

IN-HOUSE

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IN INDUSTRY



JANUARY 2005

18TH NATIONAL CONFERENCE ON IN - HOUSE R & D IN INDUSTRY

Inaugural Session

The Department of Scientific and Industrial Research (DSIR) organized the 18th 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 2004 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 Shri Kapil Sibal, Union Minister of State (Independent Charge) for Science & Technology and Ocean Development, in the FICCI Golden Jubilee Auditorium on 16th November 2004.

The Minister presented the DSIR National Awards for Outstanding in-house R&D Achievements (2004) to five industrial

units, namely Indian Oil Corporation Limited, Faridabad, Jubilant Organosys Ltd., Gajraula (U.P), High Energy Batteries (India) Ltd., Mathur (T.N.), Rajasthan Electronics & Instruments Ltd., Jaipur, Goodlass Nerolac Paints Limited, Mumbai. The Minister also released the DSIR special publication "Outstanding in-house R&D Achievements - 2004."



Shri Kapil Sibal, Union Minister of State (Independent Charge) for Science & Technology, inaugurating the 18th National R&D Conference

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

In his inaugural address, Shri Kapil Sibal, Union Minister of State (Independent Charge) for S&T observed that it is a matter of concern that the number of awardees this year is smaller than in the past. The reason for this may well be the application of stricter standards by the Selection Committee. However, going by the country's size, he said, the number of awardees must be larger. He said issues of generation, valuation, protection and exploitation of intellectual property are becoming critically important all around the world. There is an increasing demand for new forms of protections in intellectual property as well as access to IP related information. Additionally, we have also to address the complexities linked to IP in traditional knowledge, community knowledge and animate objects. All these pose a challenge in setting up the new 21st century IP agenda, especially for a country like India.

The Minister observed that I.P is today regarded as an important and effective policy instrument relevant to a wide range of socio-economic, technological and political concerns. The development of skills and competence to manage IPR and leverage its influence will need increasing focus. The proprietary nature of intellectual property, the information it generates and its impact on privacy are the triad of issues that we must grapple with. Intellectual property refers to copyrights, patents, trademarks and similar means of marking ideas as one's own. Proprietary information is exemplified by databases of information, generally owned by firms. Privacy pertains to the control that individuals have over "their" information.

Recalling the history of patent laws in India, Shri Sibal said India had already made several changes in I.P Act over the years, the most recent being changes in the Patents Act, 1970. All this shows the country's desire to change and adopt. New enactments

covering semi-conductors and layout designs, will be of considerable importance to the electronic industry. Similarly, our Plant Varieties Protection and Farmers' Rights Act, 2001 will impact on agriculture and the food industry. Geographical indications Act will protect the interests of groups in different geographical areas in our country. Right now the effort is to make the Patents Act, 1970 compliant with the TRIPS Agreement. We must so design it to give ourselves a world class I.P regime. At the same time, the Government has a duty to protect the public interest.

The Minister said the Patents Act 1970 had served a definite purpose, without which the Indian drugs and pharmaceutical industry may not have grown to the levels we see today. The context of 1970 was a comprehensive law to lay the foundations of the pharmaceutical industry. In 2004, the context is to ensure that the amended law positions the industry for a competitive advantage within the context of the WTO. India must move up the innovation chain and participate in the world of discovery not only in the pharmaceutical sector, but also in many other sectors of industry. At the same time, he said, laws alone will not help us. The country must meet new challenges such



*DSIR National R&D Awards
Winners (2004)*

as developing skills in filing, reading and exploiting patents. We must fully understand the implications of the patents granted to our competitors. Many of the patents written by our professionals can be easily circumvented, he noted. Manpower planning for IPR protection needs priority. IPR must be made a compulsory subject in college law courses and in the Universities. Our graduates emerging from the engineering and technology streams have no idea about IPR, and yet these young people will battle in the emerging wars in the knowledge market. China today has 5000 patent training institutes, whereas India has none.

In this context, Shri Sibal said CSIR has shown the way to the nation. Ten years ago, it secured only five to six US patents per year. Last year, they secured 196 US patents. They have been constantly in the top three positions amongst the top fifty PCT filing list brought out by the World Intellectual Property Organization (WIPO) for developing countries. Knowledge based industries in India, such as the IT, pharmaceuticals, are and will meet challenges presented by the new IPR regime. The IT industry has maintained an impressive growth rate. But it will have to reduce the content of body shopping and move on to innovative IT products, which will need IP protection.

Before we protect I.P, the Minister said, we must generate I.P which is worth protecting. Our institutions, national laboratories and industrial R&D laboratories will have to gear up for this. Nurturing a strong innovation base through a balanced system of recognition and rewards is the need of the hour. We need to encourage the publication of R&D results in scientific papers only after careful consideration of the consequences on IP rights. In order to ensure that courts deliver judgments, which

meet the ends of justice, there is a need for further exposure for those in the judiciary to deal with evolving new developments in the Intellectual Property field. In summary, the Minister said, January 1, 2005 should not be seen as a threat but an opportunity. If we all put our act together, India has the potential to emerge as a model which links innovation, growth and development together through a strong and dynamic IP law and associated systems. Shri Sibal also assured of all help to encourage innovation and research in industry through public-private partnership.

In his welcome address, Dr. R.A. Mashelkar, Secretary, Department of Scientific and Industrial Research said research by Indian scientists in quoted the most in international journals, ahead of China and the US. Quoting a study on the number of references by technical papers in internal journals to research by scientists of various countries in terms of per capital income, he said India topped the list with a score of 77 citations. China came second with a score of 69 citations, while the US was third with 60. India also ranks very well in terms of US patent per capita. However, these figures do not mean that we are doing very well in terms of intellectual property generation. But certainly, he said, India is positioned for a big take off. All that is needed is a hard push.

The potential of knowledge as a creator of wealth is gaining currency all around the world. But only usable knowledge that is protected or protect able can have the potential of wealth creation. We will have to pay urgent attention to substantially enhance our levels of innovation and creativity. Generation of intellectual property, its capture, documentation, protection, evaluation and its exploitation assumes a crucial importance in the new context. Manpower planning for IP protection will need emergency

measures. A number of steps will have to be taken by our institutes. IPR must be made a compulsory subject matter in the law courses in the universities in India. A number of patent training institutes will have to be set up. It is a matter of deep concern that with a 100-year old system on patents in India, only 4000 patents were filed last year whereas with just a 10 year old system, China had 90,000 patents last year.

Dr. Mashelkar said new paradigms in the generation and protection of intellectual property rights will pose new challenges. India's economic growth will depend upon the way Indian industry responds to the change. The challenges for the Indian industry in the short term are improving quality and productivity ; cutting down cost and response time ; and promoting innovation. In the long term, challenges will be scale (our scales have been miniscule), technology upgradation (our technologies are outdated), product design (we have very poor concepts of product design) and finally, strategic partnerships not only within India but outside. Attitudinal and mindset changes are essential for all this.

Shri Y.K. Modi, President, FICCI, said that in-house R & D has a major role to play not only for the development of innovation and competitive technologies, but also to make a critical assessment of the technologies imported by the industry. Many multinational corporations are looking at India as a base for their R&D work in different areas. These companies are developing new products and services using Indian talent. But Indian companies are not able to do the same because they are much smaller in size.

Shri Modi said while it is a welcome development that India is making its IPR laws compliant with the WTO regime, safeguards are needed for the Indian

pharmaceutical industry. There should be balance between industry interests and consumer interest. It is fine to do low-cost R & D for others, but at the same time we must develop our own products and molecules so that Indian people could benefit from these developments.

Dr. Amit Mitra, Secretary General, FICCI proposed a vote of thanks.

Technical Sessions

The inaugural session was followed by three technical sessions viz., "IPR Scenario Post - January 2005 : Legal and Procedural Implications", "Preparedness of Industry for New IPR Regime" and "Implications of new IPR Regime for Research and Academic Institutions". These sessions were chaired by Dr. R.A. Mashelkar, Secretary, DSIR, Shri S. Chandrasekaran, Controller General of Patents, Mumbai and Dr. K.V. Swaminathan, Chairman, WITT, New Delhi respectively.

Presentations were made by the following : Dr.C.D. Mayee, Agriculture Commissioner, ICAR, New Delhi, Dr. K.V. Swaminathan, Chairman, WITT, New Delhi, Shri Rajeev Ranjan, Director, Department of Industrial Policy and Promotion, New Delhi, Dr.N.R. Raje, Director, Indian Oil Corporation Ltd., Faridabad, Dr. G.A. Krishna, Scientist - EII, CFTRI, Mysore, Dr. Goutam Das, Chief Operating Officer, Syngene International Pvt. Ltd., Bangalore, Dr.M.N. Jagadish, Director, Monsanto Research Centre, Bangalore, Shri Saibal Dutt, Director, ST Microelectronics Pvt. Ltd., Noida, Dr. Sudhir Kochhar, Principal Scientist, ICAR, New Delhi, Dr.K.V. Raghavan, Chairman, RAC, DRDO, New Delhi, Prof. Anand Patwardhan, Executive Director, TIFAC, New Delhi, Shri Venkat Jasti, Managing Director, Suven Life Sciences, Hyderabad.

Valedictory Session

The technical sessions were followed by a valedictory session on 17th November 2004. Shri Ashok Jha, Secretary, Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, New Delhi was the chief guest in the valedictory session. Shri Jagdish Singh, Scientist-G, DSIR summed up the proceedings of the two day conference. He said that the theme of this year's conference, which pertains to important changes in IPR regime in the country, which are on the horizon, was of immense interest, not only to the Government, on whose shoulders rests the responsibility of bringing in new IPR regime, but also industry, academia and research institutions to whom these changes are vitally important.

The new IPR laws may move entirely new set of businesses across the globe and to India, which is emerging as a global destination, not only for software, but also for manufacturing industry. The new IPR laws may unlock the innovative potential of a vast majority of our scientists and engineers. It may arrest the diversion of highly qualified S&T manpower to foreign countries and to non S&T areas within the country. Also, if we improve the quality of our patents, tendency for over-patenting will naturally be curbed, at least to some extent. Though the patent culture has percolated well into the CSIR system, but other research and academic institutions, in particular universities are yet to fully wake up to the need for patenting. From the deliberations of the conference it came out clearly that industrial growth only by restricting to reverse engineering would be limited. Research on new products and processes can only lead to healthy growth for which patent protection becomes absolutely essential. A single new blockbuster

molecule can raise the turn over of a company or in fact, the entire industry, manifold. Front line R&D is not doing what is a common knowledge. It is the pursuit of what can be seen hazily or even what is unknown. There will be cases of success and there will be cases of failure. Let the failure in initial attempts not deter us from actively pursuing our goal. Success will come and it will be sweet.



Shri Ashok Jha, Secretary, Department of Industrial Policy & Promotion giving the valedictory address

In his valedictory address, Shri Ashok Jha observed that in earlier days land, labour and capital were the main inputs for production. Now knowledge has been added to this list of key inputs. Ability to create, maintain and trade knowledge will determine one's success in knowledge economy. India has embarked upon an exercise to usher in a modern, harmonized and user-friendly patent regime that balances innovation and public interest. Two amendments to the Patents Act 1970 have already been effected and third one is under way. The new amendments will provide for product patents in food, pharma and agriculture sectors. This will be done in such a way that public health care and innovation are not hampered.

Shri Jha said the intellectual property system in the country is being modernized at a cost of Rs.120 crores. The I.P Training Institute has already been set up. He said Indian research institutes as well as industry must gear up for the new challenge and take advantage of the new scenario.

Shri V.K. Topa, Adviser to Secretary General, FICCI proposed a vote of thanks.

NATIONAL AWARDS FOR R & D EFFORTS IN INDUSTRY - 2004

Shri Kapil Sibal, Union Minister of State (Independent Charge) for S&T gave away the DSIR National Awards for Outstanding in-house R&D Achievements (2004) to the following five industrial units during the inaugural session of the 18th National Conference on in-house R&D in industry on 16th November 2004. Shri Jagdish Singh, Scientist - G, DSIR read out the citations. Excerpts from the citations are given below :

Indian Oil Corporation Limited, Faridabad

IOCL R&D Centre has successfully developed and commercialized two technologies, viz., INDMAX and I-MAX for enhancing LPG production in refineries. Developed first time in the world, INDMAX is a novel process for converting petroleum residues to high yield of LPG. I-MAX is a novel additive for enhancing LPG yield in FCC units. Both the technologies are protected by national and international patents, including those from USA/EU.

Set up at a cost of Rs.155 crores at IOCL, Guwahati refinery, based on in-house process design, the first INDMAX plant of 100,000 TPA capacity was commissioned in June 2003. The LPG production in the refinery has since doubled with tangible benefit of Rs.40 crores / year. After

successful plant trial of I-MAX in Gujarat refinery in June 2001, the technology was licensed to Sud Chemie India Pvt. Ltd., Vadodara.

So far, 135 MT of this additive was supplied to Barauni and Haldia refineries based on global competitive bidding. The royalty earning to IOC R&D thru these sales is about Rs.95 lakhs.

Jubilant Organosys Ltd., Gajraula (U.P)

Jubilant Organosys, which has been successful in running profitably an alcohol based chemical complex by switching over to high value added products, has successfully developed and commercialized the technologies for Lutidines, Collidines, Piperidines and Aminopyridines.

The products find vivid applications in pharmaceuticals, agrochemicals and polymers. To manufacture these products, a multipurpose plant with facilities of vapour phase continuous catalytic reactor, batch reactor and high pressure reactors were commissioned with an investment of Rs. 99.20 millions in the year 2002.

Jubilant Organosys Ltd., produced materials worth Rs.311.17 millions in the last two financial years and exported materials worth Rs.78 millions to various countries.

The patents for process technologies have been applied for.

High Energy Batteries (India) Limited, Mathur (T.N.)

The in-house R&D centre of H.E.B. has successfully developed a silver zinc battery for under water propulsion application, enhancing the power output from 252 W/Kg to 540 W / Kg. at a high rate discharge of 1100Amps.

The company has developed a silver chloride magnesium sea water activated

battery, enhancing the power output from 30 kW to 50 kW, thereby increasing the energy to 117 Wh/ Kg against the existing 88 Wh / Kg. The company has also established technology, using silver chloride magnesium chemistry for flame float smoke (marker battery) through in-house R&D efforts.

The above products have enhanced the customer base and the company has increased the turn over from Rs. 22 crores to Rs. 28 crores, resulting in a foreign exchange savings for the Ministry of Defence, Government of India to the extent of Rs 348 lakhs.



Shri Kapil Sibal, Union Minister of State (Independent Charge) for S&T releasing the DSIR special publication

Rajasthan Electronics & Instruments Ltd., Jaipur

REIL, a public sector undertaking, which has been successful in introducing electronic instrumentation to rural applications, has successfully developed and commercialized the technologies for (a) Data Processor Electronic Milk Tester (DP-EMT) (b) Raw Milk Reception Dock Automation System (RMRD) and (c) Society Accounts Managements Software (SAMS).

DP-EMT was developed for automating the activities of milk co-

operatives, to make it a viable and cost-effective option. RMRD solution enables online milk reception at dairy plants to avoid manual handling of milk, by automating the collection activities, transportation and testing of milk in a networked environment. The SAMS software was designed to computerize the activities of milk collection and other activities of dairy cooperative societies like payment, accounts maintenance inventory etc.

Goodlass Nerolac Paints Limited, Mumbai

"One Coat Acrylic Cathodic Electrodeposition (ACED) Paint" is a product, recently introduced by GNPL. This involved absorption and upgradation of laboratory know how provided by Kansai Paints Co., Japan, so as to develop polymers and paints, which impart both corrosion resistance and weather / UV resistance in a single coat.

The development included making of special polymers, optimization of pigment combination, indigenisation and tropicalisation of the product and standardization of bulk manufacturing. The one coat acrylic cathodic electro deposition paint technology has been successfully implemented at five customers' motorcycle painting plants.

Benefits to the two wheeler industry are : painting process cycle time reduced by 60% ; shop floor occupancy reduced by 60% ; energy consumption reduced by 50% ; paint sludge reduced by 98% ; solvent emission (VOC) reduced by 95%. The cost of painting the component (material and process) has reduced by 25%.

The ACED paint, launched in March 2003, has annual sales of Rs. 4 crores. in the domestic market and about Rs. One crore in the export market.

NEW IN-HOUSE R&D UNITS RECOGNISED BY DSIR

During October - December 2004, 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.	Ashok Leyland Ltd., Advanced Engineering Centre, (Chennai)	31.3.2006
2.	Ashok Leyland Ltd., Engine R&D, (Hosur)	31.3.2006
3.	Ashok Leyland Ltd., Technical Centre, (Chennai)	31.3.2006
4.	Asia Motorworks Limited, (Mumbai)	31.3.2007
5.	Bhat Bio-Tech India (P) Ltd., (Bangalore)	31.3.2007
6.	Dr. Reddy's Laboratories Ltd., (Generic Division) (Hyderabad)	31.3.2007
7.	Emami Limited, (Kolkata)	31.3.2007
8.	Greaves Cotton Limited, (Aurangabad)	31.3.2006
9.	High Technology Transmission Systems (India) Pvt. Ltd., (Aurangabad)	31.3.2006
10.	Indian Toners & Developers Limited, (New Delhi)	31.3.2007
11.	Kemlin Nutritional Technologies (I) Pvt. Ltd., (Gummidipoondi)	31.3.2007
12.	Malladi Drugs and Pharmaceuticals limited, (Chennai)	31.3.2007
13.	Medha Servo Drives Pvt. Ltd., (Hyderabad)	31.3.2007
14.	Navanidhi Electronics Pvt. Ltd., (Hyderabad)	31.3.2007
15.	Philips India Limited, (Kolkata)	31.3.2007
16.	Power One Micro Systems Pvt. Ltd., (Bangalore)	31.3.2006

17.	Seed Works India Pvt. Ltd., (Hyderabad)	31.3.2007
18.	S.M.S. Pharmaceuticals Ltd., (Hyderabad)	31.3.2007
19.	SIDD Life Sciences Pvt. Ltd., (Maraimalainagar) Tamilnadu	31.3.2007
20.	Subros Limited, (New Delhi)	31.3.2007
21.	Wipro Fluid Power Ltd., (Bangalore)	31.3.2007
22.	Workhardt Limited (Formerly Merind Unit), (Mumbai)	31.3.2005

NEW SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATIONS APPROVED BY DSIR

During October - December 2004, 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.	Christian Medical College Ludhiana Society, Ludhiana	31.3.2007
2.	Electronics and Quality Development Centre, Gandhinagar	31.3.2007
3.	Institute of Life Sciences, Hyderabad	31.3.2007
4.	Shree S.K. Patel College of Pharmaceutical Education and Research, Kherva, Mehsana	31.3.2007
5.	The Leprosy Mission Trust India, New Delhi	31.3.2007
6.	The Institute of Peace Research and Action, Delhi	31.3.2007
7.	Tiruchirappalli Regional Engineering College - Science & Technology Entrepreneurs Park (TREC-STEP), Tiruchirappalli	31.3.2007
8.	Varun Herbals, Hyderabad	31.3.2007