include new features such as mobile TV using DVB-H and Video over IP.

### **RELIANCE INDUSTRIES LIMITED, HAZIRA MANUFACTURING DIVISION, SURAT**

Reliance Industries Hazira has successfully

developed in-house & commercialized a novel process for recovering Cyclohexane from the waste stream. The process, which uses low value waste by-product stream from Polyethylene plant as a raw material, & is eco-friendly and encompasses by-product valuation & energy efficient. Patent has been filed for process technology.

This innovative in-house indigenous development is specific to Solution Polymerization Technology by M/s Novacor Canada. This is the only innovation done in the world with this technology, which is operating at RIL Hazira. It has a capacity of 125 kg/hr recovery rate & has already saved \$ 1.3 US million per annum as raw material cost. The recovered solvent has been again successfully utilized in manufacturing process at RIL Hazira resulting in import substitution.

### **TATA STEEL LIMITED, JAMSHEDPUR**

The in-house R&D centre of Tata Steel Limited in collaboration with CLRI (Central Leather Research Institute), Chennai has successfully developed and commercialized an alternative environmental friendly process to minimize the carcinogenic hexavalent chromium in chromite concentrates to trace levels by using an organic reductant known as Myrobalam.

Myrobalam is a dried fruit of an Indian tree known as Terminalia Chebula. Use of Terminalia chebula for minimizing hexavalent chromium in chromite concentrates is an ecofriendly and cost effective method. This technology is implemented at chrome ore beneficiation plant, Sukinda, Tata Steel and successfully operationalized in November 2006, which has impacted the entire chrome ore business at Tata Steel, with cost savings of Rs 1.8 crores per annum.

## NEW IN-HOUSE R&D UNITS RECOGNISED BY DSIR

During July - September 2007, the Department of Scientific & Industrial Research has granted recognition to the in-house R&D units of the following firms at locations given in brackets:

Sl. No.	Name of the firm	Valid upto
1.	Biovel Life Sciences Pvt. Ltd, Bangalore ( Hobli)	31.03.2010
2.	Greaves Cotton Ltd, Chennai (Hoskote)	31.03.2010
3.	Greaves Cotton Ltd, Chennai (Gummidipoondi)	31.03.2010
4.	Millenium Exports Chennai, (Thoraipakkam)	31.03.2009
5.	National Engineering Industries Ltd, Jaipur (Jaipur)	31.03.2010
6.	Sumitra Seeds Pvt. Ltd, Kumool (Kurnool)	31.03.2010
7.	Matrix Laboratories Ltd, Secunderabad (Hyderabad)	31.03.2010
8.	Intemo Systems, Hyderabad, (Hyderabad)	31.03.2010
9.	Alkem Laboratories Ltd, Mumbai (Bangalore)	31.03.2010
10.	Nelco Ltd, Mumbai, (Navi Mumbai)	31.03.2009
11.	Gufic Biosciences Ltd, Mumbai (Andheri)	31.03.2010
12.	Makino Auto Industries, Noida (Noida)	31.03.2010
13.	Instapower Ltd, New Delhi, (Gurgaon)	31.03.2009
14.	Camin Fine Chemicals Ltd, Mumbai (Andheri)	31.03.2010
15.	Astec Lifesciences Ltd, Mumbai (Dombivli)	31.03.2010
16.	Famy Care Ltd, Mumbai (Navi Mumbai)	31.03.2010
17.	Myko Tech Pvt. Ltd, Goa, ( Mapusa)	31.03.2010
18.	Symbiotech Pharmalabs Ltd., Indore (Rau)	31.03.2010
19.	Watson Pharma Pvt. Ltd, Mumbai (Vema)	31.03.2010
20.	Neu Fricmat Pvt. Ltd, Coimbatore (Coimbatore)	31.03.2010
21.	Sandor Proteomics Pvt.Ltd., Hyderabad (Hyderabad)	31.03.2009
22.	Banco Products (India) Ltd, Vadodara (Vadodara)	31.03.2010
23.	Glenmark Pharmaceuticals Ltd, Mumbai (Bardez)	31.03.2010

24.	Ratiopharm India Pvt. Ltd, Mumbai (Bardez)	31.03.2010
25.	Marksans Pharma Ltd, Mumbai (Vema)	31.03.2010
26.	Bisen Biotech & Biopharma Pvt. Ltd, Gwalior	31.03.2009
27.	Mahindra & Mahindra Ltd, Mumbai (Kandivali)	31.03.2010
28.	M.R.Seeds (P) Ltd, Shri Ganga Nagar (Rajasthan)	31.03.2010
29.	RFCL Ltd, New Delhi (Okhala)	31.03.2010
30.	Tata Cummins Ltd, Jamshedpur (Jamshedpur)	31.03.2010
31.	GSR Products Ltd, Hyderabad (Hyderabad)	31.03.2010

## NEW SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATIONS APPROVED BY DSIR

During July - September 2007, the Department of Scientific & Industrial Research has approved the following Scientific and Industrial Research Organisations (SIROs) :

Sl. No.	Name of the SIRO	Valid upto
1.	Central Council for Research in Unani Medicine, New Delhi	31.03.2010
2.	Institute of Mental Hospital & Research Centre, Agra	31.03.2009
3.	Kumarappa National Handmade Paper Institute, New Delhi	31.03.2010
4.	Sri Ramachandra University, Chennai	31.03.2010
5.	Swamy Ramananda Tirtha Rural Institute, Nalgonda.	31.03.2010
6.	R.B.S. College, Agra Ramakrishna Mission Ashrama, Narendrapur, Kolkata	31.03.2010
9.	School of Fundamental Research, Kolkata	31.03.2009

## SUGGESTIONS AND INFORMATION

DSIR welcomes suggestions for improvements. For any specific information on (a) Recognition of in-house R&D centres in industry, (b) Recognition of Scientific and Industrial Research Organisations, and (c) Fiscal incentives for scientific research and commercialisation of R&D, write to :

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