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IIP

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NEWSLETTER

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IIP Bags the CSIR Business Development and Technology Marketing Award, 1996



Shri Y K Alagh, Minister of State (Independent Charge) for Planning & Programme Implementation and Science & Technology, giving away the Award to Dr T S R Prasada Rao, Director, IIP.

IIP was awarded the CSIR Business Development & Technology Marketing Award 1996 which was received by the Director, Dr T S R Prasada Rao on 26th September, 1996, the CSIR Foundation Day, at the NPL, New Delhi, from Dr Y K Alagh, Hon'ble Minister of State, Science & Technology and Vice President, CSIR.

This award is the result of IIP's effort towards changing a mindset merely focusing on R&D to one of understanding the needs of the market and developing

tailor-made technologies, to combining business acumen and hard-core financial requirements with the objectives of excellence in science & technology, advocating the concept of 'Research as Business' and utilisation of R&D as avenues for wealth generation. All these efforts are especially the results of Dr Prasada Rao's dynamic leadership ever since he took charge of IIP in 1990. Most notable is that this award has gone to IIP in the very third year of its institution. □

CSIR FOUNDATION DAY 26TH SEPTEMBER, 1996

CSIR Foundation Day was celebrated in the institute on September 26th, 1996. Shri G V Ramakrishna, Chairman, Disinvestment Commission, Govt. of India and Chairman, IIP Research Council, was the Chief Guest at the main function. Shri Ramakrishna, in his inaugural address, stressed upon the need for a new and concrete policy in the field of oil exploration. He also wanted Indian products to be more reliable since stiff competition prevails in the global market. The Chief Guest pointed out that an amount of Rupees

2,000 crore was being spent yearly on oil exploration. Our oil import bill is huge and much foreign exchange is spent on this despite the fact that we have ample oil reserves in the country. A new and more effective oil exploration policy on this is sure to give better results.

Shri Ramakrishna also spoke about the need to improve the quality of Indian products to better our image in the international market and to establish ourselves there as also to bring India to the forefront of the developed countries. For this, modern techniques should be utilized. Thus, the Indian scientists have a very responsible role to play, he said. He informed that we need to refine 17 billion tonnes of hydrocarbon products in the country. Shri Ramakrishna said that science and technology have acquired even more importance as they are now linked directly to the



Shri G V Ramakrishna being welcomed on his arrival at IIP.



Shri G V Ramakrishna and Dr T S R Prasada Rao lighting the traditional lamp on CSIR Foundation Day.

industry. Shri Ramakrishna congratulated the IIP on winning the 'CSIR AWARD FOR BUSINESS DEVELOPMENT AND TECHNOLOGY MARKETING, 1996'. Shri Ramakrishna saw the need to encourage public sector undertakings and pleaded for more freedom for them in their working. He also underlined the need for an excellent management for the success of an industry.

Dr T S R Prasada Rao, Director, while welcoming Shri Ramakrishna, talked about the positive

attitude of the Government as regards encouraging S&T.

Shri Ramakrishna also gave away prizes to the winners of various competitions held on the occasion of the CSIR Foundation Day, viz. the Essay and Quiz competitions, as also to the employees of IIP who had completed almost three decades in the service of the CSIR. Dr V R Sista, Deputy Director, was also present on the occasion. The proceedings were conducted by Shri R S Gaharwar, Scientist, ILS.

MINI-REFINERY CONFERENCE AND BUSINESS MEET

A one-day conference and business meet was organised by the Indian Institute of Petroleum (IIP), Dehradun on 5th December 1996 at Hotel Hilton, New Delhi, on the mini-refinery concept, in which representatives from about twenty organisations took part.

A tie-up was finalised recently between the IIP and the USA-based Unitel Technologies Inc., (UTI) to market and set up mini-refineries in India and neighbouring countries on a turnkey basis by involving Val Verde International (VVI), USA, who are world leaders in small-scale modular processing mini-refineries.

The mini-refinery concept was presented by Shri S K Jain, Group Leader (Projects), IIP, while Shri K G Mittal, Officer on Special Duty and Incharge of the Mini-Refinery Project at IIP, showed the key characteristics of the products obtained from a few specific crude oils. Mini-refinery strategic alliance for India was projected by Shri Surjit Randhava, Chairman of the 25 million-dollar Unitel Technologies Inc., USA, who mentioned that mini-refinery modules may be engineered/fabricated



Seated from L to R: Shri S K Jain, Dr. Ravi Randhava, Dr T S R Prasada Rao, Shri Surjit Randhava and Shri K G Mittal

either in Houston or in India depending upon the economics of the particular mini-refinery. Mr Randhava further mentioned that the United States Exim (Export-Import) Bank could provide finance at reasonable interest rates. Dr Ravi Randhava, a senior partner of the Unitel Technologies Inc., USA, highlighted the capabilities of the Val Verde International, USA, which has set up mini-refineries in many countries.

Dr Prasada Rao, other scientists of the IIP and the UTI delegation briefed the press about the relevance

of the mini-refinery concept in India and their activities with UTI who have involved VVI, world leaders, in putting up mini-refineries of modular design, capacity ranging from 0.05 to 0.5 million tonnes per annum (1000 to 10,000 barrels per day).

Dr Rao further said that it has been decided that IIP will provide expertise in assaying the crude oil and cooperate with UTI in providing technology inputs. UTI will also arrange finance by involving the USA-based Zapata Energy Company, if necessary; the Val Verde Interna-

tional, USA, will fabricate and set up the mini-refinery.

In the afternoon session of the one day-meet the scientists of the IIP and the UTI team had business discussions with customers. □

**APPOINTMENT OF
DR T S R PRASADA RAO,
DIRECTOR, AS MEMBER,
OIL INDUSTRY
DEVELOPMENT BOARD**

Dr T S R Prasada Rao, Director, IIP, was appointed as a member of the Oil Industry Development Board (OIDB) by the Ministry of Petroleum and Natural Gas for two years with effect from 10th October, 1996. OIDB is India's apex body governing policy and investment decisions in the area of oil and natural gas. □

**KAMAL KUMARI NATIONAL
AWARD TO
DR T S R PRASADA RAO**

Adding another feather to his cap, Dr T S R Prasada Rao was awarded the Kamal Kumari National Award for Science and Technology, 1995, which is given every year by the Kamal Kumari Foundation to an individual or a group for outstanding research contribution in any field of science including engineering and technology, made primarily in India. It carries an amount of Rs. 1 lakh in cash, a citation and a trophy.

This award is a rightful recognition of a life given to industrial and business-oriented R&D. Dr Rao's efforts in this direction ever since he became the Director of the Institute have earned for IIP intellectual and technological authority in the Indian petroleum industry, paving the way for its rise on the international horizon. □

**VIJAY SHREE AWARD
TO IIP LICENSEE**

M/s Nova Appliances, Paonta Sahib (H.P.), which is one of the licensees of the Indian Institute of Petroleum, was awarded the Vijay Shree Award, 1996, by the India International Friendship Society, New Delhi. The award was presented to Shri S K Khanna of M/s Nova Appliances on November 14th 1996 at the Hotel Connaught, New Delhi, by Shri G V G Krishnamurthy, Election Commissioner, Govt. of India and Shri R L Bhatia, the former Minister of State for Foreign Affairs.

It may be recalled that M/s Nova Appliances was also awarded the "International Diamond Star for Quality Award, 1995" by the National Marketing Institute, Moscow.

Shri S K Khanna, a scientist from the IIP, had set up a factory at Paonta Sahib (H.P.) in 1984 under the CSIR Enterprises Scheme. □



Shri Lok Nath Mishra, Governor of Assam, presenting the Kamal Kumari National Award to Dr T S R Prasada Rao.

BOOK ON CRUDE OIL EVALUATION & CRUDE DATA HAND BOOK

In view of the importance of crude oil evaluation which is crucial in designing a grass-root refinery or creating a new infrastructure at the existing refineries, Indian Institute of Petroleum brought out an extremely comprehensive volume on the latest developments in the field. This will also serve the purposes of the industry, research institutions and engineering organisations.

The book has been titled "Challenges in Crude Oil Evaluation", edited by Dr J M Nagpal, Head, Crude Oil Evaluation and published by Tata McGraw-Hill Publishing Co. It covers the proceedings of the First National Workshop on Crude Oil Evaluation in the country held at the IIP in 1995.

Ph D DEGREE AWARDED

Shri R P Badoni, Scientist, has been awarded Ph D Degree by the Hemwati Nandan Bahuguna Garhwal University, Srinagar (Garhwal) for his thesis titled "Compositional and Structural Studies on Catalytically Cracked Petroleum Hydrocarbons". He carried out these studies under the guidance of Dr S D Bhagat, Scientist 'F' of this institute and with constant encouragement and patronage from Dr T S R Prasada Rao, Director, IIP.

Shri Badoni studied the influence of the composition and structures of various kinds of feedstocks on the yield of cracked products. In-depth studies of hydrocarbon types in relation to their reactivity, crackability and dynamics of reaction

have been conducted. Basic study on cracking of model compounds and narrow cuts derived from Indian crudes have been done to study the effects of structural changes during catalytic cracking. The influence of reaction variables on the product distribution and catalyst decay during cracking reaction also forms the core part of the study. Variations of the number of catalyst active sites available as function of time-on-stream have been calculated using pure hydrocarbons as feedstocks. Kinetic constants in catalytic cracking of hydrocarbon mixture on the de-aluminated zeolite-Y have also been reported. The studies have great relevance in understanding the chemistry of cracking reactions, catalyst performance and optimization of process parameters for product selectivity, yield and quality. This is a necessary basic scientific input for the development of cracking catalyst and process for the maximization of middle distillates from feedstocks, including waxy feed.

It has been concluded that the relative reactivity of the straight-chain alkane components of a vacuum gas oil significantly decreased in the presence of condensed aromatics as revealed by the cracking of the predominantly paraffinic Bombay High Vacuum Gas Oil as a whole and that of the three compositionally different concentrates isolated from it.

VISIT OF THE HOUSE PANEL ON 'HERBAL PETROL'

History of sorts was created on November 15th, 1996 at IIP, Dehradun, when Shri Ramar Pillai, the 'Herbal Petrol' man from Tamil Nadu, gave a demonstration here before the Standing Committee of the Parliament on Science and Technology in a last bid to prove his claim of having found a mysterious herb which could produce 'petrol'.

The demonstration had been organised with the co-ordination of the Department of Science and Technology, Govt. of India, and the Indian Institute of Petroleum, Dehradun, on the directive of the Parliamentary Committee which included the Hon'ble M/s V. Narayanaswamy, Chairman, Pranab Mukherjee, Former Minister of Commerce & Vice-Chairman, Planning Commission, Dr Mahesh Chandra Sharma, Prashant Barisa (all Members of the Rajya Sabha), Mahavir Lal Vishwakarma, Shivaji Mane, A Raja, N K Prem Chandran and K B Raut (all Members of the Lok Sabha).

The conclusions of the report were tabled before the Parliament on December 19th, 1996.



Members of the Standing Committee of Parliament with the Director, IIP.

LECTURES DELIVERED

Mr V S Saini, Scientist, Biotechnology and Mr J M Nagpal, Scientist, Crude Evaluation, delivered lectures as faculty members of the course on "Underground Storage of Oil, LPG, and other Petroleum Products", which was organised by the Central Mining Research Institute's Regional Centre, Roorkee, at Mussoorie during October 27-30, 1996.



GASOHOL : 'GREENEST' SUBSTITUTE TO PETROL?

Voicing the findings of the IIP, Shri K K Gandhi, a senior scientist of the Institute, has said that alcohol produced from sugarcane may prove an efficient substitute to petrol in terms of (i) large savings in the oil import bills and (ii) environment friendly product. It blends with ordinary petrol which is then known as 'gasohol' and, most significantly, *can be used without any modification in the existing engines of cars, scooters, motorcycles and mopeds in India.*

These are the conclusions of the field trials conducted by the IIP and the Indian Oil Corporation (IOC). It has been found that the use of gasohol is not only soot-free but also has high-octane characteristics. It produces less or no knocking in the engine and the emissions of hydrocarbons and carbon-monoxide is drastically reduced. These emissions from the conventional fuels have created environmental hazards in metropolitan cities like Delhi.

Gasohol is already being used

as a commercial fuel in over 35 countries including the USA, Canada and France while in Brazil, cars having modified engines have been running for years on neat alcohol. According to Shri Gandhi, this may be another option for India.

Shri Devin Narang, Vice-President, All India Distillers Association, sees much scope for gasohol as fuel and his group has tied up with the Finnish Jaako Pyry Group to set up a modern fuel-alcohol plant. Shri Kari H Sarkkinen, Vice-President of Jaako Pyry, who was accompanying the visiting Finnish Prime Minister, opines that Indian policy makers should realize that gasohol offered a ready-made solution to the country's economic and environmental problems. Jaako Pyry specialises in setting up plants for alcohol-based oxygenators which go into the making of lead-free petrol.

India could save billions of dollars in foreign exchange by making her own ethano-based oxygenator (ETBE) instead of importing less efficient and toxic oxygenators.

Shri Jai Uppal, Chemical Engineer and President, Narang Industries, says that since in India the sugarcane production is growing every year, and since molasses, produced in the sugar mills (which is a by-product from which alcohol is made), actually causes pollution problems from under-utilization, the country has a vast scope of making gasohol.



IIP EMBARKS UPON THE DEVELOPMENT OF MULTI-FUEL BURNERS

The IIP has been successful previously in developing Low Air Pressure (LAP) burners based on fuel-grade oils. Now, in view of steep

hike in the prices of petroleum products and change in quality and specifications of fuel oil to heavier and high-sulphur fuels and the need of the industries for higher-efficiency burners which could use different fuels and natural gas separately and simultaneously, the Petroleum Conservation Research Association (PCRA) and the NPC (National Productivity Council) asked the IIP to develop an improved version of the LAP burner.

Now, a team of the IIP scientists including Shri H K Madan, Shri P N Bhambi and other researchers has developed multi-fuel burners that use both natural gas and heavy-grade fuel oil. These multi-fuel LAP burners are of 200 kg/hr fuel oil capacity and with minimum need for cleaning the nozzle, a significant improvement over the conventional single-fuel ones.

The IIP has been supported by the Gas Authority of India Limited (GAIL), the Department of Scientific and Industrial Research (DSIR) and Encon Engineers. According to Shri H K Madan, this development could save 10-20% on foreign exchange as at present natural gas burners are being totally imported. He added that presently 6000 burners of both types are operating in the industry in India. On the other hand, natural gas is found in plenty in the north-eastern region in the exploration fields of the Oil & Natural Gas Corporation and is environmentally friendly.

The IIP is setting up testing and evaluation facilities at Faridabad in collaboration with M/s Encon Engineers with the Rs 30 lakh assistance being provided by the GAIL and the DSIR.

This technology has been transferred to five industries, viz M/s Encon Thermal Engineers, New Delhi, Petcon Thermal Engineers, Faridabad, Kessels Engineering Works, Bombay, ISA Engineers, Coimbatore and Aadi Energy

System, Calcutta and they have also started commercial manufacture.

The IIP burners have also found an export market in Kenya, Uganda and Dubai.

The Council of Scientific and Industrial Research (CSIR) too, has identified the multi-fuel burners as one of its leading technologies to be marketed world-wide in its quest to emerge as a global Research and Development player. □

DEPUTATIONS ABROAD

1. Dr T S R Prasada Rao visited USA during June 28th, 1996 to July 18th, 1996 to attend the XI International Congress on Catalysis and V World Congress of Chemical Engineers.

2. Mr I P Singh visited Austria during July 15th-22nd 1996, for Equipment Training.

3. Mr N Ray visited South Korea during August 12th-17th 1996 to attend the International Zeolite Conference.

4. Dr M R Tyagi visited Japan w.e.f. September 7th, for 60 days to attend a short-term research programme in the area of MICRO TRI-BIOLOGY at the University of Tokyo.

5. Mr S K Chhibber visited the Czech Republic & France w.e.f. November 7th, 1996 for a period of 2 months for studies under the CSIR-Czech Bilateral Exchange Programme.

6. Mr H K Madan visited Switzerland w.e.f. September 24th, 1996 to September 26th, 1996 in order to attend a conference on

Small Burner Technology & Heating Equipment.

7. Mr Sudhir Singhal visited Sweden w.e.f. September 25th, 1996 to October 2nd, 1996 for (i) attending the meeting of EC experts to decide financial matters of REAL projects at Lulea, Sweden, (ii) holding a meeting with Prof Erik Hoglund at Lulea, Sweden, and (iii) holding a meeting with Prof H Chandra Sekharan at the Swedish Instt. for Metals Research, Stockholm, Sweden.

8. Mr K K Gandhi visited Malaysia w.e.f. September 30th to October 4th, 1996 to attend the 5th Biennial IANGU International Conference & Exhibition on Natural Gas Vehicles. □

9. Dr T S R Prasada Rao lead a CSIR delegation to Kuwait during October 6th-11th, 1996 to finalise a working programme of co-operation between CSIR and KISR, and to explore possibilities for, and finalise the requirements of, the visit of experts from India to Kuwait and vice-versa for training their personnel. Mr V K Kapoor, Deputy Director, IIP was also a member of this delegation.

10. Dr B S Rawat visited USA during October 14th-24th, 1996 to attend a Question & Answer Session organised by the National Petroleum Refiners' Association, USA.

11. Mr G S Dang visited China during October 28th to November 12th 1996 under the Bilateral Exchange Programme between the INSA & the Chinese Academy of Sciences.

12. Mr N N Kulsrestha visited the Slovak Republic, Austria and the Czech Republic for 6 weeks during November 11th-December 13th, 1996 under the CSIR Bilateral Exchange Programme.

13. Mr P C Gupta visited Belgrade, Yugoslavia, during December 8th-13th, 1996 for attending the International Seminar on "New Challenges in Catalysis". He also visited the University of NOVI SAD, Faculty of Technology.

14. Ms K V Padmaja visited Thailand during December 8th-21st, 1996 for the poster session of the International Symposium on Forest Products in the Tropics at Bangkok, Thailand during December 20th-25th, 1996. □

DISTINGUISHED FOREIGN VISITORS

1. Dr Fu Ming Lee, Glitsch Technology Corporation, Delaware, USA., September 1st-3rd, 1996.

2. Dr Farouk Ezzat, Managing Director, EPRI, Egypt and Dr H Gharieb, EPRI, Egypt, September 10th-13th, 1996.

3. UOP delegation consisting of Dr R A Lengemann, Senior Vice-President, Dr Stanley Gembicki, Chief Technology Officer, R&D and Mr K P McCormick, October 18th, 1996.

4. Japanese delegation from Idimetsu Kosan Co. Ltd., Japan, comprising of Mr S Tokuda, Mr S Oda, Mr H Tanda and Mr M Takabatake, November 3rd-5th, 1996.

5. Mr U U Win Pe Hal, Dy. General Manager (Research), Ministry of Energy, Union of Myanmar and Mr Ne Winn, Head of Branch, National commission for Environmental Affairs, Myanmar, November 20th-22nd, 1996.

6. Mr Shyamal Kumar Saha of Bangladesh, a Ph D Scholar in Chemical Engineering worked here for two months as a trainee, November 28th, 1996 onwards.

7. Prof Jiri Nedoma of the Czech Republic visited the IIP and also the Wadia Institute of Himalayan Geology, Dehradun, December 1st-12th, 1996.

8. Dr Alan L Rockwood, Director R&D, SENSAR, Larson-Davis, Utah, USA, December 3rd, 1996.

9. Dr Joseph Fernandes of AMTECH Inc, USA, December 14th-15th, 1996.

□

SIGNIFICANT MoUs/ AGREEMENTS SIGNED

(Rs in lakhs)

1.	2-Stroke Vehicle Field Studies - IOC (R&D) (September, 1996)	10.00
2.	Development of Running-in Oil Programme - IOC(R&D) (September, 1996)	10.00
3.	Re-refining of Waste Lubricating Oils - Gujarat Oiland (September, 1996)	-
4.	Sulphonated Heavy Alkylate Bottoms - Naveen Metal (December, 1996)	6.50

□

TRAINING PROGRAMMES

Training programmes are an important activity of IIP which not only aim at the updation of knowledge but also serve as an important forum for the researchers and professionals of the petroleum and petroleum-related fields to come together and interact with one another. The following training programmes were organised by the Training Division of IIP during the period July to December, 1996.

- A two-week training programme on "Petroleum Refining Technology" was organised for various refineries, other than IOC Ltd., between 9th-20th September, 1996. A total of 19 engineers participated including one from IIP in this programme.

The presentations were in the form of 33 lectures besides laboratory and pilot-plant visits. The lectures covered the following topics besides one lecture on 'Introducing IIP'.

- * General Refinery Configuration (Fuel & Lube Refineries)
- * Basics of Crude Oils, Products and Refining
- * Refining Process Technology
 - Physical Separation Processes
 - Conversion and Treating Processes
- * Others
 - Pollution Control practices in Petroleum Refineries
 - Fire and Safety in Refineries

- A two-week training programme on "Petroleum Refining and Petrochemicals Technology" was organised for the Reliance Industries

Ltd., Patalganga from 22nd October, 1996 to 1st November, 1996. A total of 26 chemical engineers including one Senior Manager (Training) participated in this programme.

This training programme consisted of 34 class-room presentations in the following areas :

- * Crude Oils & Petroleum Products
- * Refining Process Technology and Physical Separation
- * Conversion and Treating Processes
- * Petrochemicals
- * General lecture on
 - Production Planning in Refineries
 - Environment Control
 - Petroleum Refining & Petrochemical Industries in India
- * Pilot Plant-Visits

- A four-day training programme on "Petroleum Refining Technology" was organised for the Senior Executives of different refineries between November 5th-9th, 1996. A total of 7 Senior Executives from different refineries and 4 from IIP participated in this programme.

- A two-week training programme on "Petroleum Refining Technology" was organised for IOC Ltd. (R&P Division, New Delhi) between November 18th-29th, 1996. A total of 21 senior officers participated in this programme.

There were a total of 34 class-room presentations besides visits to different laboratories/pilot plants in the following areas:

- * Basics of Crude Oil : Products and Refining
- * Refining Process in Refining (Physical Separation)

- * Process Technology
- * Refinery Process Technology (Conversion)
- * Lab Visits

A one-week training programme on "Application of Fuels and Lubricants in Industrial and Automotive Machines, HPCL, Bombay" was organised between December 16th-21st, 1996. A total of 16 sales engineers participated in this programme.

There were a total of 23 classroom presentations besides visits to different laboratories/pilot plants in the following areas:

- * Basics of Crude Oils, Physico-Chemical Testing and Characterisation
- * Automotive Fuels and Lubricants
- * Industrial Lubrication

COLLOQUIA

- Dr Siddharth S Ray, Scientist, NCL, Pune
High-Resolution NMR of solids - methodologies and applications
16.7.1996
- Mr R K Agarwal, Scientist, IIP, Dehradun
Recent developments in catalytic reforming
7.8.1996
- Dr A Krishnaiah, Reader, S V University, Tirupati
An overview of measurement of thermodynamic and transport properties of organic mixtures
17.9.96
- Dr A K Rakshit, Professor, M S University of Baroda
Properties and uses of micro emulsions
30.9.1996

- Dr I M Misra, Professor, University of Roorkee
Prevention of Chemical Hazards
10.10.1996

- Professor A P Kudchadker, Technology Information Centre, Larson and Toubro, Baroda
Technology Innovation: I & II
5.11.96

- Professor A P Kudchadkar, Technology Information Centre, Larson and Toubro, Baroda
Separation and molecular thermodynamics: I & II
7.11.96

- Dr H S Ray, Director, RRL, Bhubneshwar
Creativity and Perception
20.11.96

- Dr Alan K Rockwood, Director, R&D, Sensar, Larson-Davis, USA
Recent advances in LC-MS/CE-MS: techniques and computation of isotopic contributions
3.12.96

TECHNOLOGY TRANSFERS

- 1 IIP-IFP Process on Diesel Hydro-desulphurization HPCL, Mumbai
September, 1996
- 2 IIP-IFP Process on Diesel Hydro-desulphurization CRL, Ambalamugal
September, 1996
- 3 IIP-IFP Process on Diesel Hydro-desulphurization MRL, Madras
September, 1996
- 4 IIP-Nutan Wick Stove (Large) Shri Laxmi Agencies, Raipur, M.P.
October, 1996

ROLE OF 'QUALITY MANAGEMENT SERVICE' IN I.I.P.

By Dr D C Madhwal, Scientist, IIP

Our Institute has made impressive achievements in the past six years. This is reflected in the earnings of CSIR which increased manifold in 1996 in comparison to what they were in 1990. It is a remarkable achievement. We, however, should not be satisfied with this achievement.

There is no doubt that what we have achieved was the result of our technological generation ability and I have no doubt that if we join hands together, and work as a team to best of our capabilities, we can fulfil our vision of becoming industry-oriented and an internationally recognised R&D organisation which will play a pivotal role in the growth of hydrocarbon and related industries in India.

In order to achieve this objective, our technology generation ability will have to be more effective by adopting a customer satisfaction approach, which means that we shall have to generate high-quality technology or service at competitive prices. This, in turn, requires a Quality Management System (QMS). Whether we already have such a system, can be decided by a third party. The International Organisation for Standards (ISO) is accepted the world over as a third party for this purpose and it certifies whether a particular organisation should be granted ISO-9000 Certificate for QMS. The target date for achieving this certificate for IIP is December, 1997 and I have no doubt that we shall all work together to achieve this objective.

Mini Refinery in Indian Context

K G Mittal

ABOUT THE AUTHOR



K G Mittal

Joined IIP in early 1965 after doing graduation in Science and Chemical Engineering. After initially working for about six years on process development for steam reforming of hydrocarbons and thermal cracking of waxes, he moved to the hydroprocessing group and headed it till recently. For quite some time now, he is working as an Officer on Special Duty and holding the independent charge of Mini-Refinery presently.

Mr Mittal visited West Germany (under DAAD exchange programme), France and USA (under equipment selection-training programme). He has authored about 25 research papers in international and national journals and over 100 technical reports.

1.0 INTRODUCTION

The concept of a mini-refinery is to convert small quantities of the crude oil, available mainly from small oil fields located in remote areas, to cater to the local demands for petroleum products like kerosene, diesel and fuel oil in areas (nearby towns) having insufficient road or rail transportation facilities. The mini-refinery which is usually designed to process 1000 to 10,000 barrels per day (0.05 to 0.5 MMTPA) of crude oil is self-contained, skid-mounted, low-cost, low-maintenance unit requiring no utilities like process or cooling water, electric power etc.

2.0 APPLICATIONS

There are two major applications of the mini-refinery which are listed below.

2.1 Remote Oil Fields

In Indian context, there are many remote areas in the regions of Assam, Gujarat, Andhra Pradesh etc. where many small oil fields are available without adequate port or pipeline facilities to carry the crude to the oil

processing centres due to economic reasons. In such cases, the crude oil has to be transported to the nearby refinery by road and in turn, the petroleum products are brought back (from the refinery) for the use of local residents. To substantiate this with an example, the crude produced at RAVVA oil field located along the long coast line of Andhra Pradesh state is brought to Vishakhapatnam at Hindustan Petroleum Corporation's refinery by road in the tankers. The transportation cost is estimated to be about Rs. 500/- per tonne. The petroleum products are also brought back to the region by road and thus, by spending an equivalent amount of money. It would be economical if the mini-refinery is installed in the vicinity of the oil field for delivering the refined products to the end customers in the market immediately surrounding the oil-field and thus eliminating the crude/product transportation, transit losses and environmental problems.

2.2 Energy Requirements

There is always a need for

electric power in small towns located near the oil fields where trucks have to be put in use to bring the fuel over long distances for running the power turbines. The fuel oil, being low in sulfur, produced from mini-refineries of simple configuration (having a distillation column without any blending or secondary processing units) using the specific crude is ideal in setting up the small power plants to cater to the local needs. It has become more logical in the present context where the government has given its consent to use such liquid fuels by states for setting up small power plants, on priority at par with co-generation plants, with an envisaged capacity upto 12,000 MW under one-time measure scheme of the power industry.

3.0 ADVANTAGES

There are several advantages in opting for a mini-refinery. Some of these advantages are listed below:

- 1 The remote/inaccessible site can be used for installation of a refinery with a flexibility for accommodating broad range of feed stocks avail-

able in the region.

2 Since the mini-refineries, consisting of different modules, are joined at site, these can be easily dismantled for transportation to other areas in case the oil field, where it was installed initially, gets exhausted.

3 Due to heavy reduction in the production schedule and man-power density by performing sequential activities in parallel and indoor environment, use of remote site etc. the overall project cost is substantially reduced.

4 Since the modules are not very high, there is an increase in productivity and safety because of working on the ground.

5 The basic design is so unique that there is no need for process or cooling water, electric power and any other support utilities.

6 It has the special features that enable efficient start-up and shut-down.

7 All the required power is generated internally by a generator designed for continuous and reliable service.

8 By selecting an appropriate crude, all the products can straightaway be used without blending or further processing.

9 The mini-refinery may be designed and operated to cause the minimum environmental impact by impounding the waste water from the accumulator in a slope tank, combusting all stripped gases as fuel in the column feed heater or in the drive engine for electric power generator etc.

4.0 PLANT DESCRIPTION

It consists of the most up-to-date and modern mini-plant technology to function with a high degree of automation and computer control for all process functions including shut-

down upon detection of a hazardous condition and restart of the plant after correcting the abnormal situation using a broad range of feedstocks to handle either stabilized or unstabilized crudes of low/high API gravity.

The crude oil from the well-head is flashed (after pumping through filters, heat exchangers and feed heaters for removal of particulate matters, preheating etc.) into the column-still where it is fractionated into light ends (vapours), naphtha, kerosene, diesel and fuel oil. Light ends are collected and used as fuel gas in the fired heaters for internal use. Naphtha, low in octane, may be used internally (partly) or in fertilizer industry since it has normally low sulfur and aromatics. Kerosene (having low sulfur and high smoke point) and diesel (having low sulfur and high cetane number) are straightaway used or can even be blended with inferior products before use. Fuel oil (low in sulfur) can be used for generation of power.

Such a plant can be mounted on a number of skids of approximately 10ft x 10ft x 40ft size. The total area required for the plant having a capacity ranging from 1,000 to 10,000 BPD, varies from about 2 to 6 hectares.

5.0 PRODUCTION SCHEDULE AND INVESTMENT

Units of capacities ranging from 1000 to 10,000 BPD (0.05 to 0.5 MMTPA) can be commissioned in 12-18 months. The upfront initial investment for equipment and off-sites for a 1000 BPD (0.05 MMTPA) capacity mini-refinery of simplest configuration (having a distillation column without any blending or secondary processing units) is about 6 million dollars including the working capital which is normally for 5 days in such small capacity modules. The

refinery of same configuration having 10,000 BPD (0.5 MMTPA) capacity would require about 26 million dollars as upfront initial investment excluding the working capital and interest charges.

6.0 MINI-REFINERY ECONOMICS

The economics has been calculated for processing 10,000 BPD (0.5 MMTPA) RAVVA crude using the administrative pricing policy mechanism (APM) of products (revised basic ceiling selling price ex-storage point exclusive of excise duty etc. as on June 1996) and crude oil costing 22 dollars per barrel.

Assuming the disposal of naphtha, kerosene and fuel oil in industrial market /non-fertilizer industry (i.e. without Government subsidy), the initial projected cash flow is about US\$ 18.5 million per year (US\$ 9.5 million after taxes) for a project with an investment of about US\$ 26 million plus working capital and interest. Thus the payout period is reasonably fast and the return is considered to be very good. In case the products are used by the vulnerable sections of the society in that region, i.e., sold to the customers at subsidised rates (even below the cost of production), the return is allowed at 12% post tax on the average net worth and interest on adjusted borrowings (net fixed assets plus 35/45 days value of crude throughput).

7.0 CRUDE OIL POTENTIAL

The crude oil potential, based on the crude assay available at IIP, shows that crudes which are being explored from small oil fields like the Kharsang Mix (Arunachal Pradesh in North-East Sector), RAVVA (Godavari basin, Andhra Pradesh), Ankleshwar - Gandhar Mix, Indora & Bakrol (Gujarat) etc. have a large potential for such mini-refineries. Kerosene and diesel produced from these specific

crudes can be utilised straightaway (without blending or further processing) or can even be blended with inferior products before use.

8.0 COLLABORATION WITH A US-BASED COMPANY AND RESPONSIBILITIES OF THE INDIAN INSTITUTE OF PETROLEUM (IIP)

IIP has tied-up recently (June '96) with the US-based NRI company, the Unitel Technologies Inc. (UTI) to design and erect mini-refineries in

India by involving the Val Verde International, USA who are world technological leaders in small-scale modern modular processing mini-refineries on TURN-KEY BASIS. IIP having a data base of various crudes will extend its services to assay the crude (if necessary) and carry out the feasibility studies with participation in process and detailed engineering design of the plant followed by its installation, commissioning and trouble-shooting. The mini-refinery modules may be engineered/fabricated either in India or

at a facility in Houston depending upon the economics of a particular application in India. However, the infrastructure and Off-Site Battery Limit (OSBL) will be done by the Indian parties. UTI has also engaged the Zapata Energy for arranging the financial assistance, if required by the client, from US-EXIM Bank and other sources on low interest rates.

(Report on the 'Mini-Refinery Conference and Business Meet' on p 3 - Editor)

BUDDING GEMS

This feature has been introduced to highlight the honours achieved in the curricular and extra-curricular fields by the children of the staff of the I.I.P. by which, it is hoped, an ambitious attitude and a will to develop their hidden talents shall take root in their hearts.

- Editor

Academic Excellence

Ms Madhur Meet Kaur, daughter of Shri Inder Pal Singh, Technical Officer 'A' of the Engines Lab (PPAD), secured 72% marks in her High School Examination 1996, held by the Board of High School & Intermediate Education, U.P., Allahabad. She thus ranked second in her College, the M.K.P. Intermediate College, Dehradun, in that year. In recognition of her achievement, Ms Madhur Meet was honoured by the Management Committee of her college with a memento on the Independence Day, 1996.

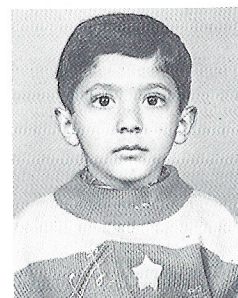
Congratulations!

Numerical Ability Honoured

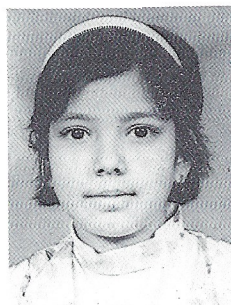
In the XVIII Numerical Ability Merit Scholarship Test 1996 conducted by the Tarun Sangeet Evam Vichar Manch (Regd), Dehradun, which was held on 13th October, 1996, the following children of the IIP Staff came out with flying colour (no less than *four* first positions!) - bringing pride and honour not only to themselves and their parents, but to the IIP community as a whole :



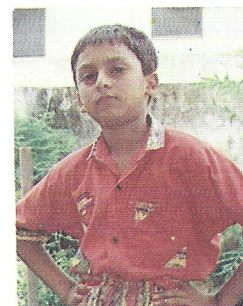
Ms Ankita Gupta (Class III) *First*
D/o Dr J K Gupta, Scientist,
Catalysis Division



Master Rahul Jain (Class IV) *First*
S/o Shri A K Jain, Engineer,
Engines Lab (PPAD)



Ms Deepika Chandra (Class VIII)
First
D/o Shri U C Agarwal, Scientist



Master Nikunj Gupta (Class VIII)
Second
S/o Dr A K Gupta, Scientist

It may be noted that more than 5,500 students from various educational institutions participated in this test, thus posing a formidable competition to all.

Bravo, dear children! And, may you all keep shining!



PATENTS AND RESEARCH PAPERS/PUBLICATIONS

A total of 42 papers/abstracts were approved for presentation in various symposia/seminars/conferences during July-December 1996, while 3 research/scientific papers were approved for publication in various journals. During this period, 6 applications were filed for the grant of patent-rights.



WEDDING BELLS

Shri Manoj Kumar Rohilla, the eldest son of Shri Dilbagh Singh, Senior Mechanical Assistant, entered into wedlock with Ms Anju Rani, daughter of Shri Bhagat Ram Rohilla, resident of Ambetta (Pir), Dist. Saharanpur, on Dec 4th, 1996.

Our congratulations to the young couple! May Heaven's choicest blessings be showered on them.



PERSONNEL NEWS

NEW FACES

1. Major Sohan Singh, Security Officer, July 9, 1996
2. Shri Govind Singh Mehta, Driver, August 2, 1996
3. Shri Rajendra Prasad, Driver, August 5, 1996
4. Shri Mukesh Kumar, Driver, August 9, 1996
5. Shri Govind Singh Rawat, Driver, September 23, 1996
6. Dr K Narasimha, Scientist 'C', September 27, 1996
7. Dr Sudip Kumar Ganguly, Scientist 'C', September 27, 1996
8. Shri N Vishwanadham, Scientist 'B', September 27, 1996
9. Shri T Venkateshwara Rao, Scientist 'B', September 27, 1996
10. Shri Ghanshyam, Peon, October 28, 1996
11. Shri Mukesh Kumar, Peon, October 29th, 1996
12. Shri Ram Pal, Peon, October 30, 1996

Welcome to our world!

TRANSFERS TO IIP

1. Shri Neeraj Semwal, Assistant, 26.11.1996, from NBRI, Lucknow
2. Shri S P Gera, Controller of Administration, 19.12.1996, from NISCOM, Delhi
3. Shri B Jagannatha Acharyulu, Finance & Accounts Officer, 20.12.1996, from CCMB, Hyderabad

Welcome!

TRANSFERS FROM IIP

1. Shri S B Yadav, Assistant, 26.11.1996 to NBRI, Lucknow
2. Shri K A Qurieshi, COA, 27.12.1996 to RRL, Jammu

We miss you, brethren!

TRANSFERS FROM IIP ON PROMOTION

1. Shri G N Sundariyal, from UDC to Asstt, to CIMAP, Lucknow
2. Shri C S Bisht, from UDC to Asstt, to CDRI, Lucknow
3. Shri K C Paliwal, from UDC to Asstt, to CRRI, New Delhi

We lose you, but celebrate your progress!

CONGRATULATIONS !

ASSESSMENT PROMOTIONS UNDER THE 'MANAS' (With retrospective effect)

Group-III(2) to Group-III(3) (Technical Officer 'A')

(Effective dates of assessment given in brackets)

- S/Shri (1) A P Juyal, (2) M L Sharma (I), (3) S C Johri (all from 1.2.93), (4) J K Dimri (19.3.93), (5) D C Pandey, (6) R K Chauhan (both from 2.6.93), (7) K S Rawat (8.6.93), (8) Siya Ram (22.6.93), (9) Anand Singh, (10) D P Bangwal (both from 18.7.93), (11) Yog Raj (19.7.93), (12) Jasvinder

Singh (8.8.93), (13) Mrs Pushpa Gupta (22.8.93), (14) Girender Singh (19.9.93), (15) S Suresh (24.10.93), (16) M L Sharma (II) (1.11.93), (17) Rajesh Kumar (11.11.93), (18) Hakim Singh (20.1.94)

Group-III (1) to Group-III (2) (Senior Technical Assistant)
(Effective date of assessment given in brackets)
(1) Shri Yograj Singh (26.9.93)

Group-II (4) to Group-II (5) (Technical Officer 'A')
(Effective date of assessment given in brackets)
(1) Shri L D Ahuja (1.2.95)

Group-II (3) to Group-II (4) (Senior Mechanical/Electrical Assistant)
(Effective dates of assessment given in brackets)
S/Shri (1) P S Lall (23.6.94), (2) K D Sharma (14.7.94), (3) P J Shukla (28.8.94)
(4) B.P. Bahuguna, (5) Niranjana Singh (Late), (6) K K Sharma (7) M N Sharma,
(8) Prem Chand, (9) Sunder Lal, (10) Vinod Kumar, (11) Bannet Issacher,
(12) Dilber Singh, (13) Gyan Chand, (14) Harbhajan Singh, (15) Hari Prakash,
(16) Jaswant Singh, (17) Keradin Singh, (18) M S Belwal, (19) Chhedi Ram,
(20) Guru Prasad (Senior Assistant, Mason), (21) Morris Issacher, (22) Hira Lal,
(23) P S Bhatnagar, (24) Thakur Singh, (25) Balram Singh, (26) Hari Om Gupta,
(27) M V M Chhibber, (28) A P Thapliyal, (29) Ram Sewak, (30) Prem Singh,
(31) Mohd. Usman (Sr. Assistant, Carpenter), (32) Rafique Ahmed (Late),
(33) Tara Chand (all from 1.2.95), (34) Chatter Singh (11.3.95)

Group-II (2) to Group-II (3) (Technician Grade VIII)
(Effective dates of assessment given in brackets)
S/Shri (1) C M Bhatia (22.5.94), (2) Anand Singh (7.6.94), (3) Triloki Prasad (3.7.94),
(4) Sudama Singh, (5) Surender Kumar, (6) Ramesh Chander, (7) Ram Daras Singh,
(8) Jai Singh (Late), (9) Govind Singh, (10) Shiv Kumar Sharma, (11) Babu Ram
(all from 1.2.95), (12) G.C Kothari (26.2.95).

Group-I (3) to Group-I (4) (Technician Grade VII)
(Effective dates of Assessment given in brackets)
S/Shri (1) Bachan Singh (1.4.94), (2) Ramesh Chand (26.11.94)

Our congratulations to-all !

Retirements (Superannuation)

- (1) Shri S C Gupta, Technical Officer 'B' (31.7.96)
- (2) Shri J S Bawa, Scientist E-II (31.7.96)
- (3) Shri D L Kapoor, Scientist E-II (31.7.96)
- (4) Shri T D Tiwari, Daftary (31.7.96)
- (5) Shri R L Ghai, Civil Engineer (31.8.96)
- (6) Shri P S Bhatnagar, Technician (31.10.96)
- (7) Shri M M Chakraborty, Senior Stenographer (31.10.96)
- (8) Shri Rajender Singh II, Helper Grade I (30.11.96)
- (9) Shri S P Dobhal, Technical Officer 'B' (30.11.96)
- (10) Shri B S Rawat, Assistant (G) (31.12.96)
- (11) Shri H S Mathur, Scientist 'C' (31.12.96)

May you all fare well in your post service years and enjoy a healthy, prosperous and meaningful time !

OBITUARY

■ Shri Khilari, Technician Grade-II, died on 27.8.1996 while in service. Born in November 1943. He had joined the IIP on 16.12.1972 as Khalasi, putting about 24 years of service in the Institute.

■ Shri Mahadev Krishnaji Khade, Upper Divisional Clerk, became the victim of an unfortunate accident on 16th November 1996. He was taken to the Post Graduate Institute of Medical Sciences at Chandigarh, where he succumbed to his injuries.

We pray to the Lord Almighty to rest these departed souls in peace

- Editor



*Clean
Environment
for
Better
Living*

हिन्दी दिवस समारोह

भारतीय पेट्रोलियम संस्थान, देहरादून के प्रेक्षागृह में दिनांक 16 सितम्बर, 1996 को हिन्दी दिवस समारोह का आयोजन किया गया। इस समारोह में मुख्य अतिथियों के रूप में प्रसिद्ध साहित्यकार, सूचना एवं प्रसारण मंत्रालय, भारत सरकार के पूर्व महानिदेशक एवं रिसर्च फाउण्डेशन, दिल्ली के अध्यक्ष पद्मश्री डॉ श्याम सिंह शशि एवं "दैनिक ट्रिब्यून" के सम्पादक श्री विजय सहगल उपस्थित थे। इस अवसर पर संस्थान के निदेशक डॉ टी एस आर प्रसाद राव ने मुख्य अतिथियों को स्मृति-चिन्ह भेंट किए तथा पुष्प-गुच्छों से उनका स्वागत किया।

समारोह का संचालन करते हुए संस्थान के हिन्दी अधिकारी डॉ. दिनेश चमोला का कहना था कि हिन्दी नहीं, बल्कि हम अशक्त हैं क्योंकि हम हिन्दी का समुचित आदर नहीं करते। आज ज्ञान-विज्ञान अथवा मानविकी के क्षेत्र में खुलकर हिन्दी का प्रयोग होना चाहिए। यह हिन्दी दिवस न होकर एक संकल्प दिवस के रूप में मनाया जाना चाहिए। आखिर इस सबके क्रियान्वयन न होने के जिम्मेवार मूलतः हम ही हैं। हमें अपनी मानसिकता में बदलाव लाकर प्रयोग व व्यवहार को यथार्थपरक रूप देना है तभी हम इसके सुखद भविष्य की कल्पना कर सकते हैं। राजभाषा के बिना हमारी अपनी कोई पहचान नहीं है।

संस्थान के निदेशक डॉ टी एस आर प्रसाद राव ने अतिथियों का स्वागत करते हुए कहा कि बिना हिन्दी के देश का शासन संभव नहीं क्योंकि हिन्दी देश की जनता का हिस्सा है। विभिन्न भारतीय प्रांतों में भी सभी जगह हिन्दी से संवाद संभव है। इसके अतिरिक्त हिन्दी के बिना भारतीय के रूप में हमारी पहचान असंभव है। उन्होंने हिन्दी की स्थिति पर टिप्पणी करते हुए आशावादिता जाहिर की कि धीरे-धीरे हिन्दी हमारे व्यापक राष्ट्रीय जीवन में अपना गौरव प्राप्त कर लेगी।

अपने प्रमुख व्याख्यान में पद्मश्री डॉ श्याम सिंह शशि ने जहाँ यह कहा कि 50 वर्षों का समय किसी भी गणतंत्र के लिए बहुत अधिक नहीं होता, वहीं उन्होंने हिन्दी की प्रगति की धीमी चाल पर टिप्पणी करते हुए कहा कि हिन्दी वाले ही हिन्दी के शत्रु हैं और यह एक यक्ष प्रश्न है कि एक हिन्दी भाषी क्षेत्र में हिन्दी दिवस मनाने की आवश्यकता क्यों अनुभव की जा रही है? उन्होंने नॉर्वे, जापान और स्वीडन तथा विश्व के अन्य देशों में हुए अपने अनुभवों का जिक्र करते हुए कहा कि वे सभी देश अपनी भाषा में काम करते हैं। उन्होंने हिन्दी के प्रचार में 'चन्द्रकांता संतति' और 'सत्यनारायण पूजा' व महिलाओं की भूमिका को रेखांकित किया। उन्होंने इस बात पर दुःख व्यक्त किया कि हिन्दी प्रदेश में हिन्दी मिशनरी भाव से



डॉ श्याम सिंह शशि दीपक प्रज्वलित करते हुए।

नहीं पढ़ाई जाती और न ही हिन्दी से जुड़े लोग व साहित्यकार हृदय से इसके उन्नयन में योगदान करते हैं। किन्तु यह भी सच है कि प्रशासन, विज्ञान और विषयों में हिन्दी हमारी रग-रग में बसी वह भाषा है जिसके बगैर हम चल नहीं सकते। उन्होंने इस बात पर भी कटाक्ष किया कि क्या पुरस्कारों के बगैर हिन्दी आगे नहीं बढ़ेगी? अंत में उन्होंने सबसे आह्वान किया कि हम सभी भाषाएँ सीखें, हिन्दी स्वतः ही आएगी। इस अवसर पर उन्होंने अपनी कुछ लघु कविताएँ भी सुनाई।

समारोह के दूसरे मुख्य अतिथि श्री विजय सहगल, प्रधान सम्पादक, दैनिक ट्रिब्यून, चंडीगढ़ ने कहा कि राष्ट्रभाषा देश की विशिष्ट पहचान होती है। हिन्दी हमें माँ के दूध के साथ मिली है, यह हमारी प्राण वायु है। हिन्दी को विभिन्न स्तरों पर स्थापित करने के लिए उन्होंने संकल्प की महत्ता को रेखांकित किया और ढकोसलों से दूर वास्तव में हिन्दी के लिए समर्पित होने की बात कही। उन्होंने कहा कि विज्ञान में हिन्दी का प्रयोग संभव है क्योंकि कई कम्प्यूटर कम्पनियाँ भी इस भाषा की ओर दौड़ी चली आ रही हैं। हिन्दी का आत्म-सम्मान सुरक्षित रखने की जरूरत है और साथ ही हिन्दी को सहज रूप में आने दिया जाए; प्रयास शासन के ऊपरी स्तरों से हों। हिन्दी हमारा स्वभाव हो जानी चाहिए, न कि मात्र दिवस या पखवाड़ों तक सीमित एक समारोह की भाषा। उन्होंने इस तथ्य पर भी ध्यान दिलाया कि हिन्दी के समाचार पत्रों ने अंग्रेजी के समाचार पत्रों को बिक्री में बहुत ही पीछे छोड़ दिया है। उन्होंने भारतीय प्रशासनिक सेवा जैसी उच्च प्रशासनिक सेवाओं में प्रतियोगिता करने के लिए सुविधाओं के अभावों का भी जिक्र किया। अंत में उन्होंने कहा कि हम सब राष्ट्रहित को प्राथमिकता दें, भाषा को अपनी ओर से कुछ दें क्योंकि यह उत्तरदायित्व हम सबका है।

हिन्दी दिवस समारोह के अवसर पर आयोजित की गई विभिन्न प्रतियोगिताओं तथा अन्य प्रतियोगिताओं के विजेताओं को भी स्मृति चिन्ह व पुरस्कार प्रदान किए गए। विवरण इस रिपोर्ट के बाद प्रकाशित किया जा रहा है।

हिन्दी दिवस समारोह के अध्यक्ष डॉ वेंकट राव शिष्ट ने निदेशक महोदय के हिन्दी प्रेम की श्लाघा की।

अंततः प्रशासन की ओर से वरिष्ठ वित्त एवं लेखाधिकारी श्री भरत सिंह रावत ने सभी का धन्यवाद ज्ञापित किया।

क) हिन्दी दिवस समारोह से संबंधित प्रतियोगिताओं के विजेता

1. निबन्ध प्रतियोगिता

प्रथम : श्री सतीश चन्द्र भट्ट, वरिष्ठ आशुलिपिक
द्वितीय : श्री एस पी नौटियाल, वरिष्ठ तकनीकी सहायक
तृतीय : डॉ योगेन्द्र कुमार शर्मा, वैज्ञानिक
सांत्वना : डॉ आर बी गुप्त, वैज्ञानिक

2. टिप्पण/प्रारूपण प्रतियोगिता

प्रथम : श्रीमती कनक कुच्छल, प्रवर श्रेणी लिपिक
द्वितीय : श्री चेतन सिंह बिष्ट, प्रवर श्रेणी लिपिक
तृतीय : श्री प्रीतम सिंह, वरिष्ठ आशुलिपिक
सांत्वना : श्रीमती गीता क्षेत्री, वरिष्ठ आशुलिपिक

3. कविता-पाठ प्रतियोगिता (स्वरचित)

प्रथम : श्री योगराज, वरिष्ठ तकनीकी सहायक
द्वितीय : श्रीमती गीता क्षेत्री, वरिष्ठ आशुलिपिक
तृतीय : श्री वीरेन्द्र सिंह सैनी, वैज्ञानिक
सांत्वना : श्री जयदीप मेहता, तकनीशियन

4. भाषण प्रतियोगिता

प्रथम : श्री एस एल सरोहा, वैज्ञानिक
द्वितीय : श्री वीरेन्द्र सिंह सैनी, वैज्ञानिक
तृतीय : डॉ महेन्द्र पाल, वैज्ञानिक
सांत्वना : श्री जयदीप मेहता, तकनीशियन

ख) वर्ष 1995-96 के दौरान सरकारी काम-काज में हिन्दी के प्रयोग विषयक प्रतियोगिता के विजेता

क्र. स.	पुरस्कार श्रेणी	नाम	पुरस्कार राशि
1.	प्रथम	श्री राजेन्द्र सिंह चौहान, अवर श्रेणी लिपिक	500/-
2.	प्रथम	श्रीमती कनक कुच्छल, प्रवर श्रेणी लिपिक	500/-
3.	द्वितीय	श्री हुकम सिंह रावत, सहायक	300/-
4.	द्वितीय	श्री एम के खाडे, प्रवर श्रेणी लिपिक	300/-
5.	द्वितीय	श्री के सी पालीवाल, प्रवर श्रेणी लिपिक	300/-
6.	तृतीय	श्री पी पी मणि, प्रवर श्रेणी लिपिक	150/-
7.	तृतीय	श्री धर्म पाल, भण्डार व क्रय सहायक	150/-
8.	तृतीय	श्री अजीत कुमार चौहान, सहायक	150/-
9.	तृतीय	श्रीमती आभा ध्यानी, अवर श्रेणी लिपिक	150/-
10.	तृतीय	श्री अशोक कुमार, मददगार	150/-
11.	प्रोत्साहन	श्रीमती शोभा पंवार, प्रवर श्रेणी लिपिक	100/-
12.	प्रोत्साहन	श्री एस पोर्शन, तकनीकी अधिकारी	100/-
13.	प्रोत्साहन	श्री जी एस पंवार, वरिष्ठ तकनीकी सहायक	100/-

आइ आइ पी स्टाफ क्लब की गतिविधियाँ

संस्थान में क्रीड़ा-संबंधी, सांस्कृतिक व कलात्मक चेतना जगाए रखने में सदा से सक्रिय आइ आइ पी स्टाफ क्लब पिछले 2 त्रिमासों में विभिन्न गतिविधियाँ/प्रतियोगिताएं आयोजित करने में संलग्न रहा है, जिनका ब्यौरा निम्नवत् है:

○ अगस्त 1996

स्वतंत्रता-दिवस (स्वर्ण-जयंती वर्ष)

देश के 50वें स्वतंत्रता-दिवस पर सदैव की भांति आइ आइ पी स्टाफ क्लब ने इस दिवस के आयोजन का उत्तरदायित्व निभाया। इस अवसर पर संस्थान के निदेशक व समारोह के मुख्य अतिथि डॉ टी एस आर प्रसाद राव ने राष्ट्रध्वजारोहण किया और मिलिट्री बैंड व केन्द्रीय विद्यालय, आइ आइ पी के बच्चों द्वारा प्रस्तुत मार्च-पास्ट पर उनसे सलामी भी ली।

निदेशक व मुख्य अतिथि महोदय ने इस अवसर पर सभी को बधाईयाँ दी व अपने भाषण में स्वतंत्रता के शहीदों को याद किया। श्रीमती अरुणा आसफ अली की हाल की मृत्यु पर शोक व्यक्त करते हुए उन्होंने पिछले वर्ष की राष्ट्रीय व संस्थागत उपलब्धियों का उल्लेख किया और हाल ही में संपन्न लोक-सभा चुनावों की सफलता एवं कश्मीर में लोकतंत्र की बहाली पर प्रसन्नता व्यक्त करते हुए कहा कि यह हमारे लोकतंत्र की मजबूती का प्रमाण है। साथ ही उन्होंने उत्तर प्रदेश व कश्मीर के भावी चुनावों की सफलता की कामना भी की। उन्होंने इस बात पर भी प्रसन्नता व्यक्त की कि नई सरकार भी देश की प्रगति की आवश्यकता समझते हुए आर्थिक उदारिकरण की नीति को आगे बढ़ा रही है। संस्थान की उपलब्धियों के बारे में चर्चा करते हुए उन्होंने संख्या व मूल्य में निरंतर बढ़ रहे ई बी आर (अर्थसंकल्पेतर संसाधनों), प्रायोजित परियोजनाओं, समझौतों और हस्तांतरित प्रौद्योगिकियों एवं वैज्ञानिक/औद्योगिक जानकारी के आदान-प्रदान के लिए आयोजित कई अन्य गतिविधियों की भी चर्चा की। निदेशक महोदय ने अपनी हाल की विदेश यात्रा का उल्लेख करते हुए स्पष्ट किया कि संस्थान के साथ विश्व के कितने ही देश वैज्ञानिक/तकनीकी/औद्योगिक क्षेत्र



डॉ प्रसाद राव ध्वजारोहण करते हुए!

में सहयोग के लिए उत्सुक हैं जो, उनके अनुसार, संस्थान की अंतर्राष्ट्रीय क्षमताओं का प्रमाण है। डॉ प्रसाद राव ने इस अवसर पर, अभी-अभी संस्थान को प्रदत्त "वै औ अ प व्यापार विकास और प्रौद्योगिकी विपणन पुरस्कार 1996" की सूचना भी सहर्ष सबको दी। इसके उपरांत मिलिट्री बैंड के संगीतमय प्रदर्शन व केन्द्रीय विद्यालय, भा पे सं के बच्चों द्वारा भाव-गीत व अन्य राष्ट्रप्रेमपरक प्रस्तुतियों ने कलात्मक व राष्ट्रभक्ति के वातावरण का सृजन कर श्रोताओं/दर्शकों को बाँध दिया। इस कार्यक्रम के उपरांत चाय व मिष्ठान्न वितरण के साथ कार्यक्रम सम्पन्न हुआ।

○ सितम्बर 1996

इस मास वै औ अ प स्थापना दिवस (26 सितम्बर) को दृष्टि में रखते हुए आइ आइ पी स्टाफ क्लब ने संस्थान के सदस्यों के बच्चों के लिए कनिष्ठ (कक्षा VI - X) व ज्येष्ठ (कक्षा XI से ऊपर) दो वर्गों में हिन्दी व अंग्रेजी भाषाओं "पर्यावरण/Environment" विषय पर एक निबंध प्रतियोगिता का आयोजन किया।

○ अक्टूबर 1996

1. 12 से 14 अक्टूबर के मध्य, वै औ अ प के प्रथम निदेशक (जिन्हें अब 'महानिदेशक' कहा जाता है) व देश के अग्रगण्य वैज्ञानिक डॉ शांति स्वरूप भटनागर की स्मृति में 'डॉ शांति स्वरूप भटनागर स्मृति क्रीड़ा (आउटडोर) प्रतियोगिता (जोनल)' का आयोजन भापेसं, देहरादून में किया गया और इसके आयोजन का उत्तरदायित्व आइ आइ पी स्टाफ क्लब ने उठाया। इसमें वै औ अ प की 11 प्रयोगशालाओं/संस्थानों के 11 दलों ने क्रिकेट व वॉलीबॉल की प्रतियोगिताओं में भाग लिया। क्रिकेट प्रतियोगिता के विजेता रहे - रा स वि सं, गोआ एवं रा वां प्र, बंगलौर। वॉलीबॉल स्पर्धा के विजेता थे - वै औ अ प संकुल, पालमपुर (हिप्र) एवं क्षे अ प्र, भुवनेश्वर। इन प्रतियोगिताओं के आयोजन की अध्यक्षता भापेसं, देहरादून के निदेशक डॉ टी एस आर प्रसाद राव ने की।

2. इसी माह क्षेत्रीय अनुसंधान प्रयोगशाला, भुवनेश्वर (उड़ीसा) में आयोजित डॉ शांति स्वरूप भटनागर स्मृति क्रीड़ा (आउटडोर) प्रतियोगिता (जोनल) में भाग लेने के लिए भापेसं के 20 प्रतियोगियों का एक दल आइ आइ पी स्टाफ क्लब के तत्वावधान में भुवनेश्वर गया। संस्थान का

वॉलीबॉल दल अच्छा प्रदर्शन कर सेमी-फाइनल तक पहुँचा और हमारे दो निम्नांकित खिलाड़ियों को वॉलीबॉल के दो अलग-अलग खेलों में उनके उत्तम खेल पर बैन ऑफ द मैच का खिताब भी मिला :

श्री जयदीप मेहता, तकनीशियन

श्री सुरेन्द्र कुमार, तकनीशियन

3. सांस्कृतिक भावनाओं के पोषण की दृष्टि से आइ आइ पी स्टाफ क्लब ने 21 अक्टूबर, 1996 को संस्थान-परिसर में "दशहरा मेला" आयोजित किया। मुख्य अतिथि व संस्थान के निदेशक डॉ टी एस आर प्रसाद राव ने मेले का उद्घाटन किया। इस मेले में, युगपुरुष भगवान श्री राम के रावण-वध व लंका-विजय के उपरांत अपने अनुज लक्ष्मण व अनन्य भक्त श्री हनुमान के साथ अयोध्या वापसी का दृश्य मंचित किया गया। अन्याय, असुर शक्ति व असत्य के प्रतीक रावण के वध व सत्य की विजय के उत्सव के रूप में रावण के पुतले का दहन व आतिशबाजी का भी आयोजन था।

○ नवम्बर 1996

6 नवम्बर, 1996 को स्टाफ क्लब की सामान्य सभा की बैठक व वार्षिक चुनाव संपन्न हुआ। सदस्यों को क्लब द्वारा दिया जाने वाला वार्षिक उपहार व साथ ही पिछले वर्ष की विभिन्न प्रतियोगिताओं के विजेताओं व उप-विजेताओं को पुरस्कार भी वितरित किए गए।

○ दिसम्बर 1996

दिसम्बर, 1996 में देहरादून नगर की 'हाइ पावर कमिटी' द्वारा आयोजित टेबिल टेनिस (युगल) प्रतियोगिता में स्टाफ क्लब का दल उप-विजेता रहा। युगल दल के सदस्य थे - श्री पारस राज, वरिष्ठ तकनीकी सहायक एवं श्री विनीत सक्सेना तकनीशियन।

इसी क्रम में आयोजित ब्रिज प्रतियोगिता में स्टाफ क्लब का दल विजेता रहा। इसके सदस्य थे - सर्वश्री एन एन कुलश्रेष्ठ, वैज्ञानिक; यू सी अग्रवाल, वैज्ञानिक; जसदेव सिंह, तकनीशियन; जे के कुमार, इंजीनियर; सी एन भार्गव, तकनीकी अधिकारी एवं ओ पी धाम, सहायक। □

आइ आइ पी - पेट्रोलियम क्षेत्र में आधुनिकतम प्रौद्योगिकी

आइ आइ पी यूथ क्लब

संस्थान के कर्मचारियों के युवा पुत्र-पुत्रियों में आपसी सहयोग बढ़ाने, खेल-भावना विकसित करने एवं सांस्कृतिक व कलापरक जागृति का संचार करने के उद्देश्य से गठित "आइ आइ पी यूथ क्लब" ने वर्ष की अन्य गतिविधियों के साथ-साथ जुलाई 96 से दिसम्बर 96 के मध्य निम्नांकित गतिविधियाँ आयोजित की :

1. खेल-सप्ताह (जुलाई 1996, प्रथम सप्ताह)

इस आयोजन में विभिन्न इनडोर खेलों में भाग लेने में युवा-वर्ग ने अत्यधिक उत्साह का प्रदर्शन किया और इनमें 100 से अधिक प्रतियोगियों ने हिस्सा लिया। इन प्रतियोगियों के परिणाम इस प्रकार रहे -

क) बैडमिंटन

उप-कनिष्ठ वर्ग	बालिका (एकल)	बालक (एकल)
प्रथम	कु अंशु सिंह	श्री दिलीप मैथ्यू
द्वितीय	कु मोनिका राजदान	श्री हेमंत त्यागी
	बालक (युगल)	
प्रथम	श्री दिलीप मैथ्यू व श्री प्रदीप मैथ्यू	
द्वितीय	श्री स्वदेश अग्रवाल व श्री हेमंत त्यागी	

ख) कैरम

ग) शतरंज

	कनिष्ठ वर्ग (15 वर्ष तक)	ज्येष्ठ वर्ग (15 वर्ष से ऊपर)
प्रथम	श्री कैवल जीत सिंह	श्री मनीष कुमार
द्वितीय	श्री नरेश बिजलवाण	श्री अशोक बडोनी

घ) टेबल टेनिस

	कनिष्ठ वर्ग (एकल)	ज्येष्ठ वर्ग (एकल)
प्रथम	श्री अमित रावत	श्री राकेश कुमार
द्वितीय	श्री कैवल जीत सिंह	श्री जे के डिमरी
	ज्येष्ठ वर्ग (युगल)	
प्रथम	श्री राकेश कुमार एवं श्री अतुल धाम	
द्वितीय	श्री पारस राज एवं श्री सतीश भट्ट	

ड) खेल प्रश्नोत्तरी (स्पोर्ट्स विज्ज)

	कनिष्ठ वर्ग	ज्येष्ठ वर्ग
प्रथम	कु वसुंधरा त्यागी व कु दीपिका चन्द्रा	श्री राजीव शर्मा व श्री पी पी पाण्डेय
द्वितीय	श्री स्वदेश अग्रवाल व श्री हेमंत त्यागी	श्री सनत्कुमार व श्री दिलीप मैथ्यू



आइ आइ पी स्टाफ क्लब द्वारा आयोजित रंगारंग कार्यक्रम की एक झलक।

खेल-सप्ताह का उद्घाटन समुदाय-केन्द्र में श्री सुधीर सिंघल, वैज्ञानिक 'जी' द्वारा किया गया। सप्ताह की समाप्ति पर पुरस्कार-वितरण श्री के ए कुरैशी, प्रशासन नियंत्रक द्वारा किया गया।

2. स्वतंत्रता दिवस की पूर्व-संध्या पर भव्य सांस्कृतिक कार्यक्रम व नृत्य प्रतियोगिता

स्वतंत्रता दिवस 1996 की पूर्व संध्या पर यूथ क्लब ने एक रंगारंग सांस्कृतिक कार्यक्रम का मंचन किया जिसमें शामिल विभिन्न प्रकार की श्रेष्ठ प्रस्तुतियों ने दर्शकों को मंत्र मुग्ध कर दिया। इन प्रस्तुतियों में भाव-गीत, प्रहसन, गीत-संगीत, वादन, चुटकुले आदि थे।

नृत्य प्रतियोगिता को दो वर्गों में रखा गया था - एकल व सामूहिक। परिणाम इस प्रकार रहे :

सर्वोत्तम एकल नृत्य-प्रस्तुति	:	कु रूपा पुत्री श्री गुरुदास
सर्वोत्तम सामूहिक नृत्य-प्रस्तुति	:	कु टीना पुत्री श्री महेंद्र, कु पायल पुत्री श्री पी जे शुक्ल, कु अर्चना पुत्री श्री रमेश चन्द्र



अमित नौटियाल, पुत्र श्री चंद्रबल्लभ नौटियाल, यूथ क्लब के कार्यक्रम में ब्रेक डांस प्रस्तुत करते हुए।

सांस्कृतिक संध्या का उद्घाटन डॉ टी एस आर प्रसाद राव, निदेशक ने दीप प्रज्वलित कर किया। कार्यक्रम की समाप्ति पर विजेताओं को श्री के ए कुरैशी, तत्कालीन प्रशासन नियंत्रक ने पुरस्कार-वितरण किया। मंच-संचालन श्री जयदीप मेहता द्वारा किया गया। वाद्य-संयोजन श्री वीरेन्द्र कुमार पुत्र श्री रमेश चन्द्र का था। □

वैदिक समिति द्वारा आयोजित पर्व

- श्रावण मास दिन सोमवार 12.8.96 को मंदिर प्रांगण में 'नंदी पूजन' का आयोजन किया गया।
- श्री कृष्ण जन्माष्टमी का महापर्व दिनांक 5.9.96 को श्रद्धा एवम् हर्षोल्लास के साथ मनाया गया। इस पर्व पर भगवान श्री कृष्ण क. लीलाओं पर आधारित कार्यक्रम में संस्थान के कर्मचारियों के बच्चों द्वारा फैन्सी ड्रेस, रास लीला, भजन, कविता-पाठ एवम् श्लोक गायन जैसी प्रस्तुतियाँ दी गईं। इस पर्व पर बच्चों को उत्साहित करने हेतु उपहार भी दिए गए।
- विनायक चतुर्थी पर दिनांक 16.9.96 को श्री गणेश जी की मूर्ति की स्थापना एवम् भजन का आयोजन किया गया।
- नवरात्रि महोत्सव पर्व पर दिनांक 20.10.96 को नवमी पूजन, हवन, कन्या जेवण एवम् प्रसाद-वितरण का आयोजन किया गया।
- गाँधी जयंती पर दिनांक 2 अक्टूबर को पर्यावरण समिति, कॉलोनी कल्याण समिति एवम् वैदिक समिति ने मिलकर कॉलोनी परिसर को सुन्दर बनाने हेतु श्रमदान का आयोजन किया।
- हिन्दी वैज्ञानिक संगोष्ठी में उपस्थिति
संस्थान के दो वैज्ञानिकों अर्थात् श्री चन्द्र बल्लभ नौटियाल और डॉ हयात उल्लाह खान ने इंडियन ऑयल कॉर्पोरेशन लि (अनुसंधान एवं विकास केन्द्र), फरीदाबाद में दिनांक 20.9.96 को आयोजित हिन्दी वैज्ञानिक संगोष्ठी में भाग लिया। श्री नौटियाल ने इस संगोष्ठी में अपना शोध-पत्र, विषय: "कार्बनिक पदार्थों के जैव-रासायनिक वियोजन का स्रोत" प्रस्तुत किया और डॉ खान ने स्वयं व अपने सह-लेखकों डॉ कृष्ण मोहन अग्रवाल व श्री सत्य प्रकाश नौटियाल द्वारा संयुक्त रूप से तैयार शोध-पत्र "बॉम्बे हाई खनिज तेल के पाइप लाइन द्वारा प्रवाह में बहुलक पदार्थों का योगदान" प्रस्तुत किया। □