



MAKE IN INDIA

IICChE-NRC Newsletter



Jan-Feb 2016

IN THE FOLDS

A Much Needed Push

by Hari Bajpai

It was 25th September 2014 when prime minister of India formally announced "Make in India" campaign. Formally an agriculture based economy finally reached to a service based economy in recent days largely due to knowledge based and IT based industries. This initiative is expected to fill the economy with missing share of manufacturing and industrialization.

What is there for us?

Out of 25 selected sectors for Make in India initiative there are 6 sectors which are closely related to chemical engineers namely: Biotechnology, Chemicals, Food Processing, Leather, Oil & Gas and Pharmaceuticals. There are other industries which are loosely associated too.

One end of this gamut is petroleum refining where India is having world class facilities and is a net exporter of finished products, even being the third largest importer of crude oil. While in terms of chemicals India is net importer and per capita consumption is pretty less than the western countries. Currently Indian chemical market accounts for 3% of global share. With growing economy and government initiatives it's not just manufacturing is expected to grow but

knowledge based industry and R&D will also expand along.

Why We?

With its presence in every part of our life it is the only industry which can lead to sustainable development of India and globe.

This goes beyond just increased chemical consumptions due to rise in GDP. With one fifth of population below poverty line India is perishing 40% of agro products due to lack of proper packaging. Alarming condition of pollutions in mega cities of India, lack of affordability of quality drugs in many areas, are just to name a few where we can contribute a lot.

With growing population and increasing load on metropolitan chemical engineers are to play a major role in:-

Assuring water resource management to supply 24x7 water.

Better materials for improved infrastructure to limit energy consumptions like phase changed material.

Contributor's Tale

Tale of great visionary Dr. H L Roy who started the IICChE in a single room in Jadavpur University with 30 members

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Better transport to support long distance commuting with lower emissions and greater comfort and safety.

Low cost renewable and alternate energy to limit dependability of fossil fuels and effective waste management.

Challenges

India offers huge production and consumption market for chemical companies, however conversion of this potential into market reality depends on the success of the recent government initiatives to create favorable conditions to enable global and Indian firms to invest in manufacturing facilities. When it comes to challenges there are many posed before this industries. Availability of feedstock may be one then volatility is other. Over and above the tax and duty structure is also not very conducive. Other challenges can be high capital investment, environmental regulations and others.

In terms of taxes and duties Indian government is seriously started eliminating the anomalies and alternative feedstock options if seek out to ease feedstock issue can be helpful. This will also push R&D and technologies commercialization of indigenous knowledge. India is still lacking in investment in R&D as per Prof David Gross (Noble prize winner)

"In 2000, both India and China invested 0.8 per cent of their GDP in science and research. By 2010, China's investment had risen to close to two percent, while India's was still at 0.8. Now, India has moved up to 0.9 while China's investment is 2.8 per cent. Similarly, Brazil, another emerging economy invests over 2 per cent of GDP in science and research, South Korea 3.7. Most European countries invest around 3.7 percent."

Positive Outlook

To come over the challenges and promote the sector Indian government is aggressively working to push the growth in this sector. Licensing is abolished for almost all the chemicals except for certain toxic chemicals. The list of chemicals reserved for small scale industries is also reduced. On the other hand the exemption on excise duty on biodiesel and concession on bio ethanol excise duty are also positive moves to promote the sector.

India is a major growth market for petrochemicals. In the last decade it has grown at an impressive 14% p.a. Domestic production growth has lagged consumption opening up a major market for imports. To

reduce the high current account deficit, Indian Govt. intends to increase share of manufacturing from current 16% of GDP to 25% of GDP by 2022. Domestic manufacturing is hence being promoted through formulation of a new policy for setting up National Manufacturing Investment Zones. Indian Govt. has recently increased import duty on polymers from 5% to 7.5% to encourage domestic production.

Path Forward

The new GST bill is expected to help Indian pharma industry, one of major exporters across globe, in big way which is suffering from tight margins after seeing tremendous growth.

100% FDI and delicensing is one measure to attract the foreign investment while reducing the list of chemicals reserved for MSME is another to boost the pace of progress in this sector.

To sum up, it is needless to say the reforms these industries are looking forward to cannot be turned into reality without new talent exploration, development and utilization.

Resources:-

http://www.business-standard.com/content/b2b-chemicals/chemical-industry-to-gain-from-make-in-india-initiative-115030500825_1.html

[Sputing the growth of Indian Chemical Industry Handbook on Indian Chemicals and Petrochemicals Sector \(FICCI 2014\)](http://www.business-standard.com/content/b2b-chemicals/invest-more-in-research-for-success-of-make-in-india-prof-david-gross-116010600548_1.html)

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"Indian Chemical Industry, besides playing a crucial role in meeting the daily needs of the common man, has supported nation building by significantly contributing to industrial and economic growth of the nation"

K Jose Cyriac
Secretary (2012)
Ministry of chemicals and Fertilizers

CONTRIBUTOR'S TALE

Dr. H L Roy



Dr H.L. Roy
The Founder President, IICHe

The great visionary of India, an agriculturist, a politician, a social worker, a teacher and an educationist, Late Dr Hira Lal Roy the founder president of IICHe was born in a town of State Bihar, Chhapra on Sep 26, 1936.

He completed his PhD from Banaras Hindu University and worked as Principal Ram Jaipal College Chhapra, Bihar.

Pioneer of chemical engineering education in India Dr. H.L. Roy started IICHe in Jadavpur University in 1947 May 18th. IICHe was started with 30 members in a room with limited fund. IICHe is now an elite organization connecting industry professionals and academicians.

Dr. H. L Roy have also been an active politician and been Member of Lok Sabha during 1988-89 from Chhapra constituency. He have been a member of committee on External Affairs and Consultative Committee, Ministry of Human Resource Development. As a social worker he worked for the welfare and uplift of downtrodden and weaker section.

In year 2001, Feb 9th the great man left us at age of 65 to share and fulfill his work and vision for IICHe. It's really a matter of pride for us a member of IICHe

IICHe-NRC EVENTS

Materials of Construction for Chemical Process Plants (21-22 Aug 2015)

A two day program was conducted with association of FAI (Fertilizer Association of India) having following topics covered.

1. Typical Materials Deterioration Mechanisms in Chemical Plants.
2. MOC for Reformer Tubes.
3. MOC for Critical Heat Exchangers in Ammonia Plants and Refineries.
4. MOC for High Pressure Equipment like Reactor and Stripper in Urea Plants.
5. MOC for Sulphuric Acid and Phosphoric Acid Plants.
6. Development of Special Alloys for Chemical Plants.
7. Non-Metals as Materials of Construction.
8. Approach to Risk Based Corrosion Management.
9. Case studies including Failures of Equipment, Use of New Materials for Critical Equipments in Process Plants

Lovraj Kumar Memorial Trust-22nd Annual Lecture 2015 (18 Nov 2015) By Mr. Vikram Singh Mehta
Lecture "The Future of Oil" was an elaborate work to present the future scenario of fossil fuel considering the environment aspect and energy requirement.

IICHe (NRC) - Lecture Series "Learning with the Leaders" (12 Dec 2015) by Mr. Umesh Goel
Excellent work by Umesh Goel to describe the assessment of risk in process plant, role of HAZOP and methodology of conducting the same.

Upcoming events

IICHe (NRC) "Foundation Day" (16 Jan 2016)

LKMT WORKSHOP – 2016 (10-11 Mar 2016)



CHEMICAL ENGINEERING NEWS

Compiled by Karthikeyan Prakash

Indian refiners need to invest \$4.5B to produce Euro VI fuels by 2020 to produce fuels in compliance with new Euro VI rules, the nation's road transport minister said this week. India has advanced the date for nationwide implementation of Euro VI fuels by four years to April 1, 2020, in an effort to curb pollution, according to the report.

Pollution levels in Indian cities have often been compared to China's Beijing. A 2014 study from the World Health Organization said India's capital city of New Delhi had the worst air quality out of 1,600 cities surveyed worldwide.

Iran's rift with Saudi Arabia could limit new oil, gas investments-will stiffen the challenge it faces in attracting foreign investment once sanctions on its economy are lifted. The breakdown in ties stoked tensions just as Iran is preparing for the removal of sanctions. An international agreement to limit Iran's nuclear program, when it takes effect, would free the country to seek more than \$100 billion in investment it says it needs to rebuild its oil and natural gas industries. Regional instability stemming from the diplomatic crisis will threaten these

efforts, leading to prolonged power struggles that make it harder for companies to evaluate the risks of investing in Iran.

Saudi Aramco IPO proposal-Saudi Arabia is reviewing an initial public offering of Saudi Aramco, the world's biggest crude oil producer, Mohammed bin Salman, the kingdom's deputy crown prince, said in an interview. A decision on the IPO is likely to be taken in the next few months, he said, without giving further details. A sale of shares would serve Saudi Arabia and Aramco's interests, promote transparency and counter corruption.

India upholds ban on larger diesel-engine vehicles-Chief Justice T.S. Thakur maintained a ban on new diesel-engine cars over 2,000 cubic centimeters in New Delhi through April in a bid to curtail air pollution in the Indian capital. The court was hearing a challenge by Mercedes, Toyota Motor Corp. and Mahindra & Mahindra to its order.

CB&I awarded China polypropylene contract-CB&I has secured a contract from Hebei Haiwei Group for the license and basic engineering design of a polypropylene unit to be built in Jingxian, Hebei Province, China. The unit will use CB&I's Novolen technology

to produce 200 metric Mtpy of polypropylene.

GE, Accenture announce first deployment of Intelligent Pipeline Solution-GE and Accenture said that Columbia Pipeline Group (CPG) is the first company to deploy the Intelligent Pipeline Solution, a software solution that helps pipeline operators make informed decisions around pipeline safety and integrity.

India seeks more fuel ethanol use to cut pollution-India said it will allow vehicles that run on ethanol and asked the sugar industry to boost production of the clean fuel in measures aimed at paring back pollution that blankets New Delhi. Road Transport Minister Nitin Gadkari said he will announce policy measures to implement the decision before Jan. 26 that will "allow manufacturing of vehicles that can run on 100% ethanol and flexi fuels." Only about 130 of India's 500 sugar mills have distillation capacity for the fuel, according to the Indian Sugar Mills Association, which said the industry already is expanding.

STUDENT'S CORNER

Things to Remember

by Karthikeyan Prakash

Density of Gas

Density is defined as mass per unit volume.

Density of gas can be calculated as $\rho = PM/RTZ$ where ρ is density, P is Pressure, M is molecular weight, R is gas constant, T is Temperature, Z is compressibility factor in consistent units.

Specific Gravity (relative density) of Gas

The specific gravity of a gas, γ , is the ratio of the density of the gas at standard pressure and temperature to the density of air at the same standard pressure and temperature. The standard temperature is usually 60°F, and the standard pressure is usually 14.696 psia.

Specific gravities of all gases at specific pressures and temperature are equal to ratio of the molecular weight of the gas to that of air (28.967). Although specific gravity is still frequently used, this traditional term is not used under the SI system; it has been replaced by "relative density."

T-Shirt Quote

by Hari Bajpai



Seventh row of periodic table is completed with four new elements – those with atomic numbers 113, 115, 117 and 118 – have indeed been synthesized has come from the **International Union of Pure and Applied Chemistry (IUPAC)**, completing the seventh **row** of the periodic table.

The race for even more is on.

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