



JANUARY - 2007

## 20 TH NATIONAL CONFERENCE ON IN-HOUSE R&D IN INDUSTRY

### Inaugural Session

The Department of Scientific and Industrial Research (DSIR) organized the 20<sup>th</sup> National Conference on In-House R&D in Industry, in association with the Federation of Indian Chambers of Commerce and Industry (FICCI), during 16-17, November, 2006 in New Delhi. Attended by over 400 participants from industry, national laboratories, IITs and universities, Scientific and Industrial Research Organisations (SIROs), consultancy organizations and Government Departments. The Conference was inaugurated by Dr. V. Krishnamurthy, Chairman of the National Manufacturing Competitive Council (NMCC) on 16<sup>th</sup> November 2006. Dr. Krishnamurthy, along with Shri Saroj Kumar Poddar, President, FICCI and Dr. R. A. Mashelkar,

Secretary, DSIR presented the DSIR National Awards for Outstanding in-house R&D Achievements (2006) to seven industrial units, namely Shanta Biotechnics Ltd., Hyderabad; Jagdish Electronics, Bangalore; Applied Research International Pvt. Ltd., New Delhi; Audco India Ltd., Chennai; Ajeet Seeds Ltd., Aurangabad; PTC Industries Ltd., Lucknow; Life Care Innovations Pvt. Ltd., Gurgaon.



*An Award Winner Receiving the DSIR  
National R & D Award (2006)*

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

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In his inaugural address, Dr. V. Krishnamurthy, Chairman, NMCC exhorted the industry and the Government to re-double their efforts to raise the manufacturing sector's contribution to the GDP from the present level of 18% to 30%. He underlined the need for balanced growth of agriculture, manufacturing and services to meet the employment aspirations of 10 million youth who enter the job market each year.

NMCC, he said, was working on several fronts to sharpen the competitive edge of the manufacturing sector. These are: One, improvement of the climate of innovation, which was at its lowest ebb. Two, securing a technology development fund for industry. Three, improving the quality of scientific education and encouraging the youth to pursue pure sciences and register for doctoral program. And Four, developing capabilities for turning out advanced technology products.

Dr. Krishnamurthy called for urgent steps to reverse the trend of heavy dependence on imported technologies. The current expenditure on in-house research and development was less than 1% and " we have to do everything that is necessary to see that this effort is multiplied several times. Manufacturing operations in this country can be a success only if we innovate, the climate of innovation has got to be brought up, not only with reference to innovating new products as some of the champions have done but also to improve upon the existing practices. This requires a very high degree of commitment, high degree of effort and further development of human capital and investments."

The high growth of the economy, he emphasized, could be sustained only if there is a balanced growth that puts manufacturing in the centre stage. This, in turn, required a very strong and continued emphasis on in-house research and conditions conducive to driving innovation and rewarding the innovator.

Dr. R. A. Mashelkar, Secretary, DSIR, called for a concerted strategy to realise the Prime Minister's agenda of 'Technology-led Rapid & Inclusive Growth'. While inclusive growth would call for a huge impetus to the manufacturing sector to generate employment for semi-urban and rural folk, the process could be speeded up through technological innovation.

He said the 'geography of science' had turned full circle. Ten years ago the US led the world in scientific innovation, followed by Europe and Asia-Pacific. Today, the position was just the reverse. Alluding to the acquisition of the US company, Corus by Tata Steel, Dr. Mashelkar said: "We need to rekindle the Tata spirit. Besides using technology to gain competitiveness, we also need to acquire technology and Intellectual Property."

Dr. Mashelkar said the 21<sup>st</sup> century would belong to India and China. In the long run, however, it would be India all the way. This would be possible because the '3 Ds' in India's favour Democracy, Diversity and Demography would trigger innovation. If a fourth 'D' (Discipline) were added to this dimension, India would truly become the world's economic powerhouse, Dr. Mashelkar pointed out.

Shri S. K. Poddar, President, FICCI said in order to make the manufacturing sector more vibrant, the government needs to address seven key issues. These include: providing grant up to 35% on R & D; better flow of credit to SMEs at lower cost; creating common testing, design and quality control centres for SMEs; setting up a large venture capital fund to assist innovation and technology development in SMEs; encouraging Public Private Partnership in venture and single funding; creating a national fund for promoting development of advanced technologies through public-private partnership and to enable Indian companies to acquire hi-tech manufacturing companies abroad; and establishing technology parks in partnership with IITs and reputed engineering institutes.

Dr. Amit Mitra, Secretary General, FICCI, in his vote of thanks address emphasized that the key challenge before the nation was to break free from the shackles of an education system that spawned rote learning, and turn students into critical thinkers.

### Technical Sessions

The inaugural session was followed by three technical sessions viz. : "Attaining Excellence in Manufacturing ( two sessions)" and "Achieving Global Heights in Auto Components Manufacturing". These sessions were chaired by Dr. R. A. Mashelkar, Secretary DSIR, Shri C. P. Rangachar, President, IMTMA, Bangalore and Dr. V. Sumantran, Consultant-Advisor, Automotive and Manufacturing Industries, Chennai respectively. Presentations were made by the following :Shri Satish Kaura, Samtel Colour, New

Delhi, Shri H.K. Chaterjee, Raymonds, Mumbai, Shri Deepak Puri, Moser Baer, New Delhi, Shri P. Bindra, Ranbaxy Laboratories, Gurgaon, Shri S. Raghavan, L&T Komatsu, Moser Baer India, Bangalore, Shri P.J. Mohanram, IMTMA, Bangalore, Shri S.A Mehta, Shairu Gems, Surat, Shri K. Ramaswami, Sundaram Fasteners , Hosur, Dr. R. Mahadevan, India Pistons, Chennai, Dr. N. Ravichandran, (Operations), Lucas TVS, Chennai.

### Valedictory Session

The technical sessions were followed by a valedictory session on the 17<sup>th</sup> November 2006.

Dr V Sumantran, Consultant Adviser, Automotive and Manufacturing Industries was the Chief Guest at the Valedictory Session. Shri R. R. Abhyankar, Scientist G, DSIR gave a wrap-up of the proceedings of the two-day conference.

Dr V Sumantran in his Valedictory Address pointed out that the acceleration of R&D initiatives in India has to come from demand-driven industrial R&D. And there is no better incentive for R&D than commercial incentive.



*Dr.V. Krishnamurthy, Chairman, NMCC and Shri S.K. Poddar, President, FICCI Releasing the DSIR Special Publication*

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He said Indian industry has not fully woken up to the potential investment in R&D and added that collectively industry has not been able to turn the spotlight on innovation.

He emphasized the critical role for the Government in raising the level of awareness to the concern that if we do not invest adequately as a country in science and technology, India will not achieve the grand vision of manufacturing excellence that is truly world-class.

He saw nothing wrong with technology acquisition. This was just another mechanism for us to accelerate R&D initiatives in India. Industry and Government today are a lot more open and a lot more dynamic about seeking out sources of technology, acquiring it and with it making our country's environment accelerate far beyond what it is today.

Speaking about agile manufacturing, Dr. Sumantran said: "agility demands reconfiguration. If we are going to respond to changing markets, changing demands, changing consumer preferences and changing enablers of technology, it would demand reconfiguration and no reconfiguration can happen without human interference, no matter what computers you have, no matter what automation you have." Human interference, he said, means human skills, human talent, which India has in large numbers.

Additionally, he said, there is the growing emergence of Brand India, "for which we must thank our brethren from the IT industry who really were pioneers and took to the global stage the concept of Brand India that ensures that

products and services are configured, packaged and delivered from India stand up as a quality measure against anybody else anywhere in the world."

Dr Sumantran said: "I feel that the focus on R&D, the ability of R&D in manufacturing to improve our overall manufacturing competitiveness to be able to contribute to our nation's economic growth is inevitable and with the kind of encouragement I have seen both from Government from the leaders of the country and from industry I have every reason to believe that the course we aspire to have of improved manufacturing competitiveness leading to India's emergence as a developed nation is bound to happen."

Shri V. K. Topa, Advisor, FICCI, while presenting the Vote of Thanks Address, spoke of the commitment to science and R&D for creating the scientist as the wealth creator in the country. If India has to get onto the global map then the time is now for us as committed people to this cause to put together all that we can to achieve the dream.

## **NATIONAL AWARDS FOR R & D EFFORTS IN INDUSTRY - 2006**

Dr. R. A. Mashelkar, Secretary DSIR gave away the DSIR National Awards for Outstanding in - house R & D Achievements (2006) to the following seven industrial units during the inaugural session of the 20th National Conference on in - house R & D in industry on 16<sup>th</sup> November 2006. Shri R.R. Abhyankar, Scientist G, DSIR read out the citations. Excerpts from the citations are given below :

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## **Shantha Biotechnics Ltd, Hyderabad**

Shantha Biotechnics has successfully developed and commercialized two new products, Shanpoietin (erythropoietin) and Shantera (DTPw Hepatitis B combination vaccine), in 2005.

Shanpoietin, generically known as erythropoietin, is the primary regulator of red blood cell formation in mammals. A bioreactor culture process, using perfusion technology and serum free fermentation medium was developed for the first time in India. Shanpoietin was commercialized in January 2005. Shanpoietin is currently available for sales in 2000 IU and 4000 IU strengths. At present, 28,000 doses of 2000 IU and 13,000 doses of 4000 IU worth about Rs. 2.0 crores have been sold.

Shantetra is a combination vaccine, consisting of diphtheria toxoid, tetanus toxoid, whole cell pertussis and recombinant hepatitis B antigen. The major advantage of combination vaccine, is the ability to protect against four major infections by a single vaccine. Shantetra was commercialized in August 2005. So far, 1.3 million doses have been manufactured and 4 lakhs doses worth of Rs.1.5 crores have been sold in the market.

## **Jagdish Electronics, Bangalore**

Jagdish Electronics has developed Dynamic Elastic Properties Analyzer (DEPA), a non-destructive material testing instrument. It's performance conforms to international standards ASTM C 1259-96 and E 1876 etc.

DEPA's audio sensor picks the sound signals produced by materials on being slightly tapped. It's hardware and software analyses them and reports the materials properties like Young's Modulus and Poisson's ratio, based on their sonic signature generated, when they are slightly tapped.

Unique, instantaneous and simple DEPA test, in most cases, requires no sample preparation. It tests a wide range of materials e.g abrasives, alloys, cast iron, cement & concrete, ceramics, composites, graphite, plastics, powder metals, refractories, rubber & rubber composites, space age materials, steel, wood etc. DEPA is extremely useful on production shop floors.

DEPA is available in German, English and Spanish languages. DEPA was commercialized in the year 2003. Jagdish Electronics exports 70% of its DEPA production, exceeding Rs.50 lakhs.

## **Applied Research International Pvt., Ltd, New Delhi**

The in-house R&D Centre of Applied Research International (ARI) has developed and commercialized Navigation Simulators. Engine Room Simulators, Advanced Crane Simulators, Liquid Cargo Handling Simulators and Knowledge Management System Software. These are characterized by high behavioral accuracy advanced visualizations, integrated hardware and realistic physical environment.

ARI simulators are International Maritime Organization (IMO) compliant, and specific configurations are type approved by the DG Shipping, Govt. of India.

Installations in India and abroad include Navigation Simulators 25, Engine Room Simulators 18, Advanced Crane Simulators 6, Liquid Cargo Handling Simulators 18, and Knowledge Management Systems Software 45, with combined value of Rs.17.25 crores. Total value of exports during last three years was over Rs.4.70 crores. ARI Simulators are priced 50-150% lower than international products. ARI has successfully installed simulators in Croatia, Greece, Romania, New Zealand, Philippines, Hong Kong, Singapore, Myanmar, Sri Lanka, Pakistan, Bangladesh and Canada.

### **AUDCO India Limited, Chennai**

Audco India Ltd, (AIL), has indigenously designed, tested and supplied critical valves for: Indian nuclear power plants (main steam isolation valves, valves for emergency core cooling system, testable check valves and linear pneumatic operated gate valves), special valves for Indian navy (motorized shock resistant NAB valves for ships), cryogenic valves for LNG applications and terminals, low emission bellows sealed valves.



*Dr. R.A. Mashelkar, Secretary, DSIR Felicitating Dr.V. Sumantran, Consultant-Adviser, Automotive and Manufacturing Industries, Chennai during the Valedictory Session*

AIL had supplied 264 nos of nickel aluminium bronze motorized shock resistant valves to Garden Reach Shipbuilders & Engineers Limited for Naval ships.

Patent on coupling arrangement for valve stem and actuators stem on hydraulic / pneumatic actuators (linear application) has been filed. Two patents on shock resistant bonnet design and bolting arrangements have also been filed.

AIL has exported a number of cryogenic and low temperature valves to Russia, China, Qatar, Nigeria, Egypt etc. AIL's low emission bellows seal valves are widely used for toxic environments. These valves are having high sealing integrity with zero emission to atmosphere.

### **Ajeet Seeds Ltd, Aurangabad**

The in-house R&D centre of Ajeet Seeds, has successfully developed two int a hirsutum cotton hybrids viz Ajeet -33 and Ajeet 11, which have been released & notified by Central Seed Sub Committee on Crop standards, notification &



*Cotton Hybrid, Ajeet 11 (AHH-90-1) for Rainfed Cultivation*

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release of crop varieties. These hybrids recorded significantly more seed cotton (23 to 47% ) and lint yield (36 to 53%) in ICAR trials, than the check hybrids, under irrigated and rainfed condition, respectively. Both the hybrids are highly tolerant to sucking pests & resistant to grey mildew. Their fibre qualities meet the requirements of textile trade. These hybrids in Bt. Version with resistance to bollworms, have also been approved by GEAC, during Kharif, 2006. Their growers will realize a net benefit of Rs.10,000 to Rs.18,000/hs.

ASL has also commercialized Okra hybrids, Ajeet -333 & Ajeet -345, which provide their significant yield superiority and resistance to yellow vein mosaic disease, in the ICAR trails. The new Genetic Male Sterile lines in Okra, developed by ASL., have been successfully used for production and supply of seed of hybrid, Ajeet -345 at lower cost.

### **PTC Industries Ltd, Lucknow**

PTC Industries Ltd, has introduced Replicast process for the first time in Asia on commercial scale, for manufacture of highly critical and complex precision stainless steel castings. Replicast process is a patented technology of "Casting Technology International" U.K.

The involved absorption & upgradation of technology under indigenous condition & available raw material. This is known as technology of future, which can produce near net shape components upto any size and weight, with excellent surface finish and very close tolerance. Replicast castings are not only free

from various casting defects, but weigh less by 15-20% than conventional sand castings, resulting in lower manufacturing and machining costs. The overall savings in final machined components turns out to be 25-40%.

The company has started commercial production for both export and domestic market as import substitution of components. The company has exported castings to USA, and Europe of US \$ 1.0 million in the current year.

### **Lifecare Innovations Pvt. Ltd, Gurgaon**

Lifecare innovations is the only Indian company to manufacture a liposomal drug and one of the only two in the world, manufacturing Liposomal Amphotericin B.

Lifecare Innovations, employing DBT technology, with financial support from DSIR under the auspices of "Programme Aimed at Technological Self Reliance", absorbed indigenous technology and complemented with innovations at in-house R&D resulting in commercialization of FUNGISOME", the most effective, most safe and most economical treatment for Systemic Mycosis and Kala-Azar.

High efficacy and safety profile of FUNGISOME", emanates from strategic composition and innovative optimization. Innovations making the life saving drug affordable, has enabled its access to larger number of patients world over.

FUNGISOME , the only import substitute of three competing products has saved India foreign exchange, equivalent of Rs.53.50 crores in the past three years.

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

During October - December 2006, 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.	Biogenomics Ltd, Thane	31.3.2009
2.	C&S Protection & Control Ltd, New Delhi	31.3.2009
3.	Mirc. Electronics Ltd, Mumbai (Okhla, N. Delhi, Andheri, Mumbai & Bhiwandi, Thane Units)	31.3.2009
4.	Poseidon Biotech, Chennai	31.3.2009
5.	Syncom Formulation (I) Ltd, Mumbai	31.3.2008
6.	G.R.Intrachem Ltd, Hyderabad	31.3.2009
7.	Jisnu Communications Ltd, Hyderabad	31.3.2009
8.	Neelikon Food Dyes & Chemicals Ltd, Mumbai	31.3.2009
9.	Rane Brake Lining Ltd, Chennai	31.3.2009
10.	Kansai Nerolac Paints Ltd, Mumbai, (Bawal unit)	31.3.2009
11.	PI Drugs & Pharmaceuticals Ltd, Raigad	31.3.2009
12.	IPCA Laboratories Ltd, Mumbai (Plot No.47, Kandivli Indl. Estate Mumbai)	31.3.2008
13.	Bigtec Pvt. Ltd, Bangalore	31.3.2009
14.	Meritor HVS (India) Ltd, Mysore	31.3.2009
15.	Rane TRW Steering Systems Ltd, Chennai (Plant I at Viralimlai and Plant II & III at Guduvanchery)	31.3.2009
16.	Seed Works India Pvt. Ltd, Hyderabad (ICRISAT Patancheru)	31.3.2009
17.	Varuna Biocell Pvt. Ltd, Varanasi	31.3.2008
18.	Venco Research and Breeding Farm Ltd, Satara	31.3.2009
19.	Yaaganti Seeds Pvt. Ltd, Hyderabad	31.3.2009
20.	Charak Pharma Pvt. Ltd, Mumbai	31.3.2009

21.	Allied Medical Services Pvt Ltd, Gurgaon	31.3.2008
22.	NRB Bearings Ltd, Mumbai (Thane Unit)	31.3.2009
23.	Healthline Pvt. Ltd, Bangalore	31.3.2009
24.	Shasun Chemical & Drugs Ltd, Chennai (Pondicherry Unit)	31.3.2008
25.	Sri Surya Anjaneya Industries Cheerapurupalli	31.3.2009
26.	Surya Pharmaceuticals Ltd, Chandigarh	31.3.2009
27.	EMCO Ltd, Thane	31.3.2009

## NEW SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATIONS APPROVED BY DSIR

During October - December 2006, 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.	Santhigiri Ashram, Thiruvananthapuram	31.03.2009
2.	Vijayaraj Joytish Ray College Research & Development Centre, Kolkata	31.03.2009
3.	Scientific Research On Vedas (SERVE), Hyderabad and Training, Vadodara.	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 :

### Shri R.R. Abhyankar

Scientist - G and Head (RDI),  
Department of Scientific &  
Industrial Research,  
Technology Bhavan,  
New Mehrauli Road, New Delhi-110 016