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CHT

BULLETIN

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Centre for High Technology
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From the desk of Executive Director



The second quarter of FY 2016-17 witnessed yet another successful organization of the 20th Refinery Technology Meet by Centre for High Technology (CHT) in association with Indian Oil Corporation Ltd. (IOCL) during 7th-9th September 2016 at Mahatma Mandir, Gandhinagar, Gujarat with the theme "Value Creation through Innovative Solutions".

The Meet was inaugurated by Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG, in the gracious presence of Shri Sandeep Poudrik, IAS, Joint Secretary (Refineries), MoP&NG. The thoughtful and action oriented addresses of Shri Sawhney and Shri Poudrik for preparing Indian oil industry to meet new challenges set the right tone for the Global Meet.

I would like to thank MoP&NG for the patronage and guidance received along with Indian refining sector, process licensors, dignitaries, speakers and delegates for their valued contribution in the organization of RTM, the biggest event on CHT's annual calendar.

Today, about 50.8% of gasoline and 47.7% of diesel meeting Bharat Stage-IV specifications is being supplied in the country. CHT along with OMCs is closely monitoring & regularly reviewing refinery shutdown schedule to ensure product availability for smooth roll over of BS-IV fuels across the country by 1st April 2017. CHT is also coordinating with and assisting MoP&NG in firming up BS-VI gasoline and diesel fuel specifications, which have been notified by MoRT&H vide Gazette notification dated 16th September 2016.

With a view to broaden participation for research work in down-stream hydrocarbon sector with funding from CHT / OIIB, Expression of Interest (EOI) was published in leading Newspapers for the first time inviting R&D proposals. The 15 proposals received have been scrutinised by the Steering Committee constituted by the Scientific Advisory Committee and shortlisted proposals are put up for further improvement and subsequent consideration by the SAC. Standard MOU having clauses on monitoring mechanism, asset treatment etc. has also been finalised by a Committee comprising of R&D Institutes, OIIB and CHT. This will facilitate avoiding unnecessary delay in signing of MOUs with grantee institutions.

With a view to improve adoption of R&D indigenous technologies, a two days' workshop of all contributing stakeholders including R&D Institutes, IIP, refineries & EIL was held at GHT. A Compendium of Indigenous technologies with gap analysis was prepared by GHT and circulated to all refineries. Committee constituted by EC under the Chairmanship of Director (R), IOC deliberated on impediments in commercialization of indigenous technologies as well as improving commercialisation of GHT funded projects and has submitted its recommendations.

This quarter witnessed organization of three Activity Committee Meetings on Fluidized Catalytic Cracking, Distillation and Environmental Management by GHT in association with various refineries. These ACMEs serve as a platform for collective experience sharing on operation, troubleshooting and commissioning of units, getting inputs on latest trends and new ideas from external experts and R&D Institutes. All the participants and refineries deserve special mention for their participation and contributing in the success of these Activity Committee Meetings.

Based on various recommendations and experience gained by refineries over a period of time, GHT has prepared a Compendium which includes major schemes implemented / under implementation / identified for future, by refineries, implementable schemes identified based on cross sharing on these schemes, Expert Group (2013) recommendations, best practices / ideas taken from RTMs, Activity Committee meetings and Innovations Awards. The Compendium has been circulated to all the refineries and EIL.

Performance Benchmarking Study-2014 carried out by Solomon Associates showed that the performance of PSU fuels refineries has improved in many areas. Significant reduction of 14% was observed in Energy Intensity Index (EII) of Indian refineries over 2010. However, plenty of opportunities still exist in the areas of reduction of steam consumption, heat integration etc. With the objective to continue kaizen exercises in Indian PSU refineries, the 14th Executive Committee (EC) of GHT approved Performance Benchmarking Study by Solomon of 15 PSU fuel refineries and 4 Lube refineries as well as BOREL for calendar year 2016 for which Data Co-ordination Seminar would be conducted in January, 2017.

As you are aware Refinery Sector has been included in the PAT scheme from the cycle-II, which has commenced from 1st April 2016. GHT has provided the methodology to calculate the specific energy consumption (MBN) and also helped in verification of data, documents and Baseline data. The refinery Specific Energy target, based on sector target of 5.97% reduction over 2014-15, are mandated to be achieved by 2018-19.

Further, milestone for energy reduction upto 2030 for refining sector (including private refineries) has been proposed as 36.6% over 2005 aligning with INDC (Intended Nationally Determined Commitment), wherein India has projected reduction of specific energy consumption by 33-35% per GDP by 2030 over 2005.

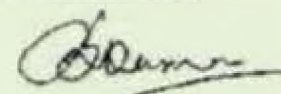
GHT on behalf of the industry also finalised the Agreement, including scope and payment terms for comprehensive energy efficiency improvement study and performance audit of 18 PSU refineries by EIL and the Mandatory energy audit of 12 PSU refineries through PCRA. The medium-term target of 60-70 MBN for PSU refineries for 2020-21 has been set after deliberations in EC meeting of GHT held in May 2016.

Two Working Group meetings of the industry chaired by Joint Secretary (Refineries), MoP&NG were held in July and September 2016. These Meetings are aimed to monitor several issues including physical performance of refineries, Project Review for smooth rollover of BS-IV fuels across the country by 1st April 2017 and preparedness for BS-VI fuels w.e.f. 1st April 2020. In the meetings, refinery-wise plans to build capability for taking grid power as and when economically available, have been made.

GHT is the key member of the team constituted by MoP&NG under the Chairmanship of Joint Secretary (Refineries) to propose model for recycling of used lubricating oils. A consultation workshop with Petroleum Recycler Association of India (PRAI) and industry was held to deliberate on the subject.

A Paper on incentivising investment in refining sector is being formalised under the Chairmanship of Director (R), IOCL. GHT also extended assistance in Strategic planning of refineries by 2040.

I am grateful to all the agencies, organisations which are working with GHT in achieving the goals set by MoP&NG. Together we will continue our endeavour to improve the performance of refineries and encourage innovative methods and technologies to achieve excellence.



(Brjesh Kumar)

Dedication of HP Green R&D Centre (HPGRDC) to the nation by the Hon'ble MoS, P&NG

International conference on "Energy Innovations: Today and Tomorrow" was held at HPGRDC on 14th & 15th October, 2016 at Bangalore. On this occasion, HPGRDC was dedicated to the Nation by Shri Dharmendra Pradhan, Hon'ble Minister of State, Independent Charge, P&NG, in the august presence of Secretary, P&NG, Shri K.D. Tripathi and Shri M.K. Surana, C&MD, HPCL. The two days conference was attended by approx. 180 delegates / speakers consisting of eminent scientists across the world who gave insights on the present and future innovations.

The Hon'ble Minister of State, P&NG also visited Hydro-processing laboratory and the state of the art pilot plants. He interacted with research scientists and suggested to focus more on Alternate energy sources such as Biofuels and Solar energy.

Hon'ble MoS, interacted with the speakers from India and abroad inviting them for the collaborative work for growth

of the nation. He also heard their views on energy innovations and advised that bridge has to be developed between oil and gas industries, Academia and Research institutions and policy maker with common Moto of Development of Indigenous technologies in Oil and gas sector and encourage young scientists towards technical start-ups.

The dignitaries, in their speeches emphasised that R&D Centres and research institutions should focus on the areas for making the energy affordable to the poor. They advised to work on technologies like coal to liquids, coal to gas and coal bed methane to suit Indian coal quality, as India has abundant coal reserves and concentrate on developing technologies which can monetize waste. They also suggested working on petrochemical technologies which can address the need of below poverty line population and stressed on need of developing indigenous technologies by Oil & gas PSUs on renewable energy.



*Fill the brain with high thoughts, highest ideals
place them day and night before you
and out of that will come great work.*

—Swami Vivekananda

20th Refinery Technology Meet (RTM)

The 20th Refinery Technology Meet (RTM) was organised by Centre for High Technology (CHT) in association with Indian Oil Corporation Ltd. (IOCL) under the aegis of Ministry of Petroleum & Natural Gas, Government of India during 7th-9th September 2018 at Mahatma Mandir, Gandhinagar, Gujarat. The theme of the Meet was 'Value Creation through Innovative Solutions'.

Inaugural Session

Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG inaugurated the Meet. Other distinguished invitees during the Inaugural session were Shri Sandeep Poudrik, IAS, Joint Secretary (Refineries), MoP&NG and Shri Sanjiv Singh, Director (Refineries), Indian Oil Corporation Ltd. The RTM was attended by over 600 refining professionals from India and abroad.



Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG inaugurated the 20th RTM by lighting the ceremonial lamp.

Shri Sanjiv Singh, Director (Refineries), IOCL, in his welcome address shed light on the Indian refining landscape. Shri Singh said, "Indian Refining Industry is the 4th largest in the world in terms of refining capacity and is currently passing through a challenging phase with the stringent environmental stipulations, need for huge investments for upgrading fuel quality in line with the international trend and increasing concern for energy security. In order to meet these challenges, there is an urgent need to explore and adopt innovative solutions to create and add value from the existing assets, improving process & energy efficiency, yield and process integration." He added that the country is working fervently towards leapfrogging from BS-IV to Euro-VI equivalent BS-VI norms w.e.f. 1st April 2020 across the country, which is a courageous step and nowhere any nation has taken such a dynamic initiative to implement Euro-VI in such a short span.

Shri Brijesh Kumar, Executive Director, Centre for High Technology, while briefing about the overall programme and importance of the 20th RTM, opined that the discussions would generate immense interest and

debate on wide range of topics of interest to the industry, and shall help in formulating the future course of action to improve our existing operations to achieve international standards and remain globally competitive.

Shri Sandeep Poudrik, IAS, Joint Secretary (Refineries), MoP&NG, in his keynote address said that the Indian Refining Industry has undergone a paradigm shift from deficit to being a refining hub and exporter of quality products worldwide. He said that the urgent emphasis is on development and realigning of technological options with the least carbon-footprints. Shri Poudrik added that it is important to strengthen India's energy security with alternative fuels developed from indigenously produced renewable feedstock to substitute and supplement petro-based fuels. There is also need to focus on integration with petrochemicals & bio-refining in future refinery projects. All these factors throw both challenges and opportunities for the Indian refining industry.

Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG while inaugurating the Meet said that "In India, Hydrocarbons are likely to remain the most important source of energy for decades to come, despite increase in use of other forms of energy like coal, renewable energy etc. India is currently the fourth largest consumer of petroleum products in the world in spite of a very low per capita consumption. Under the visionary leadership of Hon'ble Prime Minister Shri Narendra Modi, India has emerged as a bright spot in the global economy in last two years. The country's annual growth rate is hovering around 7.6%, which is expected to rise even further and the government is committed towards achieving holistic, inclusive and sustainable high economic growth". He further added that "Government of India is committed to provide affordable and reliable energy to all segments of the economy and society, including the common man of India. The country needs research and innovation to make clean energy technology accessible and affordable to all. A challenge before the Indian oil industry as set by Hon'ble Prime Minister is to reduce import dependence of oil and gas by 10% by 2022. India has developed coal effluent yet modern and complex refining capacity. The recently commissioned state-of-the-art refinery by Indian Oil at Paradip, showcases the indigenously developed INDMAX technology for maximizing LPG and propylene. Indian refining industry has a rich portfolio of technologies and can provide end-to-end solutions for most of the technologies for setting up a complex refinery on its own, and the opportunities to innovate are endless".

On this occasion, Shri Sawhney also released compendium consisting of the detailed papers on the presentation topics being covered during the RTM.

Vote of thanks was presented by Shri R. Krishnamurthy,

Advisor (Tech.), Centre for High Technology.

Technical Session

A total of 66 Technical Papers, including 39 papers from Global leaders in Refining Technology such as Shell, Chevron, UOP, Axens, CB&I, Dupont, Solomon, Exxon Mobil, KBR, KBC, etc., were presented during the Technical Sessions. Three Poster Sessions were organised during the three days of the Meet covering 95 poster papers. Apart from these, 11 exhibition stalls were put up by all companies, consultants and vendors for



Lighting of the ceremonial lamp by the dignitaries. (Standing L to R, Shri Sandeep Poundrik, IAS, Jt. Secretary (R), Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG, Shri Sanjiv Singh, Director (Refineries), IOCL, Shri Brijesh Kumar, ED, CHT, Sh. R. Krishnamurthi, Advisor, CHT)



Shri Sandeep Poundrik, IAS, Joint Secretary (Refineries), MoP&NG, presenting an overview of Indian Refining Sector



Shri Brijesh Kumar, ED, CHT, presenting an overview of 20th RTM

display of their technology, product and services.

Technical sessions covered the entire spectrum of downstream petroleum sector viz. Future Refinery Configuration & Petrochemical Integration, Advanced Process Control, Automation and Information System, Maintenance, Reliability and Asset Management, Advances in FCC Catalyst System, R&D Initiatives - Technologies for Commercialisation, Advances in Bottom Upgradation, Energy Efficiency Improvement, Environmental Management, Advances in Hydro-processing and Lube Oil Base Stocks, Advances in Fluidized Catalytic Cracking, Bio-refining and Gasification, Fuel Quality Upgradation, Hydrogen Management, Operational Excellence, Novel



Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG, delivering the Inaugural Address



Shri Sanjiv Singh, Director (Refineries), IOCL delivering the Welcome Address



Release of Compendium by Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG in presence of dignitaries

and Best Practices, Refinery Optimization and Margin Improvement and Advances in Hydroprocessing Catalyst Systems.

Exhibition Stalls

Shri Ajay Prakash Sawhney, IAS Additional Secretary, MoP&NG, also inaugurated the Poster and Exhibition gallery. Shri Sandeep Poudrik, IAS, Joint Secretary (Refineries) and other senior officials from MoP&NG, IOCL, EIL and others were present on the occasion. Shri Sawhney showed keen interest both in posters gallery and the stalls and held interactions with various



Inauguration of Poster and Exhibition Gallery by Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG



Shri Ajay Sawhney, IAS Additional Secretary, MoP&NG, at the IndianOil - EIL Stall

presenters and exhibitors.

An exhibition showcasing a wide range of innovative technologies, products and services by reputed vendors, consultants and service providers like DuPont, Forbes Marshall, CRI, Linde, among others was also organised. A special stall was put up by Petrotech to share information on the opportunities available at the upcoming mega Petrotech-2016 event to be held in December 2016 in New Delhi under the aegis of Ministry of Petroleum & Natural Gas.

RTM being a forum exclusively for refiners, the stalls evoked keen interest among the delegates to know about the indigenously developed technologies in downstream petroleum sector. The EIL-IOCL pavilion showcased the technologies commercialised by IndianOil R&D jointly with Engineers India Limited viz., Delayed Coking, IndeHex-Food / Polymer grade technology, IndeDiesel - Hydrotreating technology, INDAdept[®], deep desulfurization of diesel and gasoline streams and Zeosom-Light Naphtha isomerisation technology.

Theme Session

The Theme session on "Value Creation through Innovative Solutions" was chaired by Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG.



Shri Sanjiv Singh, Director (R), IOCL during his presentation in the Theme Session



Theme Session: Seated (L-R): Shri K. Govindarajan, Essar Oil Limited; Mr. Dale Emanuel, CEO & President, Solomon Associates; Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG; Shri Sanjiv Singh, Director (R), IOCL and Dr. Partha Maltra, President Business Development, RIL

Shri Sanjiv Singh, Director (R), IOCL, Mr Dale Emanuel, CEO & President, Solomon Associates, Dr Partha Maitra, President Business Development, RIL and Shri K. Govindarajan, Essar Oil Limited, presented during the session.

Shri Sanjiv Singh, Director (R), IOCL addressed the gathering on "Innovative Approaches for Future Challenges". Mr Dale Emanuel CEO, & Solomon spoke on the "Innovations in World Best Refineries", Dr Partha Maitra, RIL presented on "Innovative Solutions to Indian Refining Challenges" and Shri Govindarajan, Essar Oil spoke on "Innovation Opportunities for Technological Excellence".



Dr. Partha Maitra, RIL making presentation during the Theme Session

The first Plenary Session on "Make In India Capability Building" was chaired by Dr. M.O. Garg, Head, Automotive Fuels & Lubricants Application Division & Director's Research Division, CSIR-IIP. Shri Ajay Deshpande, Director (Technical), EIL; Shri Gandham Sriganesh, ED, HPCL (R&D) and Shri R. Suresh, ED (LT), IOC (R&D) presented in the first plenary session.

Shri Deshpande gave a presentation on "End-to-End Solutions", Shri Gandham Sriganesh delivered a presentation on "Process Innovations" and Shri R. Suresh made a presentation on "Technological Innovations."



Dr M.O. Garg, CSIR-IIP chairing the first Plenary Session



Shri Ajay N. Deshpande, Director (T), EIL, making presentation during first Plenary Session

The second Plenary Session was on "Energy Outlook and Future Energy Configuration". The session was chaired by Shri S.S. Sunderajan, MD, BORI. Dr Ashok Krishna, Chevron; Smt. Varika Shukla, ED, EIL and Shri C.J. Iyer, GM (I/c), BPCL, Mumbai Refinery presented in the session.

Smt. Varika Shukla, ED, EIL presented on "Refinery Outlook - 2040 and Logistics", Shri C.J. Iyer, GM (I/c), BPCL, Mumbai Refinery presented on "Future Refining Challenges and Opportunities" and Dr Ashok Krishna, Chevron presented on "Future Refining Configuration - Bottomless Refinery".



Shri S.S. Sunderajan, MD, BORI, Chairing the second Plenary Session



Dr Ashok Krishna, Chevron, delivering his presentation during second Plenary Session

Q&A Session

The Question & Answer (Q&A) session was held during second day of the Meet. The session was chaired by Shri K.K. Acharya, Head of Refining Technology, RIL. The panel also included Shri S.S. Sunderajan, MD, BOREL; Shri M. Venkatesh, Director (Technical), MRPL, Shri Vijay Prakash, ED (O), IOCL, Shri A.S. Basu, Head Refinery, HMEL and Shri Shyama Maji, Essar Oil Ltd.

Valedictory Session

The 20th RTM concluded with Vote of Thanks by Shri Brijesh Kumar, ED (CHT). The RTM was a great learning experience for the delegates as it covered the wide spectrum of issues from new technologies that are being developed and assimilated in the field of FCC, Hydro-cracker, Hydrogen etc., operational improvements, environmental management, integration into petrochemicals that has made the refineries more profitable etc.



Q&A Session: Seated (L-R): S/Shri M. Venkatesh, Director (Technical), MRPL; A.S. Basu, Head Refinery, HMEL; K.K. Acharya, Head of Refining Technology, RIL; S.S. Sunderajan, MD, BOREL; Vijay Prakash, ED (O), IOCL and Shyama Maji, Essar Oil Ltd.

Takeaways from the RTM

Following are the key highlights / takeaways from the Meet:

- 1) For providing affordable and reliable energy to all segments of the economy and society keeping environment in mind, it is important to innovate and make energy systems cleaner, more efficient, by employing cocktail of renewable energy mix from bio, wind and solar to nuclear, from ocean waves to geothermal energy.
- 2) In terms of complexity, Indian refineries stand second to US. The benchmarking studies have revealed that though Indian Refineries are excellent in the areas of Capacity Utilization, Maintenance Cost etc. some of the refineries suffer from energy inefficiency, in spite of the furnace efficiency being at par with global best. This is largely due to lack of economy of scale and poor heat integration due to expansion in phases.
Refineries in North East are of very small capacity, while some of the refineries are having low capacity &

low complexity compared to world average. The strategy of capacity augmentation of existing Refineries by demolishing old & inefficient units and replacing with new units may succeed. New refineries should have higher capacity, while energy consumption should match with the global best. To improve energy consumption, refineries should innovate by creating smaller steam systems.

- 3) As India's dependence on imported crude oil in future is expected to go up to 90%, attempt should be to process cheaper High Sulphur (HS) & Heavy Crudes. Indian refineries process 71% of High Sulphur Crude of total crude input. Limitations in HS and Heavy Crude processing lies in constraints in bringing Heavy Crude thru PPL, old refinery configuration and need for RLNG connectivity as internal fuel for 100% HS Processing. The strategy should be to build new Refineries capable for 100% HS crude processing, Crude Blending at Port locations / PPL augmentation for supply to Refineries. Refineries should also possess flexibility of processing other feed stocks

like condensate, gas oils, VGO, bottom residues & other intermediates.

- 4) Reduction of carbon footprint and dependence on potable water will be key guiding philosophy in future.
- 5) The role of Petrochemical industry is very critical for economic development of any country providing products and enabling solutions in all sectors of the economy. India's Per capita consumption of Polymers is only 9 kg., which is far below the world average of 35 kg (USA 90 kg, China 48 kg) giving enough indication of potential growth of Petrochemical industry in India. The developments in solar power and electrical vehicles indicate that transportation fuels (MS / HSD) may be substituted in future. On the other hand, Petrochemicals' demand will continue to grow. Therefore, in future, refineries need to be configured with high degree of integration with petrochemicals.

Use of naphtha in cogen and H₂ plant is not a sustainable method in long run. Gas allocation to refineries will enable refineries to spare naphtha for petrochemicals. Challenge shall remain conversion of excess kerosene to HSD or LAB.

- 6) Slurry Hydrocracking will play major role in upgradation of residue because of its several advantages such as conversion of most difficult feedstock, is capable of over 90% wt conversion & produces very high yields of high value products.
- 7) Consumption of petcoke by cement industry as fuel is also getting constrained due to environmental concerns of high sulphur. Combination of DCU and petcoke gasification is very costly, therefore, for reduction / elimination of black Oil or Petcoke, Residue ebullated bed / Slurry Hydrocracking or asphalt Gasification should be looked into as cheaper option. Gasification of asphalt / heavy residue will help in following ways:
 - I) Reduced energy consumption as lower stack

temperature can be achieved with Syn-gas, which is already desulphurised. This eliminates requirement of inefficient and costly technologies for low level heat recovery.

- II) Large quantity of Syn-gas can be produced for conversion to petrochemicals.
 - III) Costly resid upgradation technologies may not be required.
- 8) Integration with bio-refining and gasification will help in diversification of raw material. Co-processing of non-edible vegetable oil and used vegetable oils in diesel hydrotreater is better option than promoting bio diesel. Similarly hydro pyrolysis of bio mass to produce MS / HSD (IH2 technology developed by Shell) is a better option than 2G alcohol due to better conversion efficiency.
 - 9) For meeting requirement of 95 RON MS, addition of Isomerate, TAME & MTBE are better options. OCTAMAX technology developed by IOCL-R&D for conversion of C4 stream (from FCCU / GCU) to high octane gasoline component (RON-110, density-0.739), is an excellent option for producing BS-VI 95 RON gasoline. No further treatment is required for routing to gasoline pool.
 - 10) India is bridging the gaps in Research & Development and possesses refinery technologies which compete with the best in the world excepting few technologies. India has built its capability to provide end to end solutions in setting up new refineries including hardware, barring few process technologies, for which indigenous catalyst systems are not developed. Researchers need to focus more on newer technological developments in refining technology based on new developments in catalysts. Commercialisation of indigenously developed technology needs to be accelerated by providing industry support and fiscal incentives.

*The real winners in life
are the people who look at every situation
with an expectation
that they can make it work or make it better.*

— Barbara Pletcher

AWARDS

In order to promote excellence among the Indian Refining Industry, MoP&NG recognized outstanding contributions of refineries in energy performance. During the RTM, Jawaharal Nehru Centenary Awards for Energy Performance for 2014-15, Oil & Gas Conservation (OGCF) Awards for 2015, CO₂ Emission Awards (2014-15) and Innovation Awards (2014-15) were presented by Shri Ajay Prakash Sawhney, IAS, Additional Secretary, MoP&NG, in the august presence of Shri Sandeep Poudrik, IAS, Joint Secretary (Refineries), MoP&NG; Shri Sanjiv Singh, Director (Refineries), IOCL and Shri Brijesh Kumar, Executive Director, CHT. The various award categories are detailed below:

Jawaharal Nehru Centenary Awards for Energy Performance

Jawaharal Nehru Centenary Awards for Energy Performance of Refineries were first instituted by Ministry of Petroleum & Natural Gas in 1988-89. Centre for High Technology, functioning under the aegis of MoP&NG, monitors and evaluates the annual energy performance of refineries for finalising these awards by the Award Selection Committee. The awardees are selected based on the minimum Specific Energy Consumption (MBN) during the year.

The Award winning refineries for Energy Performance under various categories for the year 2014-15 are as under:

Category	Award Criterion	Winners		
		Group-1 (NRGF < 6.8)	Group-2 (NRGF 6.8-8.6)	Group-3 (NRGF > 8.6)
1	Lowest Specific Energy Consumption (MBN)	IOCL Mathura Refinery	IOCL Panipat Refinery	RIL-SEZ Refinery
2	Best Improvement In Specific Energy Consumption (MBN) over previous year	HMEL Bathinda Refinery		

Oil & Gas Conservation (OGCF) Awards for the year 2015

Oil & Gas Conservation Fortnight (OGCF) is celebrated throughout the country during January every year with the purpose of creating awareness amongst various target groups to appreciate and inculcate the habit of conserving petroleum products. During OGCF, CHT, in association with refineries organizes surveys in the areas of:

- i) Furnace/Boiler Efficiency and Furnace/Boiler Insulation Effectiveness and
- ii) Steam leak

These two areas are taken-up every alternate year and are conducted simultaneously at all the refineries including private refineries by teams constituted by CHT. CHT evaluates the performance and the Awards are finalized by the Award Selection Committee.

The Award winning refineries for 2015 based on the OGCF Surveys conducted during January 2015 in the area of steam leak are as under:

Category	Award Criterion	Winners		
		Group-1 Steam Generation <450 MT/hr	Group-2 Steam Generation 450-900 MT/hr	Group-3 Steam Generation >900 MT/hr
1	Lowest steam leak (kg/MT of steam produced)	IOCL Bongaigaon Refinery	BORL Bina Refinery	EOL Vadinar Refinery
2	Best Improvement In steam leak over previous survey	HPCL Visakh Refinery		

CO₂ Emission Awards for the year 2014-15

To recognize refineries with best performance in Carbon Dioxide emission, two awards were decided by the Committee constituted by MoP&NG. Estimation of CO₂ emission was done as per the API compendium for GHG 2009 using Carbon Weighted Tonne (CWT) method, which is being widely used for comparing CO₂ emission in refineries in EU.

The Award winning refineries for the year 2014-15 in different categories are as follows:

Sl. No.	Category	Winners
1	Refineries with natural gas	IOCL-Panipat Refinery
2	Refineries without natural gas	IOCL-Haldia Refinery

Innovation Awards for the year 2014-15

MoP&NG has instituted R&D / Innovations Awards for "Best Indigenously Developed Technology / Process" to incentivise and encourage R&D / Innovation efforts in the Oil Industry. The objective of this Award is to promote innovative scientific endeavour in the country by encouraging and rewarding excellence in original invention / innovation and channelizing national and international knowledge and expertise with the mission of giving impetus to innovation activity in the country.

Innovation Awards for the year 2014-15 were given in the various categories as follows:

Sl. No.	Category	Innovation related to	Winners
1	Best Indigenous Technology -Team	Co-processing of Biomass derived oils in Diesel Hydrotreating unit of existing Petroleum Refineries to produce High Quality Diesel	IOCL Team
2	Best Innovation in Refineries -Team	Innovative way of Revamping Propylene Separation Unit of Panipat Refinery	IOCL Team
3	Best Innovation in R&D	Technology for Simultaneous Production of US grade Gasoline and high purity Benzene from unprocessed C ₆ heart cut of FCC gasoline	CSIR-IIP
		HI-Gee Unit for Process Intensification of Distillation / Absorption Process	HPCL

Glimpses of Award Function

Jawaharlal Nehru Centenary Awards for Energy Performance (2014-15)



Shri Sanjiv Singh, Director (R) IOCL (fifth from left) and Shri S.M. Valdyia, GM (I/c), IOCL Mathura Refinery (fourth from left), receiving first prize under the category of refineries with NRGF < 6.8



Shri B.V. Ramagopal, ED (I/c), IOCL Panipat Refinery (fourth from left), receiving first prize under the category of refineries with NRGF 6.8 – 8.6

Jawaharlal Nehru Centenary Awards for Energy Performance (2014-15)



Shri K. Balachandran, COO, (fourth from left), receiving first prize under the category of refineries with NRGF > 6.8 on behalf of RIL-SEZ Refinery



Shri A.S. Basu, Head-Refinery Operations, (sixth from right) HMEI Bathinda Refinery receiving first prize under the category of 'Best improvement in MBN over previous year'

OGCF Awards for Steam Leak (2015)



Shri L.W. Khangwal, ED, IOCL Bongaigaon Refinery (fourth from right), receiving first prize under the category of refineries with Steam Generation < 450 MT/hr



Shri S.S. Sunderajan, MD, Bharat Oman Refineries Ltd., Bina (seventh from left), receiving first prize under the category of refineries with Steam Generation 450-900 MT/hr



Shri C. Manoharan, Director(Refinery), Vadinar Refinery, Essar Oil (seventh from left), receiving first prize under the category of refineries with Steam Generation >900 MT/hr



Shri B.K. Namdeo, Director (Refineries), HPCL (fourth from left), receiving first prize under the category of 'Best improvement in steam leak over the previous year' for Vizakh Refinery

CO₂ Emission Awards (2014-15)



Shri B.V. Ramagopal, ED (I/c), IOCL Panipat Refinery (fourth from right), receiving first prize under the category of 'Refineries with natural gas'



Shri A.P. Gangopadhyay, ED, IOCL Haldia Refinery (fifth from left), receiving first prize under the category of 'Refineries without natural gas'

Innovation Awards (2014-15)



Team IOCL (R&D) receiving the first prize in the category 'Best Indigenous Technology - Team'



Team IOCL receiving the first prize in the category 'Best Innovation in Refineries - Team'



Team CSIR-IIP receiving the prize in the category 'Best Innovation in R&D'



Team HPCL-R&D receiving the prize in the category 'Best Innovation in R&D'

20th Executive Committee (EC) Meeting of CHT

20th Executive Committee (EC) Meeting of CHT was held under the Chairmanship of Shri Sandeep Poundrik, IAS, Joint Secretary (R), MoP&NG, on 2nd September 2016 at HPCL Corporate Office, Mumbai.

During the EC meeting, various issues were discussed such as Energy Efficiency Improvement study, Performance Audit of PSU refineries, sharing of expert group Recommendations for performance improvement and energy conservation, performance Improvement Programme of PSU Refineries, R&D projects, commercialisation of CHT funded Projects etc.

As recommended by the 77th SAC, EC also accorded its approval for including International Centre for Genetic Engineering & Biotechnology (ICGEB) in the project "Renewable crude and liquid hydrocarbon fuels from algae by CPCL/Aban". The collaboration aims to develop Genetically Modified Strains with a view to enhance

biomass production by 25%.



Shri Sandeep Poundrik, IAS, Joint Secretary (R), MoP&NG (second from right), chairing 20th Executive Committee (EC) Meeting of CHT. Seated (L-R): Shri R. Ramachandran, Director (Refineries), BPCL, Shri H. Kumar, MD, MRPL, Shri Brijesh Kumar, ED-CHT and Shri B.K. Namdeo, Director (Refineries), HPCL

Working Group Meetings on Refineries Performance

The 13th and 14th Working Group meetings of the Industry chaired by Shri Sandeep Poundrik, IAS, Joint Secretary (Refineries), MoP&NG were held on 19th July 2016 and 2nd September 2016 at Shastri Bhawan, New Delhi and HPCL Corporate Office, Mumbai respectively, wherein among several issues viz., Implementation of BS-IV Auto fuels across the country by 1st April 2017 and preparedness for introduction of BS-VI auto fuels w.e.f. 1st April, 2020 were discussed and action plan reviewed.

Chairman cautioned towards bunching of shutdowns at number of refineries during January-March 2017 period and suggested for staggering of shutdowns for ensuring smooth rollover from BS-III to BS-IV w.e.f. 1st April 2017.



Shri Sandeep Poundrik, IAS, Joint Secretary (R), MoP&NG (seated second from left), chairing Working Group Meeting. Seated (L-R): Shri Brijesh Kumar, ED-CHT, Shri B.K. Namdeo, Director (Refineries), HPCL and Shri Sanjiv Singh, Director (Refineries), IOCL

CHT was advised to review shutdown schedule and supply demand balance along with refineries and OMCs, that was complied with.

Preparedness for BS-VI fuels by 1st April 2017 was also reviewed. Chairman advised CHT to compile list of all pending environment clearances at various refineries for taking up with MoEF&CC for expeditious clearance, which was also complied with.

Chairman emphasized the need for readiness with infrastructure for taking advantage of lower grid power cost, whenever opportunity is available. Physical performance of refineries and projects costing more than Rs.100 crore were also reviewed by the Chair.



Working Group Meeting in progress. Seated (L-R): Shri S.K. Handa, ED (T), EIL, Shri Ashwani Soni, Director (Projects), EIL, Shri M. Venkatesh, Director (Refinery), MRPL, Shri G. Roy, MD, CPCL and Shri Ajay Deshpande, Director (T), EIL

78th Meeting of Scientific Advisory Committee (SAC) on Hydrocarbons

78th Meeting of the Scientific Advisory Committee (SAC) was held on 16th August 2016 at Bhabha Chamber, SCOPE Complex, New Delhi. Dr Anil Kakodkar, Chairman, SAC, chaired the meeting which was attended by the SAC members and executives from Indian PSU oil & gas companies, their R&D Divisions and members from academia. Shri Brijesh Kumar, Executive Director, CHT, welcomed the Chairman Dr. Anil Kakodkar and members of SAC, academia and scientists to the 78th Meeting.

Dr. Anil Kakodkar, in his opening remarks, appreciated that in the interim period since the last SAC meeting, significant progress has been made with respect to the streamlining of procedure for inviting new R&D proposals and commercialisation of Indigenous technologies. He appreciated the methodology adopted by CHT for inviting R&D proposals which brings in paradigm shift in the process, making it broad based and transparent which will provide impetus to demand driven R&D. He hoped that the efforts made on finalising the model MOU agreement will definitely help to expedite process of signing MOUs with the participating agencies reducing the time for starting the actual work on the project.

He emphasized that while import of state of the art technology may be necessary, effective policies are required for preferential progressive market access to competing Indigenous technologies meeting the technical standards. For tackling the issues of global warming and energy security, research need to be focused on Non Fossil Hydrocarbon based energies. Greater efforts need to be directed towards generation and use of biomass as source of energy without diverting land that can be used for food crops or requirements of animal feed, hydrogen from water and Recycling of CO₂ for production of chemicals, fuels, etc.

In order to leverage relevant scientific knowledge for development of such new technologies, a small fund may be allocated for basic research. Further, besides ongoing

process development, efforts are required to be strengthened for enhancing Indigenous capability in equipment / catalyst manufacturing. A detailed gap analysis needs to be carried out to identify specific development and priorities.

CHT presented the ATR of the 77th meeting, the current status of various on-going / approved projects, commercialisation of Indigenous developed technologies and Standardisation of MOU & EOI for inviting R&D Proposal.

SAC opined that a small group with Oil Companies' Directors and EIL can be formed to assess the scenario for contemporary indigenous technologies development and recommend steps for promoting adoption of these technologies. Chairman, SAC, also suggested that the Committee may also identify other Gaps in Technology Translation Infrastructure and recommend appropriate actions.



78th Meeting of SAC in progress. Seated (L-R): Shri B.K. Namdeo, Director (R), HPCL, Shri R. Ramachandran, Director (R), BPCL, Shri Mahendra Pratap, ED, DGH, Shri M.D. Garg, Director, CSIR-IIT, Dr Ajit Sapre, President-RTG-RIL, Shri S. Bhargava, Head-CRDC, BPCL, Shri A.S. Pathak, Director-CHT and Shri S. Ghatodgajudu, Addl. Dir. -CHT



78th Meeting of SAC in progress. Seated (L-R in front row): Dr B. Bhargava, DG-ONGC Energy Centre, Shri R.K. Kashyap, ED-GAIL India Ltd, Smt Vartika Shukla, ED-EIL, Dr M. Lakshmi Kantam, Director, IICT, Dr S.S.V. Ramakumar, ED-IOCL R&D and Shri U. Venkata Ramana, Director (T), CPCL



Dr Anil Kakodkar, Chairman, SAC addressing the 78th meeting of SAC; (Seated Left) Shri Brijesh Kumar, ED, CHT

Chairman, SAC desired that while seeking proposals in specified areas through EOI mode is desirable, this should be in addition to the existing route for soliciting R&D proposals. It was suggested that EOI for inviting R&D proposals should be done twice in a year, preferably in June and December every year. After deliberations,

SAC also opined that foreign companies / groups working independently cannot be considered for grants, however, Indian companies can work in association with foreign groups in critical technology areas and seek grants for own activities.

Promotion of indigenous technologies

In order to have focused approach on commercialisation of indigenously developed technologies, Executive Committee, CHT constituted a Committee under the Chairmanship of Director (R), IOCL with senior executives from other oil companies, EIL and CSIR-IIP as members. The Committee held detailed deliberations on various aspects of the technology basket developed till date. The different impediments to commercialization were also reviewed for arriving at possible approach to overcome the bottlenecks.

Two meetings were held by the constituted committee in May & October 2016 to review the status of various completed R&D projects along with their commercialisation potential.

Major recommendations of the Committee for improving commercialisation of indigenous technologies developed by R&D institutes as well as CHT funded projects are:

- a) Grantee Institutions to focus on tie-ups for scale-up and commercialisation
- b) CHT to consider capability for sustained development and tie-ups for commercialisation while recommending to SAC for consideration; Way forward to be presented by Commercial Partner to CHT on completion of the project
- c) Captive commercialisation of indigenous technologies will be considered by oil companies on case to case basis
- d) EIL's technology basket to be declared at the time of offering for PMC and in such cases, the technology

selection will be done by the client, or EIL may offer selected technologies as part of the package

The Committee reviewed all the CHT-funded completed projects and shortlisted 9 nos. projects having potential for commercialization, for which institutions were advised to put up roadmap / action plan for commercialisation.

As a follow up of decision of meeting of the Committee, a two-day workshop was conducted on 20th-21st June 2016 at CHT, Noida with the objective of sharing technical and commercial information of these indigenously developed technologies available with respective Oil Industry and R&D institutes. Senior executives from various Refineries and R&D Institutions of IOCL, BPCL, HPCL, CPCL, NRL, MRPL, B&R, EIL, CSIR-IIP and GAIL participated in the workshop and presented the technology basket developed / available.

In order to attract more participation from Academia and exploit the research expertise, research proposals were invited in August 2016 through Expression of Interest (EOI) by CHT in the areas identified by Position paper. The Steering Committee has been nominated by Chairman, SAC to recommend and advise modifications to the proposal by the proposer, if required before consideration by SAC. The Committee held its meeting in November 2016 and scrutinized all the 15 nos. proposals received against EOI.

A Compendium of indigenous technologies with gap analysis has been prepared and distributed by CHT to all stakeholders.

Energy efficiency improvement study and performance audit of PSU refineries

CHT on behalf of the industry finalised the Agreement, including scope and payment terms for comprehensive energy efficiency improvement study and performance audit of 15 PSU refineries by EIL. Refinery-wise targets have been set both for short term and medium term. The

medium-term target (60-70 MBN) for 2020-21 for PSU refineries, were finalised after deliberations in EC of CHT held in May 2016. The entire study is to be completed in one year in phased manner.

Perform, Achieve and Trade (PAT) Scheme implementation in refineries

Petroleum Refinery Sector has been included in the PAT scheme from the cycle-II, which has commenced from 1st April 2016. Out of 23 Refineries in the country, 18 Refineries (except four smaller refineries viz. Tatipaka, Cauvery Basin, Guwahati and Digbol Refineries; and the newly commissioned Paradip Refinery) have been notified as Designated Consumers (DC) vide Gazette Notification No. 225 dated 30th December 2015.

CHT has closely worked with BEE providing the methodology to calculate the specific energy consumption (MBN) taking into account the complexity of each Refinery, verification of data, documents and Baseline data.

Based on sector target of 5.97% reduction in energy consumption from the baseline energy level of 2014-15, the refinery Specific Energy Consumption target has been notified by Ministry of Power on 31st March 2016. Refineries are required to achieve the target MBN in the assessment year, 2018-19. Accordingly, these refineries are in the process of identifying action plan to achieve these targets.

As per the framed mechanism, DCs are required to carry out mandatory audit through accredited energy auditor and submit details of energy saving schemes with implementation schedule within 18 months i.e. by June 2017.

Sharing of Expert Group Recommendations

Indian Refineries have been taking various improvement measures over the years and also been participating in the Performance Benchmarking Studies, with the objective to assess competitive position vis-à-vis their local and global peers and to establish credible goals to target for continuous improvement to achieve performance par excellence. A need was felt to make a ledger of experiences on the best practices and share major success stories for mutual benefit and also prepare an action plan for further improvement by all the refineries.

Accordingly, based on various recommendations and experience gained by refineries over a period of time, CHT has brought out a Compendium including the following information:

- i. Major schemes implemented
- ii. Schemes under implementation
- iii. Schemes identified for future
- iv. Implementable schemes identified based on cross sharing
- v. Status of Expert Group (2013) recommendations
- vi. Best practices, including ideas taken from RTMs, Activity Committee meetings, and Innovations Awards

The compendium was circulated in October 2016 to all the refineries and EIL as a part of dissemination and sharing of information.

Performance Benchmarking of PSU refineries

For calendar year 2016, work order for benchmarking study was placed on Solomon Associates in October 2016 for 15 PSU fuel refineries and 4 lube refineries. Besides this, BOREL has also been included in the study. Similar to the previous three cycles of 2010, 2012 and 2014, the 2016 benchmarking study will help in gap identification for achieving greater efficiencies, enhanced reliability and improved margins by the refineries.

The schedule and milestones chalked out for the study are as follows:

- Initial Data Submission: 15th March 2017
- Rigorous Input Data Review Period: 15th June 2017
- Submission of Initial Study Results: August 2017
- Submission of Final Study Results: October 2017
- Study presentation and workshop: November 2017

Mandatory Energy Audit (MEA) by PCRA

CHT on behalf of the industry finalised the Agreement, including scope and payment terms for MEA through PCRA for 12 PSU refineries (excluding IOC Guwahati

and Digbol, who are not part of PAT, IOCL-Paradip which was recently commissioned and BPCL-Kochi, which has already completed MEA).

Activity Committee Meetings

Fluidized Catalytic Cracking

44th FCC Activity Committee Meeting was organized at IOCL, Panipat Refinery during 27th-28th July, 2016, which was attended by 70 participants from Indian PSU, Private and JV refineries apart from delegates from R&D wings of IOC, BPCL and HPCL, Catalyst suppliers, viz., Intercat, Grace, CPTDC and BASF and Process licensors UOP and Technip.

Shri Rajan Kapoor, Director (CHT) delivered the keynote address. He highlighted the importance of FCC Activity Committee, which arose from the fact that the FCC was the highest profit generating unit in a refinery. The Activity Committee provides a platform for participants to look at differences in hardware and catalysts in different units and try and adopt those features which provide others with operating advantages.

Shri Manoj Sharma, GM (TS), opined that due to its moderate operating pressure and high volumetric expansion, FCCU provides very high profitability to the refineries. Shri V.K.Raizada, ED (T) shared his views on World's energy demand in 2040 of which 25% is expected to come from India. He stressed upon the need of Petrochemical integration with refineries.

Shri B.V. Ramagopal, ED(I/c) shared the glimpse of Panipat Refinery. He mentioned that the petrochemical operation had enabled the refinery to contribute the maximum to the corporate profitability of as much as 40% of overall profits. He exhorted all participants to plant a sapling as part of the tree plantation organized by the refinery to ensure that the Activity Committee Meeting was a carbon-neutral event.

FCC presentations were made by the representatives from the refineries highlighting the performance of the respective FCC units during the last one year. Presentations included the details of operational improvements, major areas of concern, past revamp or shutdown & highlights carried out in the unit during this period. Also,



Sh. B.V. Ramagopal, ED (I/c), IOCL Panipat Refinery, planting a sapling

the vendor & licensor representatives made presentations highlighting their recent projects & discussed the major concerns of FCC.

The major takeaways / best practices emerged out of the ACM are as follows:

- Gasoline splitters feed directly from FCCU as hot feed for energy saving
- Debottleneck MAB capacity limitation by injecting Oxygen at MAB suction
- Recover LPG from stabilizer off gas from crude units by routing off gas to main column overhead receiver
- MAB drive change from MP to HP for steam saving
- WGC drive change from steam to motor for higher efficiency
- Feed Management for better control of regen temperature by providing dedicated line for high CCR material

Distillation

18th Activity Committee Meeting on Distillation was organized at IOCL Mathura Refinery during 11th-12th August, 2016 which was attended by 65 participants from Indian PSU, Private and JV refineries apart from



Participants of the 44th ACM on Fluidized Catalytic Cracking at IOCL Panipat Refinery

delegates from R&D wings of IOCL, BPCL & HPCL, Dorf Ketel and KBC.

Shri Gautam Das Gupta, GM (TS) IOCL-Mathura Refinery, welcomed all the participants, and provided a brief history of the evolution of Mathura Refinery and addition of various processing units.

Shri Rajan Kapoor, Director (CHT) highlighted the importance of Mathura Refinery which is a blend of Technology and Ecology, being the first in Asia and third in the world to receive the coveted ISO-14001 certification for Environment Management System in 1996. He emphasized that CDUs being energy guzzlers due to the sheer volume of crude processed, require particular attention of refiners as the share of energy is 82% in the operating expenses of Indian Refineries, which is higher than that of pace setter refineries (at 35-40%), as per Solomon 2014 data.

Presentations on distillation and desalter operation were made by the representatives from the refineries highlighting the performance of the respective units. The presentations also included the details of operational improvements, major areas of concern, past revamp or shutdown, and highlights of these improvements carried out in the unit. Also, the vendor and licensor representatives made presentations highlighting recent trends, innovations and best practices.

Shri S.M. Vaidya, GM (I/c), Mathura Refinery, in his Valedictory Address, spoke of the growing competitiveness and challenges in refining sector due to emergence of alternative energy sources. He stressed on reliability as a key ingredient.

The major takeaways / best practices emerged out of the ACM are as follows:

- Ejector sequence optimization based on quantity & quality of feed in VDU
- Flash Steam Recovery from MP Steam Condensate
- Installation of Liquid Ring Vacuum Pump / Hydro-



ACM on Distillation Seated (L-R): Shri I.B. Patel, CSTM, IOCL-Mathura, Shri Rajan Kapoor, Director-CHT, Shri R.S. Patel, GM (I/c), IOCL, Shri Rajiv Kalita, GM-HR, IOCL-Mathura and Shri Gautam Dasgupta, GM (TS), IOCL-Mathura

circulation system for replacement of ejector steam

- Low level heat recovery from column overhead
- Use of plate type heat exchanger especially in amine (lower approach) services / Air-Preheater
- Installation of tube-insert in Shell & Tube Exchanger
- Use of helical, spiral type exchangers in heat-exchanger train to enhance heat transfer
- Change in the orientation of skin thermocouple from sidewalls to bottom along with cap/sheet provision to avoid burning of cables and to sense correct coil temperature
- Provision of variable speed fans for crude column overhead and tempered water system
- Preheating of air by steam APH to avoid dew point corrosion
- Routing of overflash from Atmospheric Column to Vacuum column for reducing Vacuum Furnace duty
- Routing of CLO to Bitumen partially for CLO absorption & Bitumen maximization
- Lower differential pressure across Desalter mixing valve (reduction from 1.1 to 0.1 Kg/cm²g) resulting in lower water carryover and helping in increasing the wash water rate



Participants of the 19th ACM on Distillation at IOCL Mathura Refinery

Environmental Management

26th Activity Committee Meeting on Environmental Management, was held at Guwahati Refinery, the Gangotri of IndianOil, during 27th-28th September, 2018. The meet was attended by around 46 participants from different oil companies / refineries of IOC, BPCL, HPCL, CPCL, MRPL, NRL, BORL, HMEIL, Essar Oil, EIL and IOCL R&D Centre.

After traditional welcome by Guwahati Refinery, Shri Brijesh Kumar, Executive Director (GHT), in his keynote address said that refineries face complex regulatory issues including product quality and future refining operations may be guided by reduction in carbon footprint and water consumption. Meeting the growing petroleum products demand having requisite quality on one hand and meeting the stringent environmental regulations on the other hand is a challenge to the refining industry. He urged the participants to share the best practices adopted by their companies / refineries and also their experience on Environmental protection related issues.

Shri S.P. Baruah, GM (TS & HSE), Guwahati Refinery in his inaugural address, underlined the importance of adopting the effective mitigation practices for reducing the impact of air and water pollution and the role that oil refining companies have to assume in this context.

Shri N.K. Baruah, DGM (Production), while delivering the welcome address, spoke about the importance of sustainable development. Shri C. Abhiram, GM (HSE), IOCL, RHQ and convener of the meet, in his opening remarks stressed on the innovative ways for decreasing GHG emissions and reducing water usage for sustainable growth.

After Technical presentations by the oil companies/ refineries, a question and answer session was held which was quite interactive.



29th ACM on Environmental Management; Seated (L-R): S/Shri S.P. Baruah, GM (TS & HSE), Brijesh Kumar, ED, GHT, C. Abhiram, GM (HSE), IOC, RHQ, R.L. Kalita, GM (HSE), IOCL Paradip Refinery and A.K. Agrawal, Advisor (Technical) GHT

The major takeaways / best practices emerged out of the ACM are as follows:

- Routing of bearing cooling water from process units to fresh water sump to reduce ETP load
- Anoxic Tank facility before aeration tank for reduction of NH₃ and N₂ in treated water
- Belt skimmer / oil skimmer at ETP inlet to take care of excessive oil ingress in ETP
- Oil recovery from storm / open water channel by using hydraulic based catch pit
- Confined Bio-remediation of oily sludge for sludge mitigation in eco-friendly way
- Advanced Biological treatment (automated dose control system) for effluent treatment
- Usage of oily sludge from ETP in DCU, not only sludge mitigation but also valuable petroleum products
- Treatment of Fire water network for use of ETP treated water as make up



Participants of the 29th ACM on Environmental Management at IOCL Guwahati Refinery

Glimpses of the 20th RTM



उच्च प्रौद्योगिकी केन्द्र में हिन्दी पखवाड़े का आयोजन

उच्च प्रौद्योगिकी केन्द्र में पिछले वर्षों की भांति दिनांक 14 सितम्बर 2016 से 28 सितम्बर 2016 तक हिन्दी पखवाड़े का आयोजन किया गया।

अपने उद्घाटन भाषण में कार्यकारी निदेशक श्री वृजेश कुमार ने, सरकारी काम में हिन्दी के सरल और सामान्य प्रयोग पर विशेष बल दिया। उन्होंने कहा कि भाषा तभी लोकप्रिय होती है, जब वह सबकी समझ में आए। उन्होंने अधिकारियों से कठिन और बोझिल शब्दों के प्रयोग से दूर रहने तथा आम बोल-चाल के शब्दों का प्रयोग करने के लिए प्रेरित किया।

इस अवसर पर माननीय पेट्रोलियम और प्राकृतिक गैस राज्य मंत्री (स्वतंत्र प्रभार), श्री धर्मेन्द्र प्रधान, द्वारा जारी अपील का वाचन और वितरण किया गया। मंत्री महोदय ने अपनी अपील के माध्यम से हिन्दी के प्रयोग को अधिक प्रभावशाली बनाने का सुझाव दिया। उन्होंने बताया कि हमारे मंत्रालय तथा हमारे उपक्रमों का सीधा संपर्क जनता के साथ होता है, अतः जनता को जनभाषा में ही समझाना उचित होता है।



हिन्दी पखवाड़े में हिन्दी भाषी प्रतिभागियों के लिए जैसे कि हिन्दी में चित्र कथा व प्रारूप लेखन तथा हिन्दी इतरभाषा भाषियों के लिए 'अशुद्ध वर्तनी को शुद्ध करना' तथा लघु पाठ कथा की कई प्रतियोगिताओं का आयोजन किया गया।

सभी प्रतियोगिताओं में प्रतिभागियों ने बड़े उत्साह से भाग लिया। दिनांक 28 सितम्बर 2016 को संपन्न हुए समापन अवसर पर विजयी प्रतिभागियों को कार्यकारी निदेशक महोदय ने पुरस्कार प्रदान किए।

हिन्दी पखवाड़े की झलकियाँ





मन्त्रीमंडल सचिवालय लोक शिकायत निदेशालय

क्या आप अनसुलझी शिकायतों से परेशान हैं?

आप लोक शिकायत निदेशालय के कार्य क्षेत्र के अंतर्गत मंत्रालयों, विभागों और संगठनों से संबंधित शिकायतों के समाधान के लिए लोक शिकायत निदेशालय की सहायता ले सकते हैं। पिछले कुछ सालों से, इस निदेशालय द्वारा उठाई गई लगभग नब्बे प्रतिशत शिकायतों का संतोषजनक समाधान किया गया है।

अपनी शिकायत दर्ज कराने से पहले कृपया नीचे दी गई शर्तों को ध्यानपूर्वक पढ़ें:

- आपने अपनी शिकायतों को संबंधित विभाग के समझ समाधान

हेतु प्रस्तुत कर लिया हो।

- आपकी शिकायत सेवा मामले (ग्रेच्युटी, जी.पी.एफ. इत्यादि जैसे सेवांत छित लाभों के मुग्तान के अलावा), संबंधित विभाग के मंत्री के स्तर पर निपटाए गए मामले, घाणिज्यिक अनुबंध, न्यायाधीन मामले, ऐसे मामले जहाँ निर्णय लेने के लिए अर्धन्यायिक पद्धति और अपीलीय प्रक्रियाएं निर्धारित की गई हैं, आर.टी.आई. मामले, धार्मिक मामले से संबंधित न हो।
- किसी भी प्रकार के चुझाव को शिकायत नहीं माना जाएगा।

नोट:

आप हमारी वेबसाइट <http://dpg.gov.in> पर अपनी शिकायत दर्ज कर सकते हैं।

आप अपनी शिकायत, संपूर्ण सूचना और संगत दस्तावेजों के साथ हमें डाक, फैंक्स या ईमेल द्वारा भेज सकते हैं।

हमसे संपर्क करें:

सचिव,

लोक शिकायत निदेशालय,

दूसरा तल, सरदार पटेल भवन, संसद मार्ग, नई दिल्ली-110001

दूरभाष : 011-23743139, 23741228, 23363733

फैंक्स : 011-23345637 ईमेल : secypg@nic.in

वेबसाइट : <http://dpg.gov.in>

CABINET SECRETARIAT DIRECTORATE OF PUBLIC GRIEVANCES

Unresolved Grievances Bothering You?

You may seek help of Directorate of Public Grievances (DPG) in resolution of grievances relating to Ministries /Departments and Organisations under its purview. In the last few years, nearly ninety percent of the grievances taken up by the Directorate have been resolved favourably.

Please read carefully the conditions listed below before lodging your grievance:

- You should have exhausted the Departmental remedies for individual grievances.

Note:

You can lodge your grievance online on our website : <http://dpg.gov.in>.

You may also send your grievance to us by post or fax with complete information and relevant documents.

- Your grievance should not relate to service matter (other than payment of terminal benefits like gratuity, GPF etc.) a case disposed of at the level of Minister of the concerned department, commercial contract, a sub-judice case, a case where quasi-judicial procedures and appellate mechanisms are prescribed for decision making, RTI matter, Religious matter.
- Suggestions of any sort will not be treated as grievance.

Contact us at:

The Secretary

Directorate of Public Grievances

2nd Floor, Sardar Patel Bhavan, Sansad Marg,
New Delhi-110001

Tel: 011-23743139, 011-23741228, 011-23363733

Fax: 011-23345637, email: secypg@nic.in

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