POWDER METALLURGY ASSOCIATION OF INDIA

PMAI

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Contents

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Editorial

The current issue of Newsletter reports the annual PMSC-19, a short course on Powder Metallurgy of PMAI, conducted at the College of Engineering, Pune with the able management of Prof. N. B. Dhokey and Prof. S. P. Butee as convener and co-convener. The industrial visit to Ranishaw, additive manufacturing system (metal 3D printing) Pune, was a rewarding experience to the participants of the course.

An insightful article "Decoding the Indian Economic and Automotive Slowdown" written by President PMAI, Aniket Gore highlights the present macro situation in India.

He enumerates the current challenges, yet, he hopes that a coherent reform effort from the Indian Government of India will boost Indian Manufacturing, revive consumer confidence and lead a recovery in economic growth.

The Anual International Conference & Exhibition, PM-20 will be held during 19-21, Feb. 2020 at The Lalit, Sahar Airport Road, Mumbai. We look forward to your presence at the event.

P. Ramakrishnan

NEWSLETTER

Powder Metallurgy Short Course (PMSC-19)

A four-day short-term course on powder metallurgy PMSC-19 took place from 26-29 Sept 2019 in the beautiful green building of BHAU Institute of Innovation, Entrepreneurship and Leadership, College of Engineering Pune Campus. The program was organized by PMAI in collaboration with Department of Metallurgy & Materials Science College of Engineering Pune.

Dr. N. B. Dhokey, Convener and Vice President of PMAI welcomed the participants and briefed about workshop. Dr. S.P.Butee, Co-Convener and HoD Metallurgical Engineering COEP introduced various activities of the department. The inauguration function was graced by Mr Aniket Gore, President, Powder Metallurgy Association of India. Dr Vaishali Poddar did anchoring and proposed vote of thanks.

Participants and speakers of the workshop PMSC 2019

Invited talks covered various aspects of powder metallurgical technology. The multiple invited talks covered topics such as overview of Powder Metallurgy and Particulate Material Technology, High density high performance PM material processing (Mr. N. L. Chandrachud, Consultant); Maintaining quality in PM manufacturing (Mr. Rajendra Sethiya, GM Quality, GKN, Pune); Thermal method of powder production in PM (Mr. Tarashankar Mahata, BARC); Mechanical and Solution Methods of Powder Production for PM, PM Porous Materials, Powder Injection Molding (Dr. K. Murli Gopal, Novoken Innovations); powder characterization (Dr. P. Ramakrishnan, Emeritus Prof. IITB); Commercial Iron powder technology: manufacturing, characterization & applications (Mr. Mahesh Nipanikar, Hoganas); Consolidation of Powders, Binders, Lubricants & Sintering Aids (Mr. Syam Babu, BARC); Thermal Consolidation of Powders– Sintering Fundamentals, PM parts Heat Treatment (Dr. N.B. Dhokey, CoEP); Introduction to Advanced Ceramics and Composites, Fabrication / Shaping Methods for Ceramics, Bio-materials (Dr. Deep Prakash); Sintering of Some Commercial Ceramics(Dr. S. P. Butee, CoEP), Overview of PM Standards(Dr V. Poddar); Furnaces for sintering & heat treatment (Mr. N Gopinath, Fluidtherm); Design and fabrication of Tooling for PM (Mr. Sanjay Rastogi); Friction Materials and Biomaterials (Malobika Karanjai, ARCI); PM for Defence and Aerospace Industry, PM applications in cemented carbide cutting tool technology (Mr. Bijoy Sarma, Consultant); PM in Nuclear Engineering and Energy Generation (Mr. Basak, BARC); Additive Manufacturing (Mr. Sai Jonalagadda, Renishaw) and Pm in Bulk metallic glasses (Dr B Majumdar). Each session comprised of dedicated discussions, challenges and opportunities in powder metallurgy technology development. As part of the course, an industrial visit was conducted to additive manufacturing plant Renishaw Pune. Overall there were about 30 participants attended this course which were drawn from diverse industries viz. Hindustan Platinum, Hilti, Rio-Tinto, Vijayshree Wear plates, Ram Sintered, and research and academic organization. Based on the course taught, online examination was introduced and participants have responded very well to this new initiative.

Participants engrossed in talk on additive manufacturing by Sai Jonnalgadda, Renishaw

Industrial Visit to Renishaw Pune

Decoding the Indian Economic and Automotive Slowdown

The Indian Economy is facing an unprecedented Economic Slowdown.

Economic Growth decelerated for 5 straight quarters. The April - June 2019 Quarter Growth of 5% reflects a 7 year low. Economic Experts have expressed varied factors which combine to create a sustained slump in Indian consumption.

There is genuine concern that the current Indian slowdown is more structural than cyclical.

The relentless grind down in interest rates globally, seems to indicate that nominal growth rates are expected to slow dramatically across the world. In India, if we have to deal with GDP growth rates of 5 to 6 percent over an extended period of time, combined with low inflation, nominal growth rates could translate to 8 to 9 percent.

Extending this argument further, this would mean similar subdued rate of Corporate Earnings Growth. With slower GDP Growth, tax revenues could disappoint.

In such a scenario, our G.S.T. (Goods and Services Tax) will need to be rejigged. The Centre guarantees a tax revenue growth of 14 percent to the states. With nominal GDP in single digits, this may be currently impossible to deliver. The Central Government will have to fill this hole, further straining its finances. Invoice matching may be the last hope, and once that is implemented we may see some buoyancy.

Without this, the whole architecture of the G.S.T may have to be looked at again. Given the slowdown, low nominal GDP, and continued implementation challenges, the revenue shortfall this year may touch Rs. 1 trillion. (14 billion USD).

Severe budget shortfalls can slow down Government Spending on Infrastructure. The past 5 years have seen rapid construction of highways. The National Highway Authority of India (NHAI) construction costs have surged in the past 5 years, largely due to ballooning land acquisition costs which have gone up from Rs. 6.8 million per Hectare (100,000 USD) to Rs. 34 million per hectare (500,000 USD).Costs have surged to comply with the Legal Right to Fair Compensation statute formulated in 2013. Toll collections have risen moderately at 6% per annum (currently Rs 80 million or 115,000 USD per KM), therefore payback calculations for NHAI projects are getting stretched.

The NHAI debt will touch Rs. 2.5 trillion (35 billion USD) by end of 2019. NHAI's interest outgo will be Rs. 25,000 crores (3.5 billion USD) for the next 2 decades annually. NHAI will enjoy budgetary support of Rs. 72,000 crore (10 billion USD) in FY 20. It will need to monetise some road assets and redouble efforts to secure alternate funding from Pension Funds or National Small Saving Schemes to control debt, and ensure that the good pace of road construction continues.

The next concern is around Corporate Governance and Transparency.

There are genuine questions / dismay around Corporate Governance in India - the CG Power issue being the latest. The true nature and complexity of the Non-Banking Finance Corporation (NBFC) IL&FS default is now apparent. Banks may have to take a 50 percent haircut, and in this single case, the financial system can lose upto Rs. 50,000 crores (7 billion USD). These are very large numbers, and in both the mentioned cases auditors, rating agencies, management and the board seem culpable of fraud, or, at the very least, of incompetence.

Capacity utilisations are low, and domestic consumption is listless.

India has never seen a capex boom historically, though we saw a strong investment cycle during 2004 - 2010. Thanks to the Insolvency and Bankruptcy Code, crony capitalists who financed India's capex historically, can no longer default on their loans, as they were accustomed to. The 2G scam blow up of 2010 has resulted in discontinuation of indiscreet loans by banks.

As corporate capex slowed, lenders focused their attention on consumers to borrow for homes and material assets. The result has been a fall in household savings rare from 25% of GDP to 17% of GDP. With the IL&FS blowup, NBFC funding dried up, thus impacting their ability to loan to consumers, further hurting consumption.

P.S.U. Bank (Government owned banks) Non-Performing Assets remain high, courtesy the indiscreet and fraudulent loans issued about 10 years ago, during the UPA-1 Political Regime.

NBFC Non-Performing Assets have crossed 6.5% in 2019.

Rural Income continues to stay low.

With the ongoing formalisation of the economy, in the post GST world, traders and dealers struggle to balance their books due to historical hiding of profits and taxes. Cash flows are poor and recovery cycles for supplies are stretched. Distributors who supply product to such traders and dealers suffer from poor operating cash flow due to payment delays. Manufacturers operating cash flows too are impacted by the withholding of GST Credit. Small and Medium Enterprise Manufacturers are impacted by NBFC's inability to lend them capital.

After a brief recovery in 2017 and 2018, export growth slipped in fiscal 2019 particularly as trade tensions between US and China increased.

Sectors which create significant employment are in deep trouble: Telecom, Automotive, Real Estate and Construction, Banking and Finance.

In the telecom sector, there is a real possibility of bankruptcy of a major private player. If this happens, It is estimated that P.S.U. Banks could lose about Rs. 50,000 crores (7 billion USD), and a similar amount could be lost by other lenders.

There seems to be a lack of communication between the different arms of the government and between policy makers and Corporate India. The government has belatedly begun to act and appreciate the contours of the slowdown. There is an urgent need to rebuild Corporate Confidence.

The Morgan Stanley Capital international World Index has rejigged its portfolio weightage and reduced its India Exposure, while increasing its China Exposure. Global Fund Houses have therefore reduced their exposure to the Indian Stocks Markets. They have sold Rs. 30,000 Crores (4.5 billion USD) worth of equities since June 2019. As the stock market has fallen, the Indian Consumers confidence levels are dipping.

A consequence of this very weak macroeconomic environment is that the Indian Job Confidence Index is down from 62% in September 2018 to 55% in March 2019. Indian consumers are very cautious and discretionary spending is down.

Automotive industry is a sector whose robustness is critical to ensure growth of the Powder Metallurgy Industry. Automotive sales have slowed sharply. Real sales slowdown while not as drastic as the headline numbers to dealers, is nevertheless very worrisome. The FADA(Automotive Dealers Association) have requested SIAM (Automobile Manufacturers Association) to report vehicle registration numbers in future, rather than car supplies to dealers, so that they can plan inventory management better.

Automotive producers are not in harmony with respect to their approach to the government.

4 wheeler Market Leader Maruti Suzuki have faced steepest sales decline amongst all auto makers. They blame the Banking Sector Paralysis and unaffordable cars (courtesy BS6 norms) as principal factors for the automotive slowdown. Maruti Suzuki have shelved Capex Plans in Gujarat. They need to strengthen their SUV Portfolio, or they run a real risk of losing market share due to non-participation in this fast growing 4 wheeler segment. They are rumoured to be reconsidering their stand to not produce diesel cars, and use of a 1.5 litre diesel engine.

2 wheeler maker Rajiv Bajaj on the other hand asks for serious introspection from auto makers, and vigorous efforts to improve our quality to match global standards. He also advocates reduction of dependence on Indian Market and increased focus on export markets.

As a side note, there is interesting employment evolution for 2 wheeler riders at the bottom of the income pyramid in India.

Platform based businesses are a newly dominant type of business built on the premise of building different groups together- businesses, customers, suppliers etc. These companies benefit from network effect: the more users on their platform, the more data they control and the more valuable they become.

App based businesses like Swiggy and Zomato, which deliver restaurant food to consumer homes, are platform businesses. They are challenging conventional business of restaurants who are their core suppliers. They intend to build dark kitchens (as will Amazon and Google), with the aim to compete with restaurants and deliver food directly to customers. They are outsourcing last mile delivery to 2 wheeler bike riders. Currently 500,000 bike riders are employed for such deliveries across India, with the number expected to touch 560,000 by March 2020.

As more and more platform companies (also from the non-food sector) embrace bike based last mile delivery, the demand for such bike riders enabling delivery is expected to rise exponentially over the coming decade to about 3 million. Each bike rider can take home Rs. 500 per day of savings, which is a large income boost and can lift such households from poverty. An E-bike aggregator is already targeting lease of e-bikes to such delivery riders in Kolkata. Although this business is still small, riders like the fact that they don't have to worry about maintenance and downtime, and seem to be accepting this business idea. This model can be applied to college commuting millennials too, and it will be interesting to see the evolution of this business model in India.

The Government maintains that they are studying the automotive slowdown. The Finance Minister stated that part of the slowdown is structural, at least in Urban India - with millennial preferences tilted towards 'shared mobility' cab aggregators.

While it is true that 83% of rides on the Indian Aggregators Ola or Uber are taken by millennials, global trends have shown that these concerns are overblown. Cars retain practical and aspirational value for millennials. However, millennials in developed countries tend to look for 'value for money' options, as well as leased products, rather than vehicle purchases. Indian automakers recognize this trend, and are rolling out / seriously considering lease packages to be offered to Indian consumers. A shift from procurement to leasing may improve vehicle demand, while at the same time suppressing / stagnating demand for dealer sales.

As a consequence of slowing sales, Automotive Dealership structure in India may evolve over time, where a single dealership can host multiple automotive brands, in order to maintain efficiencies of scale.

In a more fragmented automotive market, with newer producers entering India, the auto component industry will also need to continue to evolve; targeting supply of more complex parts, modularisation of products, increased quality, optimisation of their portfolio and development of internal models to plan production and control inventory rather than depending on OEM forecasts.

Mr. Gadkari, our union transport minister's prudent stand concerning rejection of a blanket ban on Internal Combustion Engine vehicles is a huge relief to the Automotive and Powder Metallurgy industry. His pragmatic view reflects his realisation that the government does not have the resources to put in place the massive infrastructure required to support E-Vehicles at such short notice.

India spends Rs. 7 Trillion annually (100 billion USD) on its fuel imports and the government is keen to reduce this import bill.

The government intends to produce butanol to replace Rs. 40,000 Crore (6 billion USD) Annual Imports of Aviation Turbine Fuel. Mr. Gadkari is urging the automotive industry to develop and use flex-engines which can consume both ethanol and petrol. Such cars are being used in Brazil.

The ethanol industry is very small at Rs. 11,000 crore (1.5 billion USD) in 2018, and is estimated to be at Rs. 20,000 crore (2.8 billion USD) in 2019. Mr. Gadkari visualises potential for ethanol economy to be Rs. 200,000 crores (28 billion USD) in the future, and is encouraging farmers to adopt sugar plantation.

Responding to the government interest in promoting ethanol, TVS Motorcycle Company has already launched an ethanol powered bike.

Based on the current government stand, it appears that electromobility will develop over the coming years gradually, with some support from the government.

An immediate application where there is commercial viability and logistical capability to deploy electromobility is e-buses. Mr. Gadkari explained that operational cost for a diesel bus is Rs. 110 (1.55 USD) per Km, a pure ethanol fuel bus is Rs. 74 (1.05 USD) per Km, and for electric buses it is seen at Rs. 50(0.70 USD) per Km. State Government Tenders and Orders for e-buses for public transportation are growing at a rapid pace.

There is definitely a longer term risk to the 2 wheeler ICE market from e-bikes, but the e-bike market penetration will depend on:

- Access to capital for e-bike start-ups thus allowing ability to burn significant cash to gain market share.
- Ability to create a robust battery swap system
- Government support for funding e-bike purchase loans at preferential rates, and,
- Ability to offer a lease model which may encourage a faster switch.

The base demand for 2 wheeler ICE bikes is very high in India (25 million units produced annually), and gaining noticeable market share for e-bikes should take several years.

Of course, one factor to watch will be any future government deadline to change ICE bikes over to e-bikes (esp. in urban India) if the air quality index deteriorates noticeably.

Air quality deterioration has serious health consequences. India has 7 of the worst 10 polluted cities in the world. Chronic Obstructive Pulmonary Disease, the lung disease is now the third largest fatal disease globally. Asthma cases are on a very rapid rise in urban India. In light of these prevailing circumstances, one can understand the need for initiatives to discourage individual vehicle use in congested Indian urban cities.

Rapid urbanisation is a mega trend in India. As a Mumbaikar, I see that there will be a structural impact to 4 wheeler vehicular demand in our city as well as urban India.

A Mumbaikar who typically drives to work spends between 60 to 90 minutes one way to commute. This is an adverse impact on national productivity and individual quality of life. Mumbai's car density tripled to 222 per 1000 people in the last 10 years, however, the city has little scope to expand. We have a 2000 Km road network, as compared to 28,000 km for Delhi (with similar population). Hence Mumbai's problem is particularly severe.

Mumbai is currently implementing no parking zones, and new fines (up to 10x current fines) for traffic violations are now applicable all over Maharashtra. There is no doubt that when the Mumbai Metro is fully functional, there will be a marked reduction of car usage, and perceived utility as well as demand. This picture can be extrapolated to all congested urban cities where Metro Projects are underway.

Mr. Gadkari has gone on record to say e-tags will be the compulsory medium for toll payment when crossing National Highways in the near future. This will prevent traffic snarls at toll booths and save fuel loss / improve air quality. It is also speculated that when e-tags are operational, State Governments will actively consider applying congestion charge to discourage driving in congested parts of urban India.

While there is no doubt that Indian industry faces significant challenges, there is no denying the long term potential for growth in India. India's GDP per capita is approx. 2,000 USD. If you study historical data from across the world, as per capita incomes improve from this point, there is an explosion of discretionary spending, and an urge for premiumisation. These times will arrive in India too, as they did for the rest of the developed world.

India has 22 cars per thousand people, as against Chinas 164. Ownership and consumption metrics for other material assets show a similar gap. As headline news improve and disposable incomes rise, it is inevitable that car and material asset ownership will rise at a healthy pace in India.

Indian Automotive producers will respond with vigour to battle the current slowdown. The automotive scrappage policy which is under preparation - and will be applicable for all Commercial and Passenger wheelers, should provide a consumption boost.

While it is extremely hazardous to try and predict the future, it is my sincere hope and understanding that the current economic slowdown is not structural.

As we reach the anniversary of the NBFC Crisis, growth will start to look better as the base turns favourable. Profit Share / GDP will rise from current abysmal levels. The global macro situation has rarely been better.

Governments are starting the next round of quantitative easing (QE), and the world will be flush with liquidity. One must note that each subsequent QE has progressive lesser capability to stimulate global growth. However, assuming geopolitics stay stable, there should be supportive conditions for global growth for the next 2 to 4 years.

Even in the current challenging times, there are some bright performers in the Indian Economy.

Demand for Micro Finance funding at the bottom of the economic pyramid continues to stay robust: as reported by companies that have a track record of disbursing loans prudently and managing risk efficiently. The Indian Microfinance industry has a gross loan portfolio of Rs. 180,000 Crores (USD 26 billion). It is expected that this loan book should double in the next 5 years.

India's most efficiently run and respected Private NBFC - Bajaj Finance - which has a diversified lending portfolio and a well audited, healthy balance sheet, continues to be bullish on consumer demand. They report good quarterly growth numbers, and remain very optimistic about their future, primarily due to their ability to raise money at low cost, and the fact that Indian PSU banks which represent 70% of the market are in decline.

We just received very good monsoon, which augurs well for buoyant rural consumption in the approaching festival season. Rural India has seen structural challenges with farmers struggling for viable income. Due to generational distribution of land, the average farmer owns less than an acre of land. Productivity is lagging global standards. Focused Government and NGO efforts to educate farmers to block water in their topography is creating immediate favourable outcomes. Farmers are moving from 1 crop to 3 crops per year. NGO's are trying to create collaborative production in villages and eliminate middlemen to improve profits. The largest NGO effort in Maharashtra is currently transforming 1500 villages a year, changing economic realities for millions of families each year. Should these initiatives be scaled across India, farming income for a substantial percentage of farming community pan-India can be boosted substantially, and as a result, rural consumption could see a major boost over the coming decades.

Venture Capital and Private Equity investment flows into India are at an all-time high. Last year investments totalled 35 billion USD, and this year they are expected to touch 50 billion USD. This indicates that quality Indian start-ups and maturing businesses, as well as new economy businesses are performing well and are able to rapidly raise capital to fund their growth.

Our Pharmaceutical Industry, having largely resolved their manufacturing issues to comply with US Food and Drug Administration guidelines, look set to resume their export growth after a few years of hurdles. Many companies have started Joint Venture discussions with a view of gaining access to the Chinese Markets, since the Chinese government now appears to be more open to receiving low cost pharma intermediates and generic drugs from India.

A number of Chinese Manufacturers who have had a large market for their products in India, are now approaching Indian Manufacturers to form Joint Ventures and "Make and Sell in India". They are also actively looking to take over Indian companies which have established brands and distribution network, but are burdened by heavy debt. Chinese venture capital is also active in India.

The first Rs. 8 billion (115 million USD) investment to partner with the Indian Real Estate Market has just been announced, as has the first paper production facility. Chinese entrepreneurs are extremely strategic. The Chinese Market is far more mature now, and does not offer its earlier high growth prospect. India, on the other hand shows the potential for a two to three decade growth of consumption. The surge in Chinese interest in India is also the result of wanting to derisk the consequence of a trade war against USA, and some existing Chinese companies want to make India their alternative export hub.

India will be wary of China, and will ensure that Chinese do not participate in supplies to strategically sensitive sectors. However, there are plenty of mutually synergistic sectors for cooperation. There is an upside to accelerating Chinese investments. Since economics takes precedence over politics, both governments will invest efforts to ensure peaceful engagement.

The recent government measures which include corporate tax cuts (to a peak of 25%), and reduced taxes for new manufacturing sites, will cost the government Rs. 145,000 crores (20 billion USD) in revenue this year. In effect the government has transferred the large surplus recently received from the Reserve Bank of India of Rs. 150,000 crores (21 billion USD) to the corporate sector.

This is a very good step, since the private sector is a far better capital allocator than the government. New manufacturing companies will pay an effective tax rate of 17%. This step makes India a favourable manufacturing destination as compared to neighbours, and is in line with the government's vision of making manufacturing 25% of Indian GDP from the current 15%. Some experts estimate that this number could be reached when the Indian economy reaches the 4 trillion USD mark. At 25% share, manufacturing will represent 1 trillion USD, which is nearly 3x current size. To achieve the INR 500,000 crore (700 billion USD) jump in manufacturing, a Rs. 1 million crore (1.4 trillion USD) Capex will be necessary.

One must hope that various departments of the government and their think tanks will continue to work together cohesively, and with speed, to unveil an ambitious economic reform agenda.

The reform wish list includes Privatisation of state-run companies (which was historically difficult since such move was politically loaded), improved labour policy, rationalising our GST, loosening of government restrictions on land purchases, setting up of a bad bank to take soured debt off lenders balance sheets and expedition of tax refunds to small manufacturers that are getting squeezed by the shakeout in India's shadow banking systems.

Due to the tax breaks offered recently, Government will be forced to shore up revenues and therefore, expedite some Privatisation. A finance ministry official has stated that the Government intends to raise Rs. 60,000 crores (8.5 billion USD) in order to keep the fiscal deficit in check. The firms shortlisted for sale include Air India, our national Airline, Concor (The largest containarised cargo transporter in India) and BPCL, the state owned fuel retailer. The day that Air India is sold, all Indian Tax Payers should be very happy, since our annual "out of pocket" subsidy to this extremely inefficient entity will end.

To conclude, a sustained and coherent reform effort from the Indian government will restore consumer confidence, boost Indian Manufacturing and Consumption and revive our economic (and automotive demand) growth.

When this happens, India can continue to approach our target of being a 5 trillion dollar economy sometime in the next decade.

Aniket Gore

*Acknowledgement: None of these inputs are original. Published Data and inputs from reputed VC, PE fund houses as well as my discussions with friends from the financial sector have helped shape my understanding of the Indian Macro Economic Environment. What is original is my interpretation of the data points.

The author is an entrepreneur whose business supplies critical raw material and Capital Equipment to the Powder Metallurgy, Ceramic, Graphite and other Speciality Industries.

He is the Current President of the Powder Metallurgy Association of India.

He is also an active investor in global equities and the start up ecosystem in India.