# ISSN 2320-0758 PRICE ₹ 50/-**MATERIALS MANAGEMENT EXAMPLE 1 EXAMPLE 2 E**

# Materials Management Day 2019 Theme : "Future of Business: Circular Economy: Role of Supply Chain"

No. of Pages : 1-60

**April 2019** 

Date of Publicaion 1.4.2019

Volume 15 - Issue 6



1

# **SPECTRUM 2019, Chennai Branch**



Customary invocation by lighting lamp



Welcoming Chief Guest with the sapling



Welcoming Keynote speaker with sapling



Welcoming IIMM National President with sapling



SCM Corporate Award Presentation



Group Photo Spectrum 2019

Press Coverage on Distinguished Alumni Awards Conferred upon Mr. G.K.Singh, National President IIMM



# From the Desk of The National President



Dear Professionals,

Greetings from National President!!!

Recently we have concluded NC Meeting at IIMM Bilaspur Branch, where important issues were discussed on Education Front, Membership Growth, Training Programs and overall inclusive growth of IIMM. I congratulate Chairman, IIMM Bilapsur branch for hosting the NC meeting and One day Seminar in a professional manner.

I would like to congratulate Chairman, IIMM Chennai Branch and his team for conducting two day Annual Signature Event "Spectrum 2019" on the theme "Multi-Disciplinary Intelligent Supply Chain Strategy for Business growth" successfully.

I also congratulate Chairman, IIMM Trivandrum Branch and team for organising one day National Seminar on the theme "Materials Management: National Challenges and Solutions" on 23rd February 2019 at Hotel Mascot, Trivandrum in the befitting manner.

As you are aware that, Materials Management Day is celebrated on the auspicious day of 23<sup>rd</sup> April when all professional bodies of Materials Management were merged together to form an All India Body with the expressed objective to secure wider recognition of the profession and to elevate the professional status of individuals engaged in the field of Materials Management.

I am extremely pleased to inform you that the theme chosen for the forthcoming Materials Management Day Celebration is "Future of Business: Circular Economy: Role of Supply Chain".

I am sure that Branches will celebrate Materials Management Day and enlighten the masses about the contribution of Materials Management and Supply Chain Management for development of society as a whole.

Yours,

Judingt

**G. K. SINGH** National President - IIMM e.mail : s\_gksingh@yahoo.co.in

# From the Desk of Chief Editor



Dear Members,

Manufacturing Sector by and large takes raw material from its surroundings or environment and convert them into useful products, which are then disposed back to the environment at the end of product life. It is a linear process where a certain share of limited raw material eventually runs out giving up heaps of wastes and Environmental pollution.

Circular Economy, however, involves durable products with reuse & recyclable capacity and at the same time, material for new products come from old products. Circular Economy is an economic system aimed at minimising waste and making the most of resources. As much as possible, everything is reused, remanufactured, recycled back into a raw material, used as a source of energy, or as a last resort, disposed of.

The circular economy seems to have an inbuilt feature of more sustainable than the current linear economic system. Reducing the resources used, and the waste and leakage created, conserves resources and helps to reduce environmental pollution. A circular economy is a continuous cycle that preserves and enhances natural capital, optimizes resource yields, and minimizes system risks by managing finite stocks and renewable flows.

The Circular Economy does not aim at changing the profit-maximization paradigm of businesses. Rather, it suggests an alternative way of thinking how to attain a Sustained Competitive Advantage, while concurrently addressing the environmental and socio-economic concerns of the 21st century.

In 2018, the World Economic Forum, World Resources Institute, United Nations Environment Programme, and over 40 other partners has launched the Platform for Accelerating the Circular Economy (PACE). PACE's is working on three key areas, developing models of Blended Finance for circular economy projects in developing and emerging economies, creating policy frameworks to address specific barriers to advancing the circular economy and promoting Public–private partnership for these purposes.

India has the opportunity to save money, make money and do well by adopting the principles of the circular economy. It has the opportunity to leapfrog other economies and establish a leadership position.Small and Medium Enterprises (SMEs) are the major contributor to Industrial Activity in India as part of their Supply Chain. However, it is also undeniable that SMEs generate significant amount of pollution in a linear economy and it is of utmost importance to convert these SMEs in to Green SMEs.

The concept of circular economy, is synonymous to Mahatma Gandhi's Lifelong quest for efficiency in production, sufficiency in consumption or what he could well have called "conservancy" of resources and 'deficiency' in wastes. It captures well the desirable characteristics of the future where we will all have to live in – and how to get there

(DR. M.K. BHARDWAJ)



## MATERIALS MANAGEMENT REVIEW

(April 2019)

# 

IIMM is a charter member of International Federation of Purchasing & Supply Management

## Chief Editor & Publisher: Dr. M. K. Bhardwaj Past President, IIMM &

Former Director Ministry of Defence

## Core Committee :

Mr. Ashok Sharma, President 5M India Mr. V. K. Jain, Former ED, Air India Mr. Tej K Magazine, Management Advisor

## *National President :* Mr. G.K.Singh

Former C&M (MM), Coal India Ltd.

## Editors :

Mr. Malay Chandan Mazumdar, Sr. VP Mr. H.K.Sharma, VP (North) Mr. K.M.Bhardwaj, VP (East) Mr. Jitesh Gupta, VP (West) Mr. P. Mahender Kumar, VP (South) Mr. J.S. Prakash Rao VP (Central) Mr. L.R.Meena, NS&T Mr. O.P.Longia, IPP Prof.(Dr.) V. K. Gupta - IMT, Ghaziabad

## Correspondence : MATERIALS MANAGEMENT REVIEW

## Indian Institute of Materials Management

4598/12 B, Ist Floor, Ansari Road, Darya Ganj, New Delhi - 110 002. Phones : 011-43615373 Fax: 91-11-43575373 E-mail: iimmdelhimmr@gmail.com & iimm2delhi@gmail.com Website : www.iimm.org

## Printed at :

Power Printers, 4249/82, 2 Ansari Road, Daryaganj, New Delhi - 110002

		10.
	CIRCULAR ECONOMY: WHAT IT IS AND WHY DOES INDIA NEED IT?	6
	DIGITAL INDIA: OPPORTUNITIES & CHALLENGES	8
	MEASURES TO BOOST MSME SECTOR	11
	HOW BLOCKCHAIN IS TRANSFORMING THE SUPPLY CHAIN AND LOGISTICS INDUSTRY?	15
	COMMODITY INDEX	16
	THE POWER OF THREE: AI, IOT AND BLOCKCHAIN	17
	FLOURISHING CIRCULAR SUPPLY CHAIN IN INDIA - VITAL NEED FOR FEATURE	19
	CIRCULAR ECONOMY FOR PRODUCTIVITY AND SUSTAINABILITY	23
	LEAN MANUFACTURING v/s SCM	28
	AVIATION SUPPLY CHAIN MANAGEMENT	30
	CREATING A SUSTAINABLE PACKAGING SOLUTION BENEFITS ALL AREAS OF THE SUPPLY CHAIN	33
•	WTO UPDATE : MEMBERS START IMPLEMENTING 2019-2021 WORK PLAN ON TECHNICAL BARRIERS TO TRADE	34
	IS IT SKILL OR COMPETENCY.! WHAT IS IMPORTANT FOR PROCUREMENT PROFESSIONALS! ?	37
	BRANCH NEWS	40
	EXECUTIVE HEALTH	56
	LIST OF IIMM BRANCHES	58
NO	. OF PAGES 1-60	

## *Edited, Printed & Published by :* INDIAN INSTITUTE OF MATERIALS MANAGEMENT

4598/12 B, Ist Floor, Ansari Road, Darya Ganj, New Delhi - 110 002. Phones : 011-43615373 Fax: 91-11-43575373 E-mail: iimmdelhimmr@gmail.com & iimm2delhi@gmail.com Website : www.iimm.org

(Published material has been compiled from several sources, IIMM disowns any responsibility for the use of any information from the Magazine if published anywhere by anyone.)

## CIRCULAR ECONOMY: WHAT IT IS AND WHY DOES INDIA NEED IT?

## **BIPASHA SONOWAL**

Today, products are designed to have a particular shelf life, meaning they only last for so long before we are compelled to dispose of them. This could be either because we think we have exhausted its "usability", or a newer, more efficient version of the same product has been developed. In a constant race to stay updated with the latest and the fastest technology, we involve ourselves into repeated consumption and disposition. This forms a linear pattern, is not as feasibly sustainable when it comes to the environment. As an ever-growing population, India plays a major role in making a global impact on the environment. And the time couldn't be riper than now for the country to recourse to a circular economy.

## What is the Circular Economy?

To ensure a future that has sufficient raw materials for food, heating, shelter, and other essentialities, our economy must become circular. This means staving off wastage by making materials and products more efficiently and resorting to reusing them. The linear pattern of economic construct a resource-intensive demands industrial infrastructure whose focus leans more towards extraction and consumption of natural resources than on conservation or replenishment. This calls for an alternative model of industrial value creationregenerative in outlook and ensures maintenance of products to their highest utility in perpetuity. When the need for new raw materials occurs, it must be ensured that they are obtained sustainably so as not to incur damage to the natural and human environment

The principles behind the circular economy are oriented towards preserving capital and deprecate system risk by diligently tracking and managing limited stocks. A circular economy ensures that manufacturers design products to be reusable. It is based on sustainable practices. But more than that, it tries to encourage a change in the way that people carry out their businesses. It requires them to focus more on making products which last for as long as possible rather than resorting to replacing them frequently. For instance, electronic devices are designed in a way that they can be easily repaired. The circular economy attempts to mimic the biological world where nutrients metabolized by life processes are produced with the help of other living systems after their death—ensuring the maintenance of a steady, self-contained ecosystem on earth. It tries to achieve the same results in technical cycles through strategies such as reuse, repair, refurbish, re-manufacture, and recycle.

To develop a global circular economy, changes are desired at an international level and countries are taking part in the transition-various mature economies have put forth similar legislations. Taking the lead is the European Union (EU)'s Circular Economy Package, which broadly deals with transforming the way plastics and plastics products are designed, produced, used and recycled. Further, Sweden is giving tax breaks (50 percent cut on VAT) on repairs of washing machines, bicycles, or simply any broken item. It passed a law that directs retailers selling electronic goods to accept the same quantity of products they had sold, for recycling or reuse. The Netherlands and Japan have also promoted intensive circular economy legislation. The Dutch government has introduced several programmes to attain a circular economy such as the Green Growth, From Waste to Resource (VANG) and the Biobased Economy. All these programmes attempt to create a healthy and safe human environment.

Moreover, the United Nations Development Programme (UNDP) is planning to release a circular economy report in Laos, which is about to be upheld by the government. China, on the other hand, with a commensurate development path to that of India, had adopted a Circular Economy Promotion Law much earlier in the year 2009. The Law was defined for the purpose of expediting circular economy, increasing resource utilization rate, improving and protecting the environment and encouraging sustainable development.

## **Circular Economy in India**

A multitude of circular activities is inherently practiced by Indian society. As a people, it is bred in the bone in us to reuse and recycle to the maximum possible extent. As a matter of fact, the collection and recovery rate for a slew of scrap materials as also the re-use rate of goods is relatively higher than most developed countries. We are always striving for novel ways to squeeze the extended value out of forsaken objects, revamping our old T-shirts into dusters, washcloths, and mops, disposing of them only when they are too tattered to be used. Regardless, most of the time, this recycling takes place at the far end of the value chain by the poorest sections of society. This part of the society treats the reusing activity as a scarcity management approach instead of making it an essential part of the economic construct. An obvious result of this is a value loss, in addition to health risks for those who obtain value from waste such as the garbage processors and rag pickers. In addition to that, as the people belonging to the lower strata of the society and the population, in general, are expanding, we are losing touch with our innate

The current government in India has launched a slew of ambitious programmes with certain rudiments of circularity present in them. These are anticipated towards leading India to a more sustainable and high economic growth paradigm. These programmes and policies have reflected India's commitment towards United Nations Sustainable Development Goals (SDGs) and the Paris Accord. However, these policies still focus on areas and themes in isolation, tend to be disintegrated, and are deficient of a systemic approach. This leads to confusion for businesses that are interested in adopting circular business models. All of these schemes and policies of the government has the potential to harness a circular economy in India. These are the building blocks constituting an initial assortment of tools which could be harmonized into an ambitious circular economy plan.

## The Way Ahead

circular habits.

India has the elbow-room to integrate principles of circular economy in her social fabric. One of the most substantial steps taken towards a circular economy in India is the initiative of the Indian Resource Panel (InRP). This was introduced as an advisory panel by the Indian Government to prepare a meticulous roadmap for appropriate utilization of secondary sources. It was conceived to establish an environment for recycling, advancing suitability and disentangling India's growth from fossil fuels. At present, the InRP has its eyes on the problems caused by the automotive sector and construction & demolition (C&D) waste. Although this measure has been taken with all good intentions, there are still some factors which might impede the realization of its goals. The recommendations and reports put forth by InRP have realized the importance of policy reforms in and the congruence between these policies. To bring this congruency and reflect it well into our regulations is a herculean task, no doubt. So, a step ahead in this direction would be to involve

the business sectors. A huge chunk of the informal sector is part of this, and when the importance of resource efficiency is highlighted in their business projects by implementing circular practices only then can it prove to be an absolute resource efficient measure and thereby enable India towards a circular economy.

Another challenge for the government is the lack of appropriate statistics. There are conflicting reports on how much we generate and no appropriate methodology of how we estimate the potential of resources. When there is such uncertainty in the characteristics of construction waste, private entities hesitate to participate. In such a situation, either there is a lack of or no bids taking place, or bids going into litigation. So, there is a meager scope of a Public Private Partnership (PPP) model in dealing with Resource Efficiency RE. Subsequently, the InRP should put forth an approved methodology to build credible data so that private entities are encouraged to participate.

India knows how to manage resources when it comes to sorting, separating, and the other low hanging fruits. But, when it comes to advanced technologies, there is scope for India to incorporate some expertise. This can be done by creating a nexus between the research institutions and industry. There is a need for a coherent roadmap that ushers mutually complementary and boosting transition towards a circular economy. This is an opportunity which India should harness, to take the lead in a circular model of development—sans sacrificing economic growth.

## **References:**

Ellen MacArthur Foundation. (2016). Circular Economy in India: Rethinking growth for long-term prosperity. Retrieved from http:// www.ellenmacarthurfoundation.org/publications/

United Nations Conference on Trade and Development. (2018). Circular Economy. Retrieved from https://unctad.org/en/Pages/DITC/Trade-and-Environment/Circular-Economy.aspx

European Commission. (2018). Circular Economy: Implementation of the Circular Economy Action Plan. Retrieved from http://ec.europa.eu/environment/ circular-economy/index\_en.htm

Government of the Netherlands. (2018). From a linear to a circular economy. Retrieved from https://www.government.nl/topics/circular-economy/from-a-linear-to-a-circular-economy

Source: www.youngbhartiya.com



## DIGITAL INDIA: OPPORTUNITIES & CHALLENGES

BSTRACT : Digital India is the beginning of digital revolution. It is a dream which is created by the Government of India to ensure that government services are made available to citizens electronically, even in remote areas, by improving online infrastructure and by increasing Internet connectivity. The programme have one mission and one target that is to take nation forward digitally and economically. The initiative will enable people to get engaged in the innovation process which is needed by the economy to move forward. But to implement this is a great challenge. There are many roadblocks in the way of its successful implementation like digital illiteracy ,poor infrastructure, low internet speed, lack of coordination among various departments, issue pertaining to taxation etc. These challenges need to be addressed in order to realize the full potential of this programme. It requires a lot of efforts and dedication from all departments of government as well as private sector. If implemented properly, it will open various new opportunities for the citizens of the country.

## Key Words- Digital, Infrastructure, Opportunities, Revolution, Roadblocks

I. INTRODUCTION Throughout the world, information and communication technologies(ICT) continue to proliferate at incredible speed. Digitalization is one of the most fundamental period of transformation we have ever witnessed. Digital India was a flagship programme launched by the Prime Minister of India Narendra Modi on 1 July 2015 – with an objective of connecting rural areas with high-speed internet networks and improving digital literacy. The vision of this programme is to transform India into a digitally empowered society and knowledge economy. It is one of the biggest step by government of India to motivate the citizen of the country and connect Indian economy to knowledge savvy world.

**II. LITERATURE REVIEW** A number of research papers and articles provide a detailed insight about the role of digital India and the implications of this project in India. Rani (2016) concluded that the digital India project provides a huge opportunity to use the latest technology to redefine India the paradigms of service industry. It also pointed out that many projects may require some transformational process, reengineering, refinements to achieve the desired service level objectives.

Midha(2016) concluded that digital India is a great plan to develop India for knowledge future but its improper implementation due to inaccessibility and inflexibility to requisite can lead to its failure. Though digital India programme is facing number of challenges yet if properly implemented it can make the best future of every citizen. So we Indians should work together to shape the knowledge economy.[2] Gupta and Arora (2015) studied the impact of digital India project on India's rural sector. The study found that many schemes have been launched in digital India to boost agriculture sector and entrepreneurship development in rural areas. Digital India programme has also set the stage for empowerment of rural Indian women.

**III. RESEARCH METHODOLOGY** The paper is based on the secondary data and the information is retrieved from the internet via journals, research papers and expert opinions on the same subject matter.

**IV.OBJECTIVE OF THE PAPER** 1.To study the concept of digital India programme. 2.To find out the importance of this programme. 3.To find out the challenges faced in implementation of this programme. 4.To find out practical solutions and innovative ideas to accomplish the vision of a digital India-a reality.

- 1. DIGITAL INDIA 'Digital India' is a central programme to make India ready for a knowledgebased future Vision Areas of Digital India The Digital India programme is centered on three key vision areas:
- 2. Digital Infrastructure as a Utility to Every Citizen: This includes To provide high speed Internet connectivity as a core utility for delivery of services to citizens. To provide digital identity that is unique, lifelong, online and authentic able to every citizen. Providing mobile phone and bank account enabling citizen participation in digital and financial space. Easy access to a Common Service Center. Shareable private space on a public cloud for every citizen

## 2. Governance and Services on Demand

Seamless integration across departments or jurisdictions Ensuring availability of services in realtime from online & mobile platforms To make all citizen entitlements portable and available on the cloud To digitally transformed services for improving ease of doing business Leveraging Geo spatial Information Systems (GIS) for decision support systems & development

## 3. Digital Empowerment of Citizens

To empower citizen through universal digital literacy. To provide universal accessible digital resource. To make available digital resources / services in Indian languages. To provide collaborative digital platforms for participative governance. Citizens not required to physically submit Govt. documents / certificates.

## NINE PILLARS OF DIGITAL INDIA PROGRAMME

Under Digital India programme, 9 key initiatives are in progress ,which are as follows

**1.Broadband Highways** The aim is to cover 250000 village Panchayats under National Optical Fibre Network (NOFN) by December 2016. Nationwide internet infrastructure (NII) would integrate the network and cloud infrastructure in the country to provide high speed connectivity and cloud platform to various government departments up to the panchayat level.

**2.Universal Access to Mobile Connectivity** The aim is to increase network penetration and to provide mobile connectivity to 44000 villages by 2018 with investment of RS 16000.

**3.Public Internet Access Programme** One Common Service Centre(CSC) would be provided to each gram panchayat and 150,000 Post Offices are proposed to be converted into multi service centers.

**4.e Governance** IT would be used to make the delivery of government services more effectively. There would be integration of services and platform-UIDAI ,Payment Gateway, Mobile Seva platform, Public redressal etc., through IT. All information would be available in electronic form.

**5.eKranti** The aim is electronic delivery of services to people be it education, health, financial inclusion or justice.

6.Information for AllMyGov.in is a website launched by the government to facilitate a 2-way communication between citizens and the government. It is a medium to exchange ideas or suggestion with government. The citizen would have open access to information through open data platform.

**7.Electronics Manufacturing :** The government is focusing on zero imports of electronics by2020 through local manufacturing of items such as smart energy meters, micro ATMs, mobile, consumer and medical electronics. Government is also taking several steps to promote manufacturing and investment in electronics sector by providing clarity on taxation, incentives skill development etc.

**8.IT for Jobs** The aim is to train 10 million people in towns and villages for IT sector jobs in five years. It also aims to provide training to three lakh service delivery agents as part of skill development to run viable businesses delivering IT services. It also focuses on training of five lakh Rural Workforce on Telecom and Telecom related services and setting up of BPOs in each North-eastern state.

**9.Early Harvesting Programmes** Government plans to installed Wi-Fi facilities in all universities across the country. All books will be converted into e books. Email will be made the primary mode of communication within government. Bio metric Attendance System will

be installed in all central government offices where recording of attendance will be made online.

## VII.BENEFITS OF DIGITAL INDIA PROGRAMME

Digital India programme is the beginning of digital revolution. It is a big initiative to empower people of the country. Main benefits of this programme are-

1. The digital India mission would make all the government services available to people of country through common service delivery outlets. This would lead to inclusive growth by enabling access to education, healthcare and government services to all the citizens of the country. People can get better advise on health services. Those who can't afford school/ colleges can get chance to online education.

2. There would be more transparency as all the data would be made online and would be accessible to citizens of the country. 3. EGovernance will help in reducing corruption and getting things done quickly.

4. Digital locker facility will help citizen to digitally store their important documents like Pan card ,passport, mark sheets etc.

5.It will help in getting things done easily. For example when we need to open an account, we will give official details of our digital locker, where they can verify our documents. By this we can save time and the pain of standing in long queues for getting our documents would be reduced.

6.It will help in decreasing documentation and reducing paper work.

7. Digital India mission is away for cashless transactions.

8.It can help small businesses. People can use online tools to expand their business.

9.It can play a key role in GDP growth . According to analyst the digital India could boost GDP up to \$1 trillion by 2025. According to World Bank report a 10% increase in mobile and broadband penetration increases per capita GDP by 0.81% and 1.31% respectively in developing countries.

10.Theprogramme would generate huge number of jobs in IT, electronics and telecommunication sector directly or indirectly.

## **VIII. CHALLENGES**

More than a year has been passed since Digital India mission has been announced but it is facing multiple challenges in successful implementation. Few of the challenges are-

1. High level of digital illiteracy is the biggest challenge in the success of digital India programme. Low digital literacy is key hindrance in adaptation of technologies. According to ASSOCHAM-Deloitte report on Digital India,November,2016, around 950 million Indians are still not on internet.

2. Making Digital India scheme known and creating an

awareness among common masses about its benefits is also a great challenge.

3.It is a mammoth task to have connectivity with each and every village, town and city. Connecting 250000 Gram Panchayats through National Optical Fibre is not an easy task. The biggest challenge is ensuring that each panchayat point of broad band is fixed up and functional. It is found that 67% of NOFN points are non functional even at the pilot stage.

4.A key component under this vision is high speed of internet as a core utility to facilitate online delivery of various services . India has low internet speed. According to third quarter 2016 Akamai report on internet speed ,India is at the 105th position in the world in average internet speed. This rank is the lowest in entire Asia Pacific region .

5.According to ASSOCHOM- Deloitte report , the issue pertaining to taxation and regulatory guidelines have proved to road block in realizing the vision of Digital India. Some of the common policy hurdles include lack of clarity in FDI policies have impacted the growth of ecommerce.

6.The biggest challenge faced by Digital India programme is slow and delayed infrastructure development. India's digital infrastructure is comprehensively inadequate to tackle growing increase in digital transactions. India needs over 80 lakh hotspots as against the availability of about 31000 hotspot at present to reach global level, according to ASSOCHOM-Deloitte report.

7.The private participation in government projects in India is poor because of long and complex regulatory processes.

8.Many request proposals issued by government are not picked up by competent private sector organizations since they are not commercially viable. Currently Over 55000 villages remain deprived of mobile connectivity because providing mobile connectivity in such locations is not commercially viable for service providers, ASSOCHAM-Deloitte report pointed out.

9.There is a wide digital divide between urban and rural India. Till now funds have not been deployed effectively to meet the cost of infrastructure creation in rural areas.

10.India has 1600 languages and dialects. Non availability of digital services in local languages is a great barrier in digital literacy.

11.Fear of cyber crime and breach of privacy has been deterrent in adoption of digital technologies. Most of the technology including cyber security tools are imported. We do not have requisite skills to inspect these for hidden malware's . We have no top level experts for these high end jobs at present. According to NASSCOM, India needs 1 million trained cyber security professionals by 2025. The current estimated number is 62000.

## SUGGESTIONS

Digital India campaign can't be successful on its own. Policy changes are needed to make digital India a reality. Few of the suggestions are –

1.Digital literacy is first step in empowering citizens. People should know how to secure their online data.

2.To make this programme successful, a massive awareness programme has to be conducted. There is pressing need to educate and inform the citizens, especially in rural and remote areas, about the benefits of internet services to increase the growth of internet usage.

3. Digital divide needs to be addressed.

4. Manufacturing content is not government's strength. This mission needs content and service partnerships with telecom companies and other firms.

5.PPP models must be explored for sustainable development of digital infrastructure.

6.Private sector should be encouraged for development of last mile infrastructure in rural and remote areas. To encourage private sector, there must be favorable taxation policies ,quicker clearance of projects.

7.The success of digital India project depends upon maximum connectivity with minimum cyber security risks. For this we need a strong anti cyber crime team which maintains the database and protects it round the clock.

8.To improve skill in cyber security , we need to introduce cyber security course at graduate level and encourage international certification bodies to introduce various skill based cyber security courses.

9.There is need for effective participation of various departments and demanding commitment and efforts. Various policies in different areas should support this goal.

10.For successful implementation , there must be amendments in various legislations that have for long hindered the growth of technology in India.

## CONCLUSION

The vision of digital India is grand. It is a huge step towards building a truly empowered nation. If successful, it transform citizen access to multimedia information, content and services. However the goal is still far away since most of the nine pillars of digital India mission are facing serious challenges in implementation. It is imperative that focused persistent attention must be given to each and every pillar so that this programme does not end up in failure. In fact we all should be mentally prepared for the change and be ready to face the challenges in implementing this policy, only then it would be possible to make this vision a reality.

Source: IEC Group of Institutions





## **MEASURES TO BOOST MSME SECTOR**

## S N PANIGRAHI GST CONSULTANT & CORPORATE TRAINER sn panigrahi1963@gmail.com

**T**he Indian MSME Sector : The Indian MSME sector is the backbone of the national economic structure and has unremittingly acted as the bulwark for the Indian economy, providing it resilience to ward off global economic shocks and adversities.

With around 63.4 million units throughout the geographical expanse of the country, MSMEs contribute around 6.11% of the manufacturing GDP and 24.63% of the GDP from service activities as well as 33.4% of India's manufacturing output.

MSMEs contribute to 95% of the enterprises in the country. According to 2015-2016 data, there are around 63 million enterprises in India, of which majority are micro and small segments. They have been able to provide employment to around 120 million persons and contribute around 45% of the overall exports from India.

The sector has consistently maintained a growth rate of over 10%.

About 20% of the MSMEs are based out of rural areas, which indicates the deployment of significant rural workforce in the MSME sector and is an exhibit to the importance of these enterprises in promoting sustainable and inclusive development as well as generating large scale employment, especially in the rural areas.

What's MSME : What are Micro, Small & Medium Enterprises ? How MSMEs are classified?

The government has given a new turnover based classification of MSMEs in February 2018. As per this new classification, the MSMEs are categorized in term of business turnover.

This is in place of the previous classification based on investment made in plant and machineries if they are operating in the manufacturing sector and investment in equipment for service sector companies.

As per the new classification, the same turnover based criteria have been applied for all type of MSMEs including those operating in the services sector.

Though the primary responsibility of promotion and development of MSMEs is of the State Governments, the center has passed an Act in 2006 to empower the

sector and also has formed a Ministry (Ministry of MSMEs).

It was the Micro, Small and Medium Enterprises Development (MSMED) Act which was notified in 2006 that defined the **three tier of micro, small and medium enterprises** and set investment limits.

The new turnover criteria will better suit with the GST Network (GSTN) and other formats of segregating the MSMEs.

The New Turnover based Classification of MSMEs

The Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 was amended to define units producing goods and rendering services in terms of annual turnover as follows:

Table: Classification of MSMEs

Classification of the MSME	New Classification (annual turnover)	Previous classification – Ceiling on Investment in Plant and Machinery (in Rs)
Micro	Not exceeding Rs 5 crores	Below 25 lakhs
Small	Between Rs 5 crores to Rs 75 crores	25 lakhs to 5 crores
Medium	Rs 75 to Rs 250 crores	5 crores to 10 crores

Under the previous classification a separate methodology was adopted for service sector.

# Now the classification was made similar to the goods MSMEs as the general turnover-based criteria was made applicable to service sector also.

# Measures to Improve MSME Capacity and Competency

To improve its capacity and competency, Government of India has taken many initiatives to eliminate the hindrances and ease the developmental ecosystem of MSMEs. This is to encourage the Micro, Small and Medium Enterprises to compete in the domestic as well as international markets.

> Mandatory procurement by PSUs have increased from 20% to 25% and there is 3% reservation for women.

> Technology is the key aspect to drive this sector globally, and said government has set up tech-centers around the country. In addition, 141 cluster development programs have been conducted to train artisans and manufacturers. > The government has started the ZED Certification Scheme (zero manufacturing defect and zero environmental impact) that guarantees the resultant product being of high quality.

- > Technology plays an important role in influencing quality of product, towards which, 20 large and 100 small technology-centres (with expertise in both block chain and artificial intelligence) have been established across the country and 15 more are under construction.
- > Identified 15 different locations all over the world for trade promotion services. This will also help in facilitating compliance to international standards.

# Decisions Taken @ 32nd GST Council meeting dated 10.01.2019

Higher Threshold Limit for GST Registration

- 1. Higher exemption threshold limit for supplier of goods:
- a. two threshold limits for exemption from registration and payment of GST for supplier of goods:
- Rs. 40 lakhs, and
- Rs. 20 lakhs.

States would have an option to decide about one of the limits within a weeks' time;

- b. threshold limit for exemption for service providers would continue to be as follows:
- Rs. 20 lakhs, and
- Rs. 10 lakhs in case of Special category States.
- Comments : Earlier the Threshold Limit is Rs 20 Lakhs (Rs 10 Lakhs in case of Special Category States) Higher Exemption Threshold Limit for Supplier of Goods only. For Service Provider the earlier Threshold Limits shall Continue.

Effective Date : 1<sup>st</sup> of April, 2019.

State wise separate registration limit, if decided, will be a departure from uniform applicability across nation.

No Clarity on when the Supplier is Providing both Goods & Services

2. Increase in Turnover Limit for the Existing Composition Scheme for Goods : The limit of annual turnover in the preceding financial year for availing composition scheme for goods shall be increased to Rs 1.5 crore.

Special category States would decide, within one week, about the composition limit in their respective States.

Comments : Earlier the Threshold Limit is Rs 1 Cr

(Rs 75 Lakhs in case of Special Category States)

There was Long pending due for such Recommendation

Effective Date : 1<sup>st</sup> of April, 2019.

3. Higher Recommended Threshold Limit only for Providers of Goods & Restaurants

## **Not Applicable for Service Providers**

**Composition Scheme for Services:** A composition scheme shall be made available for suppliers of services (or mixed suppliers) with a tax rate of 6% (3% CGST + 3% SGST) having an annual turnover in preceding financial year up to Rs 50 lakhs.

The said scheme shall be applicable to both service providers as well as suppliers of goods and services, who are not eligible for the presently available composition scheme for goods.

Comments : Earlier Services (Excepts Food & Beverage Services) are not allowed under Composition Scheme

Effective Date : 1<sup>st</sup> of April, 2019.

The said scheme shall be applicable to both service providers as well as suppliers of goods and services, who are not eligible for the presently available composition scheme for goods

Manufacturers of Demerit Items like Ice Cream, Tobacco Products & Pan Masala are now Eligible for this Scheme

- 4. Compliance simplification under composition scheme: The compliance under composition scheme shall be simplified as now they would need to file one annual return but payment of taxes would remain quarterly(along with a simple declaration).
- Comments : As of now Every Composition Dealer shall File Quarterly Return GSTR 4 by 18<sup>th</sup> of the Month following the Quarter.

Now it is Proposed to Simplify by allowing Filling on Annual Basis.

However, payment of taxes would remain quarterly (along with a simple declaration).

Effective Date : 1<sup>st</sup> of April, 2019.

In due Course Govt Shall Notify Proposed Format for Tax Payment

5. Free Accounting and Billing Software : Software for Accounting and Billing shall be provided to small taxpayers by GSTN.

## Comments

This will be a Great Relief to MSME, as they are Struggling to File Returns

This will also Expected to Improve Compliance

MSME Ministry for Setting up Governing Council to Boost Exports

The ministry has recommended a detailed analysis of various trade agreements, including FTAs and bilateral and multilateral trade agreements, to identify areas of concern for MSMEs.

The MSME Ministry has proposed to establish a governing council to ensure efficient delivery of all export-related interventions as part of its action plan to boost shipments from micro, small and medium enterprises.

The ministry has recommended a detailed analysis of various trade agreements, including FTAs and bilateral and multilateral trade agreements, to identify areas of concern for MSMEs in the strategic action plan titled 'Unlocking the Potential of MSME Exports'.

It said a study will be conducted of special economic zones and export promotion zones in the country to reassess their role and objectives as these are an essential constituent of Foreign Trade Policy and it is important to harness their potential.

## A tech-enabled online portal shall be developed

Moreover, a tech-enabled online portal shall be developed featuring country-wise list of global products and services in demand and information on how to enter specific foreign markets. It will also have details on loans and credit offered by various financial institutions.

A formal platform may also be created by the ministry to ensure that it is involved in all bilateral and multilateral trade negotiations which have an impact on the enterprises.

The governing council shall be chaired by Secretary, MSME and co-chaired by Development Commissioner in MSME Ministry. It shall comprise senior officials and members from MSME Ministry, Commerce Ministry, MSME Export Promotion Councils, Export Development Authorities, Commodity Boards, etc., the MSME Ministry said.

National Resource Centre for MSME Exporters will engage with various international agencies

As part of the action plan, National Resource Centre for MSME Exporters will engage with various international agencies including UN organisations to promote procurement from Indian MSMEs and further enhance their capabilities.

A guide or handbook shall also be developed to help the export community to understand the processes involved in export business, access the potential markets etc. The guide shall consists of practical information which will be useful for exporters.

## **Export Promotion Council Established for MSME Sector**

Ministry of Micro, Small and Medium Enterprises (MSME) has recently established an Export Promotion Cell with an aim to create a sustainable ecosystem for entire MSME development.The benefits likely to accrue to the MSMEs are:

- 1. Evaluate readiness of MSMEs to export their products and services
- 2. Recognize areas where improvements are required in order to be able to export effectively and efficiently
- 3. Integration of MSME into global value chain. This was stated by Minister of State (Independent Charge) for Micro, Small and Medium Enterprises, Giriraj Singh in theLok Sabha, while replying to a question.

The MSME Minister further said that the current status of exports from the MSME sector as per the information received from Directorate General of Commercial Intelligence and Statistics (DGCIS), the value of MSME related products is USD 147,390.08 million and share of MSME related products in the country's exports was 48.56% during 2017-18.

To ensure efficient and effective delivery of all MSME export related interventions, the Ministry proposed to formulate a governing council that will be chaired by Secretary, M/o MSME and Co-chaired by Development Commissioner, M/o MSME. The council will comprise of senior officials and members from M/ o MSME, Commerce, MSME Export Promotion Councils, Export Development Authorities, Commodity Boards, and other bodies.

# An action plan is also proposed to be put in place to achieve the following objectives:

- > Target of USD 100 billion of exports from India by 2020
- > Evaluate readiness of MSMEs to export their products and services
- Recognize areas where improvements are required in order to be able to export effectively and efficiently
- > Integration of MSMEs into Global Value Chain.

## Mudra Bank Loan Yojana

## Key Features for Pradhan Mantri Mudra Yojana:

Pradhan Mantri Mudra Yojana – The Indian government has come with loan scheme and named as Pradhan Mantri Mudra Yojana and it is also called as Mudra Loan Yojana. Pradhan Mantri Mudra Yojana is the Indian government scheme to "Fund the unfunded".

- Indian government supports the micro or small business as well as start-ups. Micro-unit development and refinance agency popularly called as Mudra
- > **Pradhan Mantri Mudra Yojana**is the refinancing agency and not a direct financial institution
- > Mudra is the common platform where financial institutions like RRBs, banks, MFIs, NBFCs will meet the applicants to set up their microenterprises.
- > Under this scheme there can be sole proprietors, manufacturers, partnership firms, machinery business and more can be considered.

## Types of Pradhan Mantri Mudra Yojana loans

**Pradhan Mantri Mudra Yojana – PMMY** has issued 3 types of loans for applicants. The loan types are listed below:

- Shishu: This Shishu loan is issued for the people who required lesser funds. Applicant will get loan up to Rs 50,000 under this stage
- Kishor: Kishor loan is the issue for the people who are already started their business and want some funds to improve their business. The applicant will get loan between Rs 50,000 to Rs 5 Lakh.
- Tarun: In this stage, an applicant will get highest loan amount and required eligible conditions. The applicant will get the loan above Rs 5 Lakh and up to Rs 10 lakh.

## Under this scheme which type of firms can apply?

Any type of firm either it individual or partnership comes under the purview of being NCSBS (non corporate small business segments) can avail of this scheme. This NCSBS can be in urban and rural areas.

- > A manufacturing Unit
- > An artisan
- > A service sector unit
- > A food service/food processing unit
- > Fruit or vegetable vendor
- > A shopkeeper
- > Small industrial unit
- > A truck operator
- > Under the MahilaUddyami Scheme, a woman entrepreneur can also avail of the scheme. It is part of MUDRA Yojana, the woman can also apply for

Loan under all loan categories like Shishu, Kishor, and Tarun.

## Mudra Bank Loan Yojana Interest rates

- Interest rates won't be fixed as well as it depends on the type of business and bank. Each bank will have their criteria. The Indian government may give some subsidy on the interest rates but the particular percentage is still not declared. Mudra loan interest rates are between 10% to 18%.
- > Mudra bank loan application form mudra loan online apply :
- > Sponsored Links
- > Apply for Pradhan Mantri Mudra Bank Loan Yojana with mudra loan application form online. Download mudra loan application form and apply for Pradhan Mantri Mudra Loan Yojana

## How to apply Pradhan Mantri Mudra Yojana:

Sponsored Links: Visit below Link

http://www.mudraloanyojana.com/applypradhan-mantri-mudra-yojana-online/

Here are the steps to apply the **Mudra Bank loan Yojana** for all categories (Shishu, Kishor, and Tarun)

- > Applicants need to visit the private or commercial bank nearest to his/her location
- > Submit your business idea with the loan application form
- > Along with the form you need to submit the some required documents (as mentioned above)
- > All formalities follow as per the bank instructions
- > After document verification, your loan will be sanctioned and made available to loan seeker.

## Mudra Loan card

This **Mudra loan card** acts as the credit card with the pre-approved loan amount. It also acts as the debit cards and allows ATM withdrawals.

The **Mudra card** will work with Rupay platform and can be used or point of sales This card will allow users to:

- > Can be used as credit card to avail the Overdraft facility
- > Swipe the card at PoS
- > Withdraw cash from ATMs

**Disclaimer :** The views and opinions; thoughts and assumptions; analysis and conclusions expressed in this article are those of the authors and do not necessarily reflect any legal standing.

# HOW BLOCKCHAIN IS TRANSFORMING THE SUPPLY CHAIN AND LOGISTICS INDUSTRY?

Blockchain is a distributed database that maintains an ever-growing list of records called blocks. Indian Retailer Bureau



While Blockchain is mostly associated with its debut role in the creation of crypto currency, the technology is a major disruptor, impacting several industries. With wide spread applications in sectors involving agreements/contracts, tracking, and payment, the logistics industry has begun exploring Blockchain technology to access its innovative and secure system.

Managing supply chains today include complex coordination to transport and distribute goods. Modern logistics networks cater to the expanding global markets, resulting in supply chains that span over hundreds of stages over months, multiple geographical (international) locations, tonnes of shipping and customs paperwork and multi-level payments involving numerous stakeholders and entities involved.

Blockchain can potentially help increase the efficiency and transparency of the supply chain process and positively impact everything from warehousing to delivery to payment. Furthermore, with an essentially built in chain of command, Blockchain facilitates bringing in the necessary reliability and integrity in supply chain management.

## What Is Blockchain?

According to the Economist, a Blockchain is a

distributed database that maintains an ever-growing list of records called **blocks**. The information in a block is locked and cannot be altered as each block contains a timestamp and a link to a previous block. The nature of Blockchains makes it function like a public, digital, distributed 'ledger'. This function facilitates recording of every transaction on a block and across multiple copies of the ledger, making it highly transparent. It's also highly secure and it's extremely efficient and scalable. Since its debut in 2009, Blockchain has had a disruptive impact on several industries, beginning with the financial sector.

Apart from Finance, Blockchain has currently found successful application in Jewellery sector where it is being utilised to trace the origin of diamonds and eliminate fraud. The innovative use is termed 'TrustChain' and is a partnership among precious metals refiner Asahi Refining, jewellery manufacturer, precious metal supplier LeachGarner, retailer Helzberg Diamonds and an independent precious metal verification service UL. The application facilitates the authentication of diamonds and precious metals and their tracking from the place of origin to the retail outlet.

Among logistics players, Maersk, the world's largest container shipping operator has partnered with IBM to explore Blockchain to streamline its global supply chain operations. Through this partnership, Maersk aims to develop a global digitised platform that offers efficient and secure methods for transportation of goods across global boarders and trading zones.

It is estimated that about \$ 4 Trillion worth of goods are shipped annually across the globe, 80% by ocean freight. This exponential increase in movement of goods has elevated the cost of documentation and administration of the process to one fifth of the physical transportation cost. The innovative application of Blockchain by Maersk will be based on open standards and is expected to create digital and secure system that can be used by the global shipping ecosystem.

## How Blockchain works?

While efforts are already underway to organise supply chain management using Blockchain, here is

a breakdown of exactly how and what will be the impact of Blockchain on the sector. Some key areas where the technology can add value include:

- Keeping Records: This includes accurate recording of the quantity and transfer of assets
  like pallets, trailers, containers, etc. - as they move between supply chain nodes
- Real-time Tracking: Tracking of purchase orders, change orders, receipts, waybills, or other traderelated documents
- Verification: Assigning or verifying certifications or certain properties of physical products, For e.g., determining if a food product is organic or fair trade
- Labelling: Linking physical goods to serial numbers, bar codes, digital tags like RFID, etc. for efficient tracking
- Transparent Process: Effectively sharing information about manufacturing process, assembly, delivery, and maintenance of products with suppliers and vendors. Apart from the above mentioned tactical benefits, Blockchain technology is set transform the entire sector, with value additions like:
- Enhanced Transparency: Accurate documentation of a product's journey across the supply chain helps reveal its true origin and touch points on an open, easily accessible platform. This in turn helps build trust and eliminates the bias found in today's opaque supply chains. Customers and Logistics Service Providers can thus share logs with OEMs and regulators, creating a transparent and trusted process

- Greater Scalability: Virtually any number of participants, accessing from any number of touch points, can easily be added to the process, making it vastly scalable
- Better Security: A shared, permanent and tamperproof ledger with codified rules helps to potentially eliminate the multiple audits required by internal systems and processes
- Increased Innovation: The decentralized architecture coupled with scalable, secure and transparent framework opens up vast opportunities to create new, specialized uses for the technology
- Several companies, carriers and freight forwarders are already discovering ways to leverage these innovations to increase profits and strengthen relationships across the supply chain.

Speaking on same, Samir Lambay, Co-Founder & CEO, FreightCrate Technologies, said, "Blockchain as a technology has a huge potential in cutting costs and creating transparent processes in the Logistics industry. Moreover, since the Blockchain is highly secure and safe, it allows many intermediaries within the global supply chain, including transporters, customs authorities, shippers and carriers to communicate safely, cheaply and effectively with each other and the customer. Pilot projects are already being carried out by both carriers and large corporations and it is only a matter of time before the technology will be widely adapted in supply chain management.

Source:IndianRetail.com

...

Commodities	Days's Index	Prev. Index	Week Ago	Month Ago
Index	2630.4	2632.8	2640.7	2648.5
Bullion	4781.9	4785.0	4819.4	4879.7
Cement	2044.9	2044.9	2044.9	2011.2
Chemicals	2431.2	2410.1	2368.1	2306.9
Edible Oil	1558.8	1583.3	1584.4	1634.5
Foodgrains	2289.2	2289.7	2293.5	2310.4
Fuel	2656.9	2659.0	2661.1	2587.1
Indl Metals	1919.0	1919.0	1919.0	1919.0
Other Agricom	2081.0	2099.5	2103.3	2142.2
Plastics	1693.9	1693.9	1743.2	1903.1

## **COMMODITY INDEX**

Source: ETIG Database dated 15th March, 2019

## THE POWER OF THREE: AI, IOT AND BLOCKCHAIN

## Adoption of the technologies in corporates across the world has increased in a bid to increase efficiency and make businesses more customerfriendly

Sherlock Holmes, in his debut appearance in A Study in Scarlet, quipped: "It is a capital mistake to theorize before one has data." The popular discourse surrounding technology trends is dominated by buzzwords and a promise to change the world. In this scenario, decision makers find themselves struggling to differentiate between hype and reality. Acknowledging this environment, we decided to conduct a study to identify the tech innovations that enterprises should watch out for and why. We began with a list of 12 technologies, going deeper to identify the major trends.

We chose to keep things simple by using two axes to classify each trend. First, there should be vibrant research activity happening in the technology, including but not limited to intellectual horsepower invested in patents and scientific papers. Second, the technology should have potential commercial momentum and use cases that provide end users with value. We used the number and the size of commercial vitality events (initial public offerings, mergers, coin offerings in case of blockchain) witnessed in each tech as a surrogate for commercial value.

# Technologies assessed on commercial vitality and research vibrancy



In this article, we focus on two emerging trends (Al and Internet of Things, or IoT) and one early bet (blockchain).

Al: No longer an obscure curiosity : Rarely has a

## RAJIV GUPTA, AMIT BHARTI, RACHIT CHANDRA

technology gripped public discourse as much as AI. The last time the general public was so intrigued by a technology was probably when computerization became a trend itself. Investors poured in \$15.2 billion globally (a 141% jump from 2016) in AI start-ups across industries in 2017. BCG recently conducted a survey jointly with MIT Sloan Management Review to assess companies on their AI ambitions and efforts. Our survey revealed a large gap between AI ambition and reality, signalling an eagerness to bridge the gap between the two.

As per the survey, 23% of the companies have incorporated AI in their processes and offerings (with some varying degrees) and another 23% have kick-started pilots.

Further analysis of the survey data revealed that the impact of AI disruption is not uniformly distributed across industries. While technology-media-telecom, consumer, and financial services will see a higher impact on their offerings and processes, the energy and public sector will see comparatively less of it. For each major industry, our study identified the top three functional areas that warrant attention from corporations and technology investment.

The commoditization of AI has begun. Google, Microsoft and Amazon now offer cloud-based AI as a service. Developers can bring their own data to train the algorithms to suit their specific needs. The technological complexities are being abstracted, hence allowing developers to focus on the functional tweaks necessary for AI to deliver value in their specific use case.

We have started seeing the adoption of AI among our clients. For instance, a Malaysian Bank used machine learning to identify which existing retail customers have the propensity to buy life insurance.

Even within India, a top private bank deployed AI to transform the operating model across retail and corporate banking. It has resulted in cost efficiencies and increased productivity in operations by 20%. Customer delight has also gone up as AI allows 24x7 processing and reducing turnaround time by 50-60%. The bank is now investing in an AI lab and sees it as a way to stop backfilling naturally high attrition roles. While major economies like the US (with China playing catch-up) may have a head start in Al, India Inc. and the start-up community is displaying a keen interest (Al focused start-ups are the fastest growing at 75%, says a Nasscom-led report). The recent announcement by the Indian government to establish a National Programme on Al under the aegis of NITI Aayog further underscores that AI is an important emerging technology.

## IoT: Standing on the shoulders of giants

The key components needed for IoT have existed for quite some time and are mature now—for instance, the inexpensive sensors required to convert analogue to digital, the reliable networks to transmit, and the intelligent analytics to process as well as decide. It is the full stack coming together that has allowed IoT to become a trend.

A 2017 BCG study estimated that firms will incrementally spend \$250 billion on IoT by 2020. It also predicted that manufacturing and logistics would together account for almost 50% of the IoT spend and the top use cases—predictive maintenance, fleet management, self-optimizing production—reflect this.

Our experience in India mirrors the observations of this global study. For instance, a large industrial goods company in India has picked up around 20 IoT use cases across the manufacturing and logistics value chain. This organization suffered massive demurrages and frequent stock-outs at the plant due to manual coordination among various operators managing discrete parts of a complex supply network (imagine several million tonnes of raw material riding mother vessels, barges, jetties and conveyors from the port to the plant). IoT-enabled devices are allowing real-time position tracking to improve production planning and scheduling—driving close to 50% reduction in demurrages and a 100% elimination of stock-outs.

The Insurance Regulatory and Development Authority of India has set up a working group to study the role of IoT devices in the insurance sector. In developed markets, IoT devices have enabled interesting product innovation. For instance, in developed markets, "pay as you drive" or even "pay how you drive" motor insurance is available.

It is no surprise that the government recently announced a special 13-digit mobile number for the SIMs that power IoT devices connected to GSM networks. The ministry of electronics and information technology recently estimated that two billion-plus IoT devices are expected to be functional in India in the next three-four years—a 10x jump from the current 200 million!

## Blockchain: Third wave of 'exploiting' a resource

We have witnessed two waves where initially scarce

and expensive resources became cheap. Consequently, technologies emerged to exploit these resources. When computation (transistors) became cheap, PCs (personal computers) emerged; when bandwidth became cheap, the internet emerged. Blockchain is the third wave where cheap storage has allowed us to create a distributed, open to all (yet secure) way of recording important information. For the first time (at least on this scale), it is possible to issue and transfer assets in the virtual world by using the distributed ledger to record ownership and to establish continuity.

Blockchain was synonymous with cryptocurrency until boardrooms started adopting use cases in more dayto-day enterprise functions, such as fraud control, patent tracking and invoice automation.

In India, several promising applications of blockchain are being tested. Financial services seem to be leading, with life insurers and banks trying out a blockchainbased repository of common information—for instance, know your customer.

A general insurer has launched a blockchain-based product to proactively (and with minimal documentation) settle travel insurance claims. There are some early experiments of using blockchain in the supply chain that executives must closely watch.

We must, however, warn you that scaling up could be a serious problem for blockchain. For one, even mature applications like bitcoins process a measly 10-14 transactions per second. Enterprise-grade applications routinely handle hundreds, and often thousands, of transactions per second. Another issue is the fact that, by design, blockchains are "exponentially wasteful", and while storage and computation may be cheap, electricity is not. A report by Morgan Stanley states that bitcoin is likely to use 125 terawatt hours of electricity in 2018.

The plethora of mobile apps, the draw of cloud computing, the powers of Big Data and analytics, or the infectious nature of social media are all wellestablished technologies now—and common place in organizations. Although several organizations (especially in India) are yet to harness the full potential of these technologies, these are increasingly becoming obvious table stakes.

We believe it is the silent but fast emerging technologies including AI, IoT and blockchain that are likely to become differentiators for the haves and the have-nots in the industry.

Rajiv Gupta is a partner and leads the technology advantage practice at the Boston Consulting Group (BCG) India. Amit Bharti and Rachit Chandra are project leaders with BCG. The views expressed are personal.

Source: Livemint





## "FLOURISHING CIRCULAR SUPPLY CHAIN IN INDIA - VITAL NEED FOR FEATURE"

RABI NARAYAN PADHI FELLOW IN RESEARCH MATERIALS MANAGEMENT NC IIMM VIZAG rabin.padhi@gmail.com

**A** bstract : Emerging India is faced with the challenge of sustaining its rapid economic growth while dealing with the global threat of climate change.Conservation as rational use of environment to provide a high quality of leaving for the mankind. Conservation is essential for life support system like. Air, water, land, flora&funa, biodiversity and ecosystems. Natural resources are conserved due to economic as their beauty and importance to local culture. Preserving biodiversity is essential for ecosystems to flexible to damage or change.

**Circular Supply Chain (CSC)** broadly relates to **remanufacturing, reusing and recycling** processes in the **circular economy** in which at every stage of a product's lifecycle consideration is given to the most efficient use of resources. The ircular Economy promoted by the European Commission includes industrial systems that are restorative by purpose, shifting production patterns from linear (**'Take-Make-Consume-Dispose'**) to **circular (Closed-Loop) models** of material flows. Many industries have recently moved toward a circular model of operations to extend the life cycle of products, and notably where organisations from diverse sectors can play a collaborative role.

We live in a material world. How our society uses materials is fundamental to many aspects of our economic and environmental future. If we want to be competitive in the economy, the sustainable use of materials must be our goal. Our Material World; The foundation that underlies the world economy, prosperity and a healthy environment rests largely on how people extract and use the full range of materials that come from and return to the Earth such as wood, minerals, fuels, chemicals, agricultural plants and animals, soil, and rock.





## Objective:

- 1. To reduce the **vulnerability** of their **natural and socio-economic** systems.
- 2. Adaptation can complement mitigation as a costeffective strategy to reduce climate change risks.
- 3. One approach to balancing the attention on adaptation and mitigation strategies is to compare
- 4. **Design, advance sustainable development** and equity both within and across countries and between generations.
- 5. One approach to balancing the attention on adaptation and mitigation strategies is to compare the costs and benefits of both the strategies.

Today's highlighted agenda is to raise **environmentally responsible consumption and production to recover environmental quality, reduce poverty** and bring about **economic growth**, with resultant improvements in **health, working conditions, and sustainability**.

Key words (Circular, Remanufacturing, Reusing And Recycling, Sustainable)

I. Introduction : The central objective of Circular Green Supply Chain is to continually enhance human welfare at low risks to the global environment using the best available technological and scientific knowledge generated by the highest possible levels of human and financial investments in research and development. Green economy is thus a modern construct and is not a return to the early stages of evolution of human society. The optimal paths to such an economic state would differ from country to country depending on the current status of its natural resources and development, the extent of poverty and inequity, the vulnerability of its ecosystems, effectiveness of its institutions and its human and technological capacities.



The climate change issue is part of the larger challenge of sustainable development. As a result, climate policies can be more effective when consistently embedded within broader strategies designed to make national and regional development paths more sustainable. The impact of climate variability and change, climate policy responses, and associated socioeconomic development will affect the ability of countries to achieve sustainable development goals.

The pursuit of these goals will in turn affect the opportunities for, and success of, climate policies. In particular, the socio-economic and technological characteristics of different development paths will strongly affect emissions, the rate and magnitude of climate change, climate change impacts, the capability to adapt, and the capacity to mitigate.



## II. Vibrant Role of Supply Chain Managers; AddressingClimate Change and Sustainable Development.

"Sustainable Development Through-Go! Green Concept has gained popularity with both academics and practitioners to aim in reducing waste and preserving the quality of product-life and the natural resources. Eco-efficiency and remanufacturing processes are now important assets to achieve best practice. Global market demands and governmental pressures are pushing businesses to become more sustainable even claim that "increasing government

## regulation and stronger public mandates for environmental accountability have brought these issues into the executive suites, and onto strategic planning agendas."

Today's Globalization increases the opportunities for buyers. As buyers increase their focus on environment improvement, which increases the supplier environmental performance. It is true for organizations that regard environmental improvement as a social goal, not just an issue **cost, risk and public image.** 

**III."Sustainable Development" is** the key concept as discussed in 1992 Earth Summit in Rio, in this, governments and other international organizations decided to take useful measures to protect environment for long term economic development. Today's highlighted agenda is to raise **environmentally responsible consumption and production to recover environmental quality, reduce poverty**and bring about **economic growth**, with resultant improvements in **health, working conditions, and sustainability**.



**Go! Green Concept an Emerging** new concept, appearing in recent literatures. although this has been very important in business as well as human life and **environment**, it is introduced recently and now also literature for environment friendly supply chain is still limited.

The **green economy** is one that results in improved human well-being and social equity, while significantly reducing **environmental risks** and ecological scarcities. Green economy is an economy or economic development model based on sustainable development and a knowledge of ecological economics.

## IV. Definition of a green economy :

Karl Burkart defines a green economy as based on six main sectors:

- 1. **Renewable Energy** (solar, wind, geothermal, marine including wave, biogas, and fuel cell)
- 2. Green Buildings (green retrofits for energy and water efficiency, residential and commercial assessment; green products and materials, and LEED construction)
- 3. **Clean Transportation** (alternative fuels, public transit, hybrid and electric vehicles, carsharing and carpooling programs)
- 4. Water Management (Water reclamation, greywater and rainwater systems, low-water landscaping, water purification, stormwater management)

- 5. Waste Management (recycling, municipal solid wastesalvage, brownfield landremediation, Superfundcleanup, sustainable packaging)
- Land Management (organic agriculture, habitat conservation and restoration; urban forestry and parks, reforestation and afforestation and soil stabilization)

V. A researcher studied green supply chain management, it includes pressure practice and performance within the Chinese automobile industry in which they observed that on increasing pressure from a variety of directions have caused the Chinese automobile supply chain manages to initiate carrying out of green supply chain management (GSCM) practices to improve both their economic and environment performance. The GSCM pressures (motivators), initiatives and performance of the automotive supply chain using an empirical analysis of 89 automotive enterprises within China have been earlier done<sup>5</sup>.

After that another researcher studied the green supply chain management in electronic industry. According to that, there are various approaches for implementing green supply chain management practices has been proposed and recognized in previous literatures according to the author, but there is yet no investigation that identified the reliability and validity of such approaches particularly in electronic industry. The fuzzy analytic hierarchy process method was used by authors to prioritize the relative importance of four dimensions and twenty approaches among nine enterprises in electronic industry. The findings indicate that these enterprises would emphasize on supplier management performance in the crucial role of implementing green supply chain management.



After this, study on the implementation of green supply chain management in textile enterprises is also done in which the author considered the environmental influence and resource utilization efficiency in the whole supply chain and here also one problem was arise that how to execute the green supply chain management in special industrial operation at present.

Further works on the Implementation of green supply chain management practices in electronics industry in which they aims to survey existing green activities in computer parts manufactures in Thailand to evaluate GSCM. For this the questionnaire related to investigate GSCM practices measure GSCM performance and explore GSCM demands within that electronics industry.

After this, some researchers introducing green transportation cost in supply chain modeling in which they thinks that Escalating environmental concerns with relevant transportation modes that has lead to an increased interest in the adoption of green sustainable practices in the area of supply chain management, in this the amount of carbon emission resulting from transportation element of a supply chain is growing concern for supply chain managers<sup>9</sup>.

Manufacturers need to work with their suppliers of raw material and component, in order to produce environment friendly products. By using their purchasing power, the industries can set up environment criteria for their suppliers upstream in supply. chain. Ultimately it can result in the greening of the supply chain.



I.The**Global Green Economy Index**, published annually by consultancy Dual Citizen Inc., measures and ranks the perception and performance of 27 national green economies. This index looks at 4 primary dimensions defining a national green economy as follows:

- 1. Leadership and the extent to which national leaders are champions for green issues on the local and international stage
- 2. Domestic policies and the success of policy frameworks to successfully promote renewable energy and green growth in home market
- **3. Cleantech Investment** and the perceived opportunities and cleantech investment climate in each country
- 4. Green tourism and the level of commitment to promoting sustainable tourism through government

VII. Other Issues : Green economy includes green energy generation based on renewable energy to substitute for fossil fuels and energy conservation for efficient energy use. Because the market failure related to environmental and climate protection as a result of external costs, high future commercial rates and associated high initial costs for research, development, and marketing of green energy sources and green products prevents firms from being voluntarily interested in reducing environment-unfriendly activities (Reinhardt, 1999; King and Lenox, 2002; Wagner, 203; Wagner, et al., 2005), the green economy may need government subsidies as market incentives to motivate firms to invest and produce green products and services. The German Renewable Energy Act, legislations of many other EU countries and the American Recovery and Reinvestment Act of 2009, all provide such market incentives.

There are a number of reasons for this evolutionary change:

- 1. Speed to Market
- 2. Expectancy of
- 3. National Protectionism
- 4. Technology
- 5. Remanufacture

VIII. Criticisms : A number of organisations have critiqued aspects of the 'Green Economy', particularly the mainstream conceptions of it based on using price mechanisms to protect nature, arguing that this will extend corporate control into new areas from forestry to water. The research organisation, Etcgroup, argues that the corporate emphasis on bio-economy "will spur even greater convergence of corporate power and unleash the most massive resource grab in more than 500 years." Venezuelan professor Edgardo Lander says that the UNEP's report, Towards a Green Economy, while well-intentioned "ignores the fact that the capacity of existing political systems to establish regulations and restrictions to the free operation of the markets – even when a large majority of the population call for them – is seriously limited by the political and financial power of the corporations." Ulrich Hoffmann, in a paper for UNCTAD also says that the focus on Green Economy and "green growth" in particular, "based on an evolutionary (and often reductionist) approach will not be sufficient to cope with the complexities of climate change" and "may rather give much false hope and excuses to do nothing really fundamental that can bring about a U-turn of global greenhouse gas emissions.

**IX. Conclusion** :So what conclusions can we draw from all this? : We are already experiencing many changes happening all around us. The migration from elongated **take-make-dispose** supply chains to **shorter**, **flexible**, **localised circular supply chains** is well underway. The sharing economy, products-as-a-service, open-source and crowd-sourced business models are everywhere from software and design to venture funding. We are over the precipice of disruption and the traditional, mature, status quo supply chains are no longer sustainable and cannot cater to current and future demand.

Manufacturing and supply chains are facing major new challenges and embracing the digital and technological advances in artificial intelligence, robotics, additive manufacturing, data analytics, the Internet of Things, e-business, blockchain and more. The drive for speed to market, personalisation and instantaneous service means that our manufacturing and supply chains have to be faster, more flexible and responsive, which means moving to local, on-demand and environmental models of supply chain, replacing the linear model with a circular one.

Scoring the switch to new models of supply chain will provide major opportunities for quick-thinking organisations. The circular economy opens up new avenues in operations and thinking, it is in step with the macro-economic developments and societal changes we see around us, and it is as compelling as it is intriguing. There are many barriers to overcome at international, national, organisational and product level; but these are gradually being addressed and will be dealt with in due course.

Can there be any further doubt that the waste generated by take-make-dispose supply chains should be a thing of the past?

We certainly think not. Certainly, it won't be a thing of the future. Sustainable development has been part of the alternative development discourse in response to mainstream growth approaches in countries like India. Moreover, environmental concerns in developing countries have also been raised by ruling regimes. They have raised environmental issues on behalf of the developing world in global forums, voicing legitimate concerns about the unequal power relations in global forums, neglect of development challenges of the developing world and somewhat forced imposition of the developed world's agenda for a green economy on developing nations.

## X. References

- 1. Green K., Morton B., and New S., Green purchasing and supply policies: Do they improve companies' environmental performance? Supply Chain Management, 3(2), 89-95 (1998)
- 2. Narasimhan R. and Carter J.R., Environmental Supply Chain Management, The Centre for Advanced Purchasing Studies, Arizona State University, Tempe, AZ, (1998)
- Godfrey R., Ethical purchasing: Developing the supply chain beyond the environment, in Greener Purchasing: Opportunities and Innovations, edited by T. Russel, Sheffield, England: Greenleaf Publishing, 244-251 (1998)
- 4. Srivastava S.K., Green supply chain management: A state of the art literature review, International journal ofmanagement reviews,9(1),53-80(2007)
- Qinghua Zhu, Joseph Sarkis and Kee-hung Lai, Green supply chain management: pressures, practices and performance within the Chinese automobile industry, (2006)
- 6. Chung-Hsiao, The Green supply chain management in the electronic industry, (2008)
- 7. Fengfei Zhou, Study on the Implementation of Green Supply Chain Management in Textile Enterprises, (2009)
- 8. Ninlawan and Tossapol, The Implementation of Green Supply Chain Management Practices in Electronics Industry, (2010)
- 9. Robert and Benjamin, Introducing Green Transportation Costs in Supply Chain Modelling, (2010)
- 10. www.cleanerproduction.com
- 11. www.igpn.org
- Rabi Narayan Padhi "Green Supply Chain Management – Is Sound Option For Environment Sustainability-MMR January-2013 pp :35-40.
- 13. Rabi Narayan Padhi Green Economy is "Green-Wash" For Environmentally Sustainable.-MMR January-2013 pp :35-40.
- 14. Google.co.in



## "CIRCULAR ECONOMY FOR PRODUCTIVITY AND SUSTAINABILITY"

By and large, today's manufacturing takes raw materials from the environment and turns them into new products, which are then disposed into the environment after use. It is a linear process with a beginning and an end. In this system, limited raw materials eventually run out. Waste accumulates, either incurring expenses related to disposal or else polluting—indeed. In a circular economy, however, products are designed for durability, reuse and recyclability, and materials for new products come from old products. As much as possible, everything is reused, remanufactured, recycled back into a raw material, used as a source of energy, or as a last resort, disposed of.

India has the opportunity to save money, make money and do good by adopting the principles of the circular economy. It has the opportunity to leapfrog other economies and establish a leadership position. Traditionally, the Indian economy has been one where reusing, re-purposing and recycling have been second nature. In a world that is increasingly running out of natural resources, this thinking is an asset that must be leveraged by businesses, policymakers and citizens in an organized manner and expanded to include other elements to make the economy truly circular.

Several building blocks of circularity are deeply ingrained in Indian habits, as exemplified by the high rates of utilization and repair of vehicles and the distributed recovery and recycling of materials postuse. Often handled informally, these activities provide the only source of livelihoods to some of the poorest populations. By turning these existing trends into core development strategies, India could generate significant economic savings, massively cut down on carbon emissions.

Restorative and regenerative by design, a circular economy aims to keep products, components, and materials at their highest utility and value at all times. A circular economy is a continuous cycle that preserves and enhances natural capital, optimizes resource yields, and minimizes system risks by managing finite stocks and renewable flows. The concept of circular economy, a metaphor that neatly resonates with Mahatma Gandhi's ardent lifelong quest for efficiency in production, sufficiency in consumption and what he could well have called "conservancy" of resources and 'deficiency' in wastes, captures well the desirable characteristics of the future we will all have to live in – and how to get there.

The world's growing and the increasingly affluent population has caused an overuse of resources, higher price levels and increasing market volatility. An ambitious long-term vision of a circular economy, built on the current strengths of the Indian market and engaging business, policy, and education in its realization, could, on the contrary, provide the basis for a regenerative development path towards long-term prosperity.

A circular economy reduces resource dependency and resource use, including energy thereby reining in production costs, narrowing market exposure and limiting costs stemming from resource

extraction and generation. It additionally leads to the introduction of economically viable methods of reducing pollution, and separating harmful from reusable waste material.

## THE PRINCIPLES OF CIRCULAR ECONOMY

**Principle 1:** Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows.

A circular economy enhances natural capital by encouraging flows of nutrients within the system and creating the conditions for regeneration of soil and other living systems. Whenever possible, utility is provided virtually or as a service rather than as a physical product. When resources are needed, the circular system favors technologies and processes that use renewable or better performing resources. The circular economy seeks to address several challenges to natural capital:-

- 1. Threatened stock and variable quality of fresh water.
- 2. Soil degradation.
- 3. Loss of biodiversity
- 4. Depletion of fish stocks and degradation of marine ecosystems.

**Principle 2:** Optimize resource yields by circulating products, components, and materials at their highest utility at all times, in both technical and biological cycles.

This entails designing for refurbishing,

remanufacturing, and recycling to keep products, components, and materials circulating and contributing to the economy.

As in a linear system, increasing yields is useful and requires ongoing system improvements. But unlike a linear system, a circular system would not compromise effectiveness – which requires a fine balance between efficiency and long-term resilience. The circular economy seeks to address several resource challenges.

- 1. Materials consumption: If India maintains the economic development pace of the past few decades, it stands to more than triple its demand for resources by 2030. This process could be effectively contained by adopting the circular economy principles.
- Nutrient loss: The deterioration of soil due to loss of nutrients is a significant trend in India and this could be reduced for effective gains.

**Principle 3:** Foster system effectiveness by revealing and designing out negative externalities.

The negative externalities of economic activity include land degradation; air, water, and noise pollution; release of toxic substances; and GHG emissions. A circular economy would reveal the cost of these externalities – in other words, outline their risks and potential economic impact.

**TOWARDS CIRCULAR ECONOMY BY 3R PRINCIPLE :** Circular consumption is an indispensible part of a circular economic system for sustaining the economic growth and mitigating environmental degradation and resource depletion. The challenge to put circular consumption into practice can be addressed by 3R Principle that is based on Reduce, Recycle and Reuse. The principle reflects on the scope for converting wastes into valuable products and making the Mission Zero Waste a reality. This Mission emphasizes 100% scientific waste management in 400 targeted cities of the country.

**Solid Waste Management :** In respect of Indian Solid Waste Management scenario it is indicative that MSW Generation is estimated to be 1.43 lakh Tonnes per day. Of this MSW Processed/Treated is about 35,602 Tonnes per day (24.8%). Further, No. of wards with 100% D2D (Door to Door) collection being achieved has been in 61,846 (73% of wards) and that the No. of wards with 100% Source Segregation are 30,749 (36% of wards).

Table 2.1: The typical composition of Municipal SolidWaste in India

Туре	Total (Metric	% Tonnes)
Biodegradable	62,510	47%
Paper	10,640	8%
Rubber	11,970	9%
Metal	1,330	1%
Glass	1,330	1%
Rags	6,650	5%

Others	5,320	4%
Inert	33,250	25%

The Government of India Policy Interventions to encourage conversion of Waste to Wealth and various Ministries and Departments are engaged in the implementation process. In this regard 35% funding is being provided as Viability Gap Funding/Grant by Government of India for all Solid Waste management projects like

- a. Waste to Compost,
- b. Waste to Energy,
- c. Plastics in Road Construction,
- d. Construction and Demolition Waste Management

In addition are the development and notification of six Waste Management Rules, 2016 and capacity building initiatives in cities for various stakeholders. These Rules are concerning Solid Waste Management, Plastic Waste Management, Construction and Demolition Waste, Hazardous Wastes, Bio-Medical Wastes, Electronic Wastes Management.

Further, is the initiative in India on Swachh Survekshan (i.e. Cleanliness Survey) for cities, and development of the star rating system to achieve garbage free cities.

Many countries have started practicing circular economy and lessons can be learnt on futuristic approaches like clustering ULBs of South Australia, for effective integrated solid waste management, where larger ULBs could lead the action is worth following.

In Ambikapur, India administrative reforms like habitation clusters, contract management, partnerships, open technology sourcing, renewable obligations and awareness campaigns, etc. can result in novel and customized solutions to the waste problems towards a closed loop waste cycle.

Perspectives on industry initiatives on 3R also are reflected upon and highlighted in Figure 1.0 below.

## Industry Initiatives to promote 3R



In essence, it is to be highlighted that the behavioral change in society are pivotal to be achieved by various interventions including infrastructural, financial and technological initiatives which could help progress towards a zero waste society within the framework of circular economy. **Reducing Water Pollution :** The significance of water security is linked to various sustainable development goals. Water is critical for socio-economic development, healthy ecosystems and for human survival itself. The pressure on the global water resources (both surface and ground water) is increasing due to growing gap between water supply and demand, anthropogenic water pollution and climate change impacts. Urban centers in the Asia Pacific regions are highly vulnerable to water security issues and urban resilience is a concern internationally. The concern regarding water sharing disputes (Domestic and international) was also an issue to be tackled. On the domestic water consumption side, focus should be on development of innovative water saving appliances. Rainwater harvesting will be the corner stone of the urban circular water economy development.

Advancing 3Rs and circular economy encourage the use of treated water and sustainable use of water resources to achieve a number of benefits such as the safe drinking water and effective sanitation system, among others. As regards wastewater reuse applications the key is innovations in wastewater treatment and recycling technologies. A perspective on this is outlined in figure 2.0.

# Figure 2.0: Waste water treatment and reclamation perspective



To achieve the circular water economy option, there is a need to revisit the conventional centralized water and wastewater treatment to decentralized system which promotes better water reuse applications.

There are other innovative solutions like Phycoremediation that refers to the use of algae for treating wastewater. Algae are green, microscopic plants that survived extremely harsh, prehistoric environmental conditions and helped produce oxygen on earth and bring down the earth's temperatures. Nature also uses algae to treat rivers and lakes. Since millennia, our civilizations have spawned near rivers, but pollution had never been a problem because of the remediation work carried out by algae. However, because of the surge in population growth, construction of dams and barrages and especially because of the addition of industrial effluents, the pollution loads in rivers have shot up significantly. The experimental outcomes were encouraging when micro-algae based water treatment technology was used with a 10 Km stretch of river Mausam at Malegaon and 0.4 Acres Lakshmi Tal at Jhansi on sample basis.

**Preventing Land Pollution :** The problem of land degradation is due to open dumping, open burning, spillages of oil and other contaminants etc., and other causes such as deforestation, over grazing, agricultural activities, industrialization, over exploitation for fuel wood etc.

The land pollution has a number of adverse effects on the physical, chemical and biological properties of the land that reduces its productivity. Further, the land becomes breeding ground for disease causing insects and vectors. Open burning and illegal dumping also allow the percolation of harmful substances in the food chain.

It has also been seen from the record that more than 35% of the fifty biggest landfill sites are located in the Asia and the Pacific.

There is huge potential for implementing 3R and circular economic development strategies to prevent physical and chemical degradation of land as well as effective utilization of organic waste and biomass for sustainable farming and energy. Remediation of already polluted land, rehabilitation of deserted lands, landfill mining, utilization of organic waste and biomass for sustainable farming, continuous mass campaign to prevent open burning, waste recovery through composting and enforcing appropriate legislation encouraging earning from the waste recovered materials, are some of the solutions. It is required to have a national target for respective States, national and state level strategies and policy development, robust supply chain and technological support to prevent the land degradation for realizing circular economy.

Prevention of Air Pollution : Air pollution is an intensifying environmental challenge in Asia and the Pacific, where uncontrolled, unmonitored and unregulated biomass burning and open burning from open dump sites is still inevitable. Air pollutants like particulate matter, black carbon, methane, etc. are released to the atmosphere, essentially interrelated to short-lived climate pollutants (SLCP) or greenhouse gas emissions with significant impacts on human health, agriculture, forests, and habitats. Air pollution affects environmental health, social, and economic aspects. Exposure to air pollution in outdoor and indoor costs USD 5.11 trillion per year and has consequential health impact in terms of non- communicable diseases i.e. stroke, heart disease, respiratory disease and lung cancer.

In terms of trans-state air pollution from biomass burning creating haze required green agriculture system for utilization of biomass residue. Sustainable management of air emissions and air quality management strategies are key to achieve circular economy. Protection of Coastal and Marine Ecosystem : Impact on coastal and marine ecosystem due to poor waste disposal practices, in particular the plastics waste, is a major concern. Scientific studies say more than 5 trillions of plastics are floating in ocean, whereas much more are deposited and accumulated in bottom sediments. They bring toxic chemicals to organisms such as fish and shellfish, causing concern about food security. Disposal of micro-plastics to the ocean has major impacts on the marine ecosystem as these materials are ingested by marine organisms causing severe food security issues.

There is a need to consider wide spectrum of 3R options as part of circular economy to reduce the generation of plastic wastes. Among them, reduction of production of unnecessary single-use plastics could be helpful, considering long-term environmental impacts.

Indian stake holders can learn from Global initiatives such as Clean Seas Campaign and North West Plastic Action Plan (NOWPAP) for solving the issue. In this context strengthening the policies related to marine pollution, capacity building of local and national bodies, development of marine research and development activities and raising awareness can be critical. **Figure 3.0: Plastics in Oceans and Water Bodies – Impacts and Pathway to food chain** 



## Bottom sediment

**Greening of Small Manufacturing Enterprises (SME)**: Greening of SMEs is important to achieve decoupling economic progress vis a vis resource consumption leading to circular economy. It is indicated that SMEs are the major contributors worldwide to industrial activity as part of supply chains and that significant pollution is also generated by SMEs. A perspective on Resource Efficient Cleaner Production (RECP) initiative and the challenges faced in effecting behavioral change in SMEs and obtaining responsiveness towards modernization reflected upon, with recognition that technology costs can be a deterrent, and that governmental initiatives and support can enable and assist SMEs towards green industrial development.

In order to green SMEs, a concept of GLEAN (Green Lean) which is a combination of Material Flow Cost Accounting (MFCA) and Lean Management, developed by NPC could be put into practice. The application of MFCA in production has been demonstrated in SMEs and the implication of adopting MFCA with LEAN is that it clearly leads to higher process efficiency and reduction/elimination of waste. The fundamental strategy behind implementing MFCA with LEAN is the evaluation of the operations and activities in terms of efficiencies. Since MFCA is a management accounting method, it does not automatically resolve this loss. In fact, it is necessary to clarify the cause of the loss occurring in each process and change the design, materials/parts, manufacturing method, processing, equipment, etc., and to eliminate the cause, for which PDCA (Plan, Do, Check and Act) approach of LEAN Principles when clubbed with MFCA fits well in the framework and delivers sustainable outcomes to help SMEs to achieve resource efficiency.

## CAPTURING THE BENEFITS OF CIRCULAR ECONOMY

The Circular Economy is a new way of creating value, and ultimately prosperity. It works by extending product lifespan through improved design and servicing, and relocating waste from the end of the supply chain to the beginning-in effect, using resources more efficiently by using them over and over and only once.

Indian businesses are well placed to lead the way in the transition. Businesses stand to realise substantial profit from the circular economy opportunities. Five recommendations could guide companies seeking to capture this value.

- Build circular economy knowledge and capacity.
- Innovate to create new products and business models and demonstrate their success.
- Integrate circular economy principles into strategy and processes.
- Collaborate with other businesses, policymakers, and the informal economy.
- Invest in circular economy opportunities.

Profit opportunities for businesses through increasing innovation and demand for new business services.: By applying circular economy principles, businesses could generate new ideas and explore new ways of working, especially in digital technology. Indian innovation hubs could help businesses implement new approaches and capture new profit opportunities.

Material cost savings and reduced exposure to resource price volatility. A circular economy would significantly lower costs for businesses related to the use of virgin materials. Less material use would also reduce their exposure to volatile raw materials prices and strengthen resilience.

**Economic growth.** As mentioned above, circular economy practices are making more productive use of material inputs (including looping of products, components, and materials) and increasing revenue from emerging circular activities. While some sectors (e.g. the material extraction industry) would expect reduced activities, overall more activity would happen

across the economy, boosting economic growth.

## **Benefits for Citizens**

- Lower cost for products and services. In the circular economy scenario, cash-out cost in the three focus areas would be <sup>1</sup> 14 lakh crore (US\$ 218 billion, 11% of India's GDP) lower in 2030 and <sup>1</sup> 40 lakh crore (US\$ 624 billion, 30% of India's GDP) lower in 2050, compared with the current scenario.
- 2. Greater utility and choice. The additional choice or quality that circular models provide would enhance the utility, or benefit experienced by customers. Choice increases as producers provide systems that enable tailoring products or services to better meet customer needs. For example, applying circular economy principles in mobility would give customers more vehicle options, without increasing the number of vehicles on the road.
- 3. Reduced negative externalities, e.g. congestion, pollution. The analysis suggested beneficial impact from applying circular economy approaches to address issues like congestion, pollution, and ill health.

## CIRCULAR ECONOMY'S OPPORTUNITIES IN INDIA

1. Cities and construction: As India invests in longterm infrastructure to improve citizens' quality of life, for example through the Smart Cities Mission, it could incorporate circular economy principles into the design of the infrastructure needed to provide water, sanitation, and waste services at scale, creating effective urban nutrient and material cycles. More systemic planning of city spaces, integrated with circular mobility solutions, can contribute to higher air quality, lower congestion, and reduced urban sprawl. Flexible use of buildings and urban spaces, enabled by digital applications, can increase utilizations rates, getting more value out of the same assets. Higher efficiency and lower overall building and infrastructure costs could also help meet the housing needs of the urban poor without compromising safety and quality.

Circular economy principles can contribute to this construction activity in ways that create economic value and decouple development from the use of virgin, non-renewable resources. Renewable and recycled materials and modular construction methods can minimize waste and reduce construction costs. Buildings can be designed to be adaptable to changing needs and contribute to the regenerative urban ecosystem during their use phase (energy generation, connection to nutrient cycling systems, etc.).

2. Food and Agriculture: India can adopt a regenerative, restorative agricultural system that combines modern technology with traditional practices to meet India's growing food demand. There is an urgent need for an agricultural system framework which

retains natural capital, boosts economic and ecological resilience, and delivers a stable supply of fresh, healthy, and diverse food to India's growing population besides closing the gap in nutrient loops.

Leveraging the current small-farm structure, India could create large-scale networks of farmers, interconnected and symbiotic in their practices and committed to regenerative approaches. Combining local knowledge and traditional methods (like working with a large variety of species) with modern technology (like precision farming, and digitally enabled asset and knowledge-sharing systems) could increase yield while significantly decreasing requirements for resources such as water, synthetic fertilizers and pesticides.

Reducing food waste across the supply chain could make the Indian food system even more effective. This would require optimizing production and digitising food supply chains to match supply and demand more easily. Urban and peri-urban farming can bring food production closer to consumption, reducing food waste and transportation requirements. Composting and an

aerobically digesting food waste with no other valuable use and post consumption nutrients (those contained in human excreta) allows restoration of nutrients to the soil and production of energy.

**3. Mobility and vehicle manufacturing:** Circular economy principles can contribute to a mobility system that would meet the growing needs of the Indian population, especially in cities, while limiting negative externalities, such as GHG emissions, congestion, and pollution.

Taking reparability, remanufacturing, and recycling into account in vehicle design and creating the appropriate reverse cycle infrastructure can reduce the need for virgin, non-renewable resources and energy. Building vehicles that rely on zero-emission propulsion technology could reduce negative externalities like GHG emissions, pollution, and dependence on imported fossil fuels. As car ownership is currently low, adoption could be rapid as ownership expands.

A multimodal, door-to-door, on-demand mobility system, embracing vehicle-sharing trends and leveraging digital innovation, could provide efficient and effective transportation with high vehicle usage and occupancy rates. Mass transit as the backbone combined with other forms of transport – including vehicle as a service – for convenient last-mile connectivity can create convenient door-to-door journeys. Technological innovation can help plan these journeys and make travelling safer and faster.

Source : An extract from NPC Theme Paper for Productivity Week 2019





## LEAN MANUFACTURING v/s SCM

## O.P.LONGIA IMMEDIATE PAST NATIONAL PRESIDENT, IIMM omparkash.longia@yahoo.com

**HE CONCEPT:** The word **"LEAN"** was originally created by Toyota's Executive Taiichi Ohno which means to eliminate waste and inefficiency in its manufacturing operations. The process became so successful that it has been embraced in manufacturing sectors around the world. The goal of lean is to **eliminate waste** in any manufacturing process.

## SO, WHAT IS WASTE?

Waste is defined as any activity that does not add value from the customer's perspective. As per the research conducted by the Lean Enterprise Research Centre (LERC), 60% of production activities in a typical manufacturing operation are waste – these do not add any value in the product for the customer. As such every company has a tremendous scope to improve, using Lean Manufacturing Techniques and other best manufacturing practices. The Techniques that enable you to deliver better quality products at significantly lower costs need to be developed and implemented.

Unless a process has gone through lean multiple times and until an engineer is directly involved in manufacturing, it contains some element of waste. When done correctly, lean can bring in huge improvements in efficiency, cycle time, productivity, material costs, and scrap, leading to lower costs and improved competitiveness.

It is pertinent to articulate here that LEANisn't restricted to manufacturing only.It can improve how a team works together, inventory management, supply chain functionalities and even client interaction. Lean can be applied to any business or production process, in any industry. For example, lean is now being used extensively in the healthcare industry to improve efficiency and reduce costs. The Lean Principles can be used, even on a smaller scale, to organize an office, workspace, or laboratory.

Doing more with less, by employing'Lean Thinking'is the essence. Lean manufacturing involves never ending efforts to eliminate or reduce wastage 'MUDA'. (Japanese word for waste or any activity that consumes resources without adding value) in design, manufacturing, distribution and customer service processes.

Lean was born out of manufacturing practices but in recent time has transformed the world of knowledge work and management. It encourages the practice of continuous improvement and is based on the fundamental idea of respect for people. **Womack and Jones** defined the five principles of Lean manufacturing in their book **"The Machine That Changed the World".** The five principles are considered a recipe for improving workplace efficiency and include:

defining value, 2) mapping the value stream,
creating flow, 4) using a pull system, and 5) pursuing perfection, which are shown in the diagram below:



**1.Define Value :** To better understand the first principle of defining customer value, it is important to understand what value is. Value is what the customer is willing to pay for. It is paramount to discover the actual or latent needs of the customer. Sometimes customers may not know what they want or are unable to articulate it. This is especially common when it comes to novel products or technologies. There are many techniques such as interviews, surveys, demographic information, and web analytics that can help you decipher and discover what customers find valuable. By using these qualitative and quantitative techniques you can uncover what customers want, how they want the product or service to be delivered, and the price that they afford.

2. Map the Value Stream : The second Lean principle is identifying and mapping the value stream. In this step, the goal is to use the customer's value as a reference point and identify all the activities that contribute to these values. Activities that do not add value to the end customer are considered waste. The waste can be broken into two categories: non-valued added but necessary and non-value & unnecessary. The later is pure waste and should be eliminated while the former should be reduced as much as possible. By reducing and eliminating unnecessary processes or steps, you can ensure that customers are getting exactly what they want while at the same time reducing the cost of producing that product or service.

**3. Create Flow**: After removing the wastes from the value stream, the following action is to ensure that the flow of the remaining steps run smoothly without interruptions or delays. Some strategies for ensuring that value-adding activities flow smoothly include: breaking down steps, reconfiguring the production steps, levelling out the workload, creating cross-functional departments, and training employees to be multi-skilled and adaptive.

**4. Establish Pull :** Inventory is considered one of the biggest wastes in any production system. The goal of a pull-based system is to limit inventory and work in process (WIP) items while ensuring that the requisite materials and information are available for a smooth flow of work. In other words, a pull-based system allows for Just-in-time delivery and manufacturing where products are created at the time that they are needed and in just the quantities needed. Pull-based systems are always created from the needs of the end customers. By following the value stream and working backwards through the production system, you can ensure that the products produced will be able to satisfy the needs of customers.

**5. Pursue Perfection :** Wastes are prevented through the achievement of the first four steps: 1) identifying value, 2) mapping value stream, 3) creating flow, and 4) adopting a pull system. However, the fifth step of pursuing perfection is the most important among them all. It makes Lean thinking and continuous process improvement a part of the organizational culture. Every employee should strive towards perfection while delivering products based on the customer needs. The company should be a learning organization and always

find ways to get a little better each and every day.

**Applying the Principles :** The five Lean principles provide a framework for creating an efficient and effective organization. Lean allows managers to discover inefficiencies in their organization and deliver better value to customers. The principles encourage creating better flow in work processes and developing a continuous improvement culture. By practicing all 5 principles, an organization can remain competitive, increase the value delivered to the customers, decrease the cost of doing business and increase their profitability.

**EXPLORING LEAN - TOP 25 ESSENTIAL LEAN TOOLS:** There are lot of great ideas to explore in lean. Primarily, it is essential to gothrough the detailed explanation of themost important LEAN TOOLS, to understand how each **tool** can contribute in improving your manufacturing operations.

Many of these tools, mentioned below, can be successfully used in isolation, which makes teasier to get started. On the other hand, the benefits will compound as more tools are used, as they do support and reinforce each other.

The LEAN tools are as under: 1) 55, 2) Andon, 3) Bottleneck Analysis, 4) Continuous Flow, 5) Gemba (The Real Place) 6) Heijunka (Level Scheduling), 7) Hoshin Kanri (Policy Deployment), 8) Jidoka (Autonomation), 9) Just-In-Time (JIT), 10) Kaizen (Continuous Improvement), 11) Kanban (Pull System), 12) KPIs (Key Performance Indicators), 13) Muda (Waste), 14) Overall Equipment Effectiveness (OEE), 15) PDCA (Plan, Do, Check, Act), 16) Poka-Yoke (Error Proofing), 17) Root Cause Analysis, 18) Single-Minute Exchange of Dies (SMED), 19) Six Big Losses, 20) SMART Goals, 21) Standardized Work 22) Takt Time, 23) Total Productive Maintenance (TPM), and 25) Value Stream Mapping.

The core idea of Lean Manufacturing is actually quite simple i.e. relentlessly work on eliminating waste from the manufacturing process. It may not be easy to find reliable and well-written information about improvement techniques for manufacturing. The objective/ goal of writing this article is to equip the practicingSCM Managers / Professionals with the absolute best source of easy-to-understand information for helping in improving the efficiency, effectiveness, and profitability of your manufacturing operations.

Ref: Internet & News Papers.

## **AVIATION SUPPLY CHAIN MANAGEMENT**

## P. VISWANATHAN E.C. MEMBER OF IIMM BANGALORE BRANCH vid\_shy@yahoo.com

Originization in the aviation sector are concentrating on efficient supply chain to reduce maintenance costs, provide excellent service to consumer, and perform a better in a competitive sector maximize delivery performance, and bring down cost of operation in supply chain.

Aviation market in supply chain comprises of maintenance repair overhaul, which are services pertaining to inspection, rebuilding, and alteration of aircraft supply chain, which includes spare parts, accessories, raw materials, consumables, for an aircraft manufacturing industry.

Maintenance repair overhaul in aviation supply chain includes consumables, industrial equipment (compressors, pumps) plant upkeep (lubricants, tools) and fixtures used as maintenance and overhaul spares in an aircraft supply chain.

The airline industry is increasingly focused towards reducing the maintenance cost, high level inventory, and delivery of high level service in supply chain.

The aviation industry handles capital intensive inventory, and involves a huge number of moving creating a challenge in order to track inventory analysis correctly in supply chain.

Benchmarking of components, planning, supply chain, activities in aviation include, forecasting, customer requirement, internal management, and then analyze the demand pattern giving preference to hanger space, logistic, engine maintenance.

Managing material life cycle with complete analysis, and with the idea to fulfill orders in process, delays conveyed in processing orders, store activities, and priority levels for components, in aviation supply chain. This life cycle is important to optimize supply chain

Inventory is the most important, and an analysis is to determine the safety stock, accuracy of stock items, required items to be stocked, and value. Aircraft industry is capital intensive, with fewer profit margins; hence keeping optimized inventory is important. Historical data is important in order to keep the value and stock analysis.

Maintenance and operation analysis are scheduled, and recorded to keep costs in a firm statutory in a supply chain. Planning records of maintenance spares, are kept in order to suffice the cost on components, labor, materials, and any unplanned costs of maintenance spares is occurred due to diligence of the aircraft industry in supply chain.

Vendor and contract management is a part of supply chain, and integration is very important, since it involves global vendors, dealing with orders, contracts, vendors, and be able to manage them transparently. The integration of aircraft components, materials, structures should be able to achieve global standard in operation in supply chain.

Life cycle in supply chain management of aircraft is that there are liabilities, of predictive analysis due to availability of components, maintenance spares, of knowing the past with predicative analysis, for critical components in aircraft assembly in supply chain.

Stock management contributes a major portion of the aircraft industry, and this is done with accuracy. Invoicing, quality control checks, receiving, processing of using an integrated system in supply chain has become a part of aviation supply chain management.

Maintenance repair overhaul using internet of things has been increasingly used in aviation supply chain, collecting data using sensor based data collection. The data allows Maintenance Repair Overhaul to be more efficiently pin point the critical function, and is easily identifiable areas in need of routine maintenance in aviation supply chain with predictive analysis. The strength is contextually knowledge digital platform information security, core engineering capability, around the services in aviation supply chain. The platform today captures and analysis data to reduce the cycle time of the organization to develop new products.

Maintenance Repair Overhaul can identify the malfunction of the aircraft parts, before the beginning of the process. Suppliers are able to use technology in a more efficient way. Inbound logistic, internet of things by Radio Frequency Identification with sensor in aviation supply chain.

Accuracy in inventory through the use of Radio Frequency Identification, the requirement part, spares, can be traced right down to specific location if they are to be stored in stores. This can bring the situation under control of misplaced inventory out of stock parts, Real time monitoring of product from Maintenance Repair Overhaul maintenance spares stores are to be monitored through Radio Frequency identification system with the help of Global Positioning System enabling product to be traced, tracked, and suppliers can update purchase with exact location, and delivery period, and as well as potential delays before they happen in aviation supply chain.

Monitoring the use of parts after they have been installed with sensors, which allow suppliers to monitor the part being used, for repair, and malfunction will be the capability in aviation supply chain. Supplier will be also gauge the life span, replacement of parts with new parts, which may be delivered, as per the requirement of spares, since they have to be replaced to meet the need, thus reducing downtime, and study stream of flow of parts in supply chain.

**Procurement and supplies in flight**: is the motivation of passengers, entertainment supplies, is when aviation are spread across different geographical locations, the decisions to have centralized or decentralized procurement or sourcing will matter a great significant in an deviation supply chain.

Centralized purchasing in an aviation industry would enable an organization to review its entire purchasing system: select vendors, who are capable to supply the required major spare parts, at the best price, can now value items, and of high consumption can be processed that have to be procured locally, as the transportation cost will benefit from centralized procurement.

Centralized procurement will its own advantage, and disadvantages; 1. Duplication of staff, minimization of overheads, administrative costs, and brings in saving in cost. 2. Standardization of products increases in efficiency, and bring higher and tighter control in procurement. 3. Increase in volume of procurement resulting in better prices and discounts procured for maintenance repair overhaul parts in aviation supply chain. 4. Better relationship with vendors, and accurate evaluating of the performances of vendors.

Disadvantages of procurement are that: 1.the procurement requirement is sent from different locations resulting in delays with also not unable to take local discount facilities available from the place of procurement.2.Components of medium value, and towards the requirement of high holding organization, in the aviation sector, is to get the benefit of procurement, and realize the benefit of subsides, discounts, and benefits for the parts or components ordered centrally from the vendor, and steps taken for the product to be utilized as per the requirement in aviation supply chain. 4. There is need to maintain a set of master data (parts required in maintenance, progress repair overhaul) for the overall requirements, so as to perform the operations efficiently in aviation supply chain. 5. The procurement lead time in

aerospace is much higher compared to other industries, as it is various from a year to more than year.

Procurement in aviation industry in supply chain management is the requirement of components or material may be strategic, immediate requirement of components to meet the stringent requirement of maintenance repair and overhaul in supply chain management. Products or components that can only be supplied by one supplier or if the delivery is otherwise is unreliable, and may have low impact on the financial matter in which buyer-seller power situation arises, in which supplier dominate in aviation supply chain. Procurement of items or products that represent high profit, and if the suppliers are many, then supplies of components or products can shift to such suppliers in aviation supply chain, thus maintaining standardization this can leverage the supply chain.

In aviation supply chain however strategic sourcing is adopted since it involves complex commercial process, requiring extensive knowledge, and competence, to satisfy the needs of the aircraft industry. Suppliers who have the objective of tight delivery solutions to meet the determined needs of the industry to meet the needs in aviation supply chain.

Supplier segmentation is very important in aviation supply chain, as important spare parts have to be supplied, the relationship to be managed, which incorporate differentiating suppliers, preparing supplier segmentation, reviewing supplier segmentation, identification opportunities with suppliers developing product or service agreements, and implementing agreements of measuring perspectives.

Product complexity in aviation supply chain, since large of different aircraft options, configuration, available and technology changes has come about, the orders are usually on goings products, and customized, to meet each of the customer orders or demands. These results in various documents, Bill of materials, prioritization in materials designs, specification, which account for large amount of inventory and interchangeable parts in supply chain.

Collaborative, planning, and execution need in aviation supply chain, to improve capabilities, in areas like enhanced outsourcing supplier performances, manufacturing lean management, and vendor managed inventory and a centralized procurement, and this will lead to improved spare parts management, and better control to repairable, assemblies and consumables information, aggregation, and analytics to improve operational performances. Aircraft manufacturing industry are finding ways to reduce cost, and reach a conclusion with Tier I suppliers, to eliminate, out-of-sequence delivery, and eliminating unnecessary costs.

Radio Frequency Identification vendor managed

manufacturing industry. Vendor managed inventory provide an opportunity to improve production plans, and if additional orders are surpassed, this can be met with additional inventory available. Vendor managed inventory is where the aviation industry can serve as the service point, and are able to get product information, stock replenishment, and customized service with Radio Frequency Identification links in supply chain. Vendor Managed inventory with help of Radio Frequency Identification eliminates errors, as in the case if manual procedures adopted in aviation industry, while on reading the bar code, on product identification. Vendor managed inventory will be able to improve production planning, reduce customer stock, and bring in increase in profit.

The operating cost of Vendor Managed inventory in aviation supply chain is the requirement of Low capital, which improves productivity, increase in Revenue, and bring in a real-time visibility throughout supply chain, less utilization of product distribution or usage, and have the ability to plan better delivery schedule.

In aviation supply chain aircraft fleet is becoming larger, and at the same time airlines need to replace aged equipment. The growing market has also an impact on the global supply chain, and implications how maintenance, repair overhaul parts are available, and industries should location facilities staff, and where the parts can be manufactured in aviation supply chain.

The main goal in aviation supply chain is to make sure that the systems are integrated implemented in collaboration with latest methods of technology, and documentation the governance of framework in supply chain, and work with the entire community of suppliers and buyers to understand the ways of work.

The main problem of supply chain in aviation industry is resource constraints, communication, quality issues, followed by supplier's inability to supply and also insolvency, environmental conditions.

Supply chain risk management in aviation industry consists of cross functional operation from operations, includes procurement, which engineering ,manufacturing quality, supplier management, support including legal, trade, compliance as well as general management including corporate governance, finance. Capacity risk in aviation supply chain is the supplier supplying smaller components, in which some of the components may be common to the aviation industry, this is done to increase the supply for Tier I industries, and to avoid the risk, by adopting the methods of aviation industry to use several common raw materials and components, thus increasing the capacity of the supplier.

 $\bullet \bullet \bullet$ 

# **SAD DEMISE**



K. R. RAMA AYYAR 7<sup>th</sup> May 1928 – 2<sup>nd</sup> February 2019

K R Rama Ayyar, 92 was very closely associated with IIMM for 15 years. He provided immense support for our Institute in the formative years. He served with Distinction under many National President and was liked and respected by all for his meticulous approach and knowledge of compliance and regulatory matters.

Prior to IIMM he served as Manager in erstwhile Caktex (later HPCL) in the Areas of O&M and other Administrative Areas. Rama Ayyar had done his Graduation, Company Secretary and Law as a working Executive. He is survived by his wife and 2 daughters and their families.

We all pray to the almighty to give peace to the departed soul and enough strength to the family Members to bear this loss.

## CREATING A SUSTAINABLE PACKAGING SOLUTION BENEFITS ALL AREAS OF THE SUPPLY CHAIN

## ARASHHASSANIAN, SVP GLOBAL SALES & MARKETING, HOOVER FERGUSON

When it comes to the packaging, storage and transportation of chemicals, there is no onesize-fits-all solution due to the complexity of the chemical market supply chain. While one set of chemicals may travel from the manufacturer to the distributor and then on to the end customer, other chemicals may move through even more hands in the supply chain. Without a clear and complete sustainable packaging solution in place, chemicals may be repackaged multiple times as they move throughout the process. One company may prefer a specific type of packaging and the next may prefer another. On average, packaging can change four to six times depending on a company's preferences or processes.

Creating a sustainable chemical packaging solution can improve logistics and operational efficiencies while also increasing safety and minimizing costs. Additionally, working with a partner that can help in the preparation and development stages through the execution of a strategy ensures the company creates a packaging solution that best fits their needs. When developing a packaging strategy, companies should work with their supply chain to ensure the solution doesn't only work in the now, but in the long run as well. Strategies should be measurable, well-rounded and aligned with corporate strategy and goals, and should not generate disruption in the company's operations.

The four steps to think about when designing a sustainable chemical packaging strategy are preparation, analysis and development, selection of packaging and, lastly, execution.

**Preparation :** The first step when developing the right solution is to think about what the company is already doing in the supply chain. This includes creating a multi-disciplined team of stakeholders to help answer the following questions:

- 1. How is the company addressing customers and suppliers?
- 2. Are the scope of business and project goals defined?
- 3. Are these set up for the whole company, region or specific chemicals?
- 4. Are the scope and goals aligned with corporate goals?

Additionally, the company should gather pertinent information including chemical types and quantities, preferred and available packaging types, plants of origin and destination, etc. This information should provide in-depth information on current processes and strategies, helping identify areas for improvement.

**Analysis and Development :** During this step, the information gathered in the preparation stage is analyzed to make sure it is appropriate to use but also to interpret and convert it into meaningful insights to develop the new strategy.

This step is when companies should look at the complexity of their supply chain and everything it entails – mapping vendor locations, the company's locations, inflows and outflows of chemicals, and every other important movement the chemicals make like transportation, testing requirements and storage locations. This information is critical to helping companies understand just how many steps and hands chemicals go through before reaching the end customer.

Another important part of this step is selecting and monitoring key performance indicators (KPIs) such as average distance ofshipments, average delivery time and average volumes. This helps clarify if technology could and should be used in the packaging strategy. The last stage of this step includes reviewing and analyzing solutions that can reduce repackaging across the supply chain. Not only does repackaging of chemicals increase cost and waste time, but depending on the type of packaging used, can increase the use of non- or hard-to recycle packaging that can decrease the company's sustainability efforts.

**Selection of Packaging :** The third step in the development process is selecting the packaging. In this step, companies should assess all available packaging options. While this is partially dictated by the type of chemical in need of packaging, understanding the available options can help companies select the most sustainable and safe option.

Additionally, when reviewing packaging options, companies should look at renting vs. purchasing packaging based on what works best for their operational needs. For instance, renting removes part of the responsibility in cleaning, management and refurbishing the tanks. On the other hand, companies with enough manpower to oversee the day-to-day management of those assets may not need the rental model. This is another area in which working with a partner may benefit a company, as they can help calculate which business model works best to fit the chemical manufacturer's needs.

**Execution :** The execution of the new solution, as well as the final design, should be a true fit for the operation and organization. It should be tailored to the company's operations and time requirements, and aimed to deliver improved performance, operational efficiency and have a sustainable impact.

Additional benefits include chemical compatibility, controlled and standardized processes and equipment through the supply chain, and informed decision making. The right packaging strategy should limit if not eliminate repackaging of chemicals as they change hands, enable growth and provide owners and operators with worry-free operations.

Source: Environmental Leader





## WTO UPDATE :

## **MEMBERS START IMPLEMENTING 2019-2021** WORK PLAN ON TECHNICAL BARRIERS TO TRADE



TO members began carrying forward their new 2019-2021 work plan to review the operation and implementation of the WTO's Agreement on Technical Barriers to Trade (TBT). In line with the work plan, two thematic sessions on good regulatory practices and conformity assessment procedures were held on 5 March at WTO headquarters. Members then convened a regular meeting of the TBT committee on 6-7 March, where they discussed 59 TBT-related trade concerns, 11 of which were addressed for the first time.

Members start implementing 2019-2021 work plan on Technical Barriers to Trade

- More
- Technical barriers to trade **#WTOTBT**

## Thematic sessions:

As part of the WTO's Eighth Triennial Review of the TBT Agreement, which was adopted in November 2018, members agreed to hold thematic sessions on relevant TBT issues alongside the regular meetings of the committee, and agreed that the first two sessions of 2019 would focus on good regulatory practices and conformity assessment procedures. Webcasts of the two sessions are available here:

- Webcasting of Thematic session on Good **Regulatory Practice**
- Webcasting of Thematic session on Conformity Assessment Procedures

The session on good regulatory practices focused on domestic committees and other administrative mechanisms that members have established to facilitate internal coordination on TBT matters. Members heard presentations on national experiences from Kenya, Indonesia, New Zealand, Chile, China, Guatemala, and the United States.

The session on conformity assessment procedures focused on market surveillance as well as controls and risk assessment. Members heard presentations from the the US, the European Union, China, Chinese Taipei, Japan and Australia regarding their national practices in these areas, as well as private sector perspectives on the issues.

Specific Trade Concerns: Throughout two-day TBT committee meeting, WTO members discussed 59 specific trade concerns, including 11 new concerns. Below is a summary of the new concerns. A full list of the trade concerns is available here. For more information on previous trade concerns see the 14-15 November 2018, 19-21 June 2018 and 20-22 March 2018 meeting summaries.

1. Israel – tobacco products : The Dominican Republic expressed its concern with a recently adopted law in Israel restricting the advertising and marketing of tobacco products. The law specifically requires that tobacco products be packaged in an unattractive brown packaging and that no signs of trademarks be visible on the packaging. The Dominican Republic said that it supports effective tobacco control measures, including those aimed at reducing smoking, but expressed concerns that such measures would adversely affect competitive opportunities for its exports of tobacco products.

Israel said it submitted a notification of the proposed regulation to the TBT committee in January 2014 and that the recently-adopted regulation has a one-year implementation period in order to to allow trading partners time to make necessary adjustments.

2. Trinidad and Tobago - Ban on plastics : The Dominican Republic expressed concerns with Trinidad and Tobago's ban on the commercialization and import of polystyrene products, which includes plastic cups, food containers, plates and other utensils. The Dominican Republic noted that this measure wasnotnotified to the WTO, that it is more trade restrictive than necessary, and that it discriminates against imports.

Trinidad and Tobago said that the ban is still not in force and that details are still being finalised regarding the scope of the proposed ban. Trinidad and Tobago will notify the WTO of the proposed measure, including the date of entry into force and all necessary information, so that trading partners can adapt to the new regulation.

3. European Union - eco-design requirements for electronic displays : China, the US and Japan expressed their concern with a recently-revised measure from the European Union regarding energy efficiency requirements for electronic displays and a ban on some display components. The revised regulation alters the scope and requirements of an earlier notified measure, and members were concerned that the EU did not provide an opportunity to comment on the revisions. The three urged the EU to re-notify the measure, allow for a period of comment, and clarify the provisions on the banned items.

The EU said that the new requirements promote energy efficiency and the circular economy by improving the durability, reparability, and recycling of products. The EU said that it had received comments on the initially notified measure from some WTP members and that the revised version is still under review within the relevant European Commission bodies.

4. China – Cosmetics regulation : Japan, Korea, the EU, and the US raised concerns regarding a recently notified measure by China concerning the approval (for new ingredients), production, labelling and advertising of cosmetics. Members noted timing differences between the market authorization for domestic products versus foreign products. Members urged China to follow international standards on good manufacturing practices for cosmetics. They further requested that China indicate the plans and timeframes for the adoption of the new regulation.

China said the revised measure is in response to the development of cosmetic industry in China and that it is in draft format. China took note of the concerns raised by members and said it will provide responses at a later stage.

5. Korea – graphic health warnings on alcoholic beverages : The United States said it was concerned with the lack of clarity in the development of a proposed amendment to Korea's Public Health Promotion Act requiring new graphic warning labels on alcoholic beverages. The US said that while it supported the objective of managing the public health challenges related to drunk driving, it was concerned that this lack of clarity could result in an unnecessary disruption to trade. The US also asked Korea to make available details of its new graphic warning labels, and said the measure should be properly notified to the WTO with sufficient opportunity for members to comment.

Korea responded that the draft regulation is being assessed by the relevant regulatory agencies and that it is preparing a notification for the WTO on this issue. Korea stated its commitment to communicating effectively with stakeholders during the regulatory process.

6. Uruguay - labelling of packaged food : Costa Rica, the US, the EU, and Guatemala expressed concerns regarding Uruguay's proposed law on the labelling of ready-to-eat packaged food products. The proposed law requires a mandatory front-of-pack nutritional label indicating whether sodium, sugars, fats or saturated fats have been added during preparation. While acknowledging the legitimate health objective being pursued by Uruguay, members considered the measure as unnecessary given that less burdensome alternatives exist. They also said the law was not based on relevant international standards, such as those of the Codex Alimentarius Commission (CODEX). Uruguay was also asked whether it had conducted studies concerning the specific labelling design requirements being proposed, and how alternatives had been evaluated.

Uruguay noted that the deadline for comments on the proposed measure was being extended until 30 March 2019. Uruguay considered that this proposal is justified as it is a legitimate reaction to the obesity epidemic, one of the largest causes of mortality affecting children in Uruguay. The proposed regulation is based on a series of international guidance documents, including those from the World Health Organization and the Pan American Health Organization, which explicitly includes front-of-pack nutritional labelling as effective parts of a larger public health toolkit. **7. European Union - Chlorothalonil (pesticide) :** Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Panama, Paraguay, the US and Canada all expressed concern with the EU's proposed non renewal of market authorization for chlorothalonil, a fungicide used on many agricultural products exported to the EU, including, coffee, almonds, bananas, citrus fruits, cranberries, papaya and watermelon. They are concerned that the non renewal was not founded only on a proper risk-analysis, and without considering existing CODEX maximum residue levels (MRLs). They also noted that chlorothalonil is currently authorized for use by many countries.

The European Union said that its decision followed an extensive peer review process conducted by the European Food Safety Authority. This review concluded that chlorothalonil should be classified as carcinogen category 1B while acknowledging that several areas of the risk assessment could not be finalised due to insufficient data. The EU also said that this decision would not lead to immediate disruptions in trade because the purpose was not to amend the MRLs for this pesticide, and that a grace period for the use of products containing chlorothalonil would also be provided. The EU added that the possibility of granting transitional measures would be considered when the process of proposing any changes to existing MRLs starts.

8. European Union - Transitional periods for minimum residue in pesticides : Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Panama, Paraguay and the US considered that the 6-month transitional period given by the EU before its new maximum residue levels (MRLs) for pesticides enter into force is insufficient to allow exporters to adapt, in particular exporters from developing, tropical countries.

The European Union said that the setting of minimum residue levels for pesticides is more suited for discussion at the committee on sanitary and phytosanitary (SPS) measures, not the TBT committee. The EU nonetheless informed members that a transitional period of 6 months is normally granted when MRLs are lowered, so that third countries and food business operators can prepare themselves to meet the new requirements. The EU also noted that products that are on the market before the application date may remain on the market, if high-level consumer protection guarantees are provided.

**9.** Jamaica – prohibition on plastic packaging : The Dominican Republic was concerned that Jamaica's prohibition on the production and importation of single-use plastic products could be discriminatory and lead to inconsistencies. It also considered the prohibition itself to be more trade-restrictive than necessary given that less restrictive alternatives exist for attaining the policy objectives of regulating plastic products.

Jamaica said it would reflect on the Dominican Republic's concerns and revert back with a more substantive response at a later stage.

**10. Korea - Energy Efficiency Equipment :** China expressed its concern with a new Korean regulation

regarding energy efficiency management equipment. China noted that the one-month transition period provided was less than the recommended six-month transitional period and that domestic enterprises were allowed a longer transition period. China also suggested that Korea establish technical requirements based on the performance of the products rather than their design.

Korea said that it would consider China's comments and revert to the matter in due course.

**11. Saudi Arabia –degradable plastic (OXO)** : The European Union, supported by the US, expressed concerns with Saudi Arabia's new regulation requiring certain types of disposable plastics to be "OXO-degradable" and bear a specific mark to demonstrate compliance. The EU said that it appreciates Saudi Arabia's efforts in environmental protection, but it urged the kingdom to postpone the implementation of this measure until further scientific studies regarding the real environmental benefits of OXO-degradable plastics have been finalised and further exchanges on this matter have taken place.

Saudi Arabia said that it will delay the implementation of this measure until September 2019. Saudi Arabia said it launched a national study on the adverse impact of plastics on the environment, and asked the EU to provide any recent studies on this matter.

How WTO members have used the TBT Committee in 2018:

The Committee heard a report from the Secretariat on trends in notifications and specific trade concerns during 2018. Some of the key findings include:

- Overall, there has been a high level of implementation of the TBT Agreement transparency obligations by WTO members since 1995, with 137 members (84per cent of membership) having submitted at least one notification of a proposed technical regulation or conformity assessment procedure.
- In 2018, members continued to improve implementation of the notification obligations: 3,065 notifications of new or changed TBT measures were submitted by 86 members, both all-time highs, following a consistent upward trend.
- Several African members led the way in notifications: Uganda submitted the most notifications of any member in 2018, and Kenya, Rwanda, Tanzania and Egypt were amongst the top ten notifying members. Notifications from African members have increased almost six-fold between 2014 and 2018
- There is more information being submitted related to the adoption, publication or entry into force of a TBT measure through an amended notification. Amongst these, 56per cent included a website address linking to the adopted final text.
- Members continued to provide less than the recommended 60-day comment period (an average of 55.4 days in 2018), as has been the case since 2015; however, some members extended comment periods through an amended

notification.

- 70per cent of all TBT notifications were submitted using the TBT Notification Submission System (TBT NSS), up from 35per cent in 2014.
- Members discussed 184 specific trade concerns (STCs) in 2018, continuing the upward trend. The vast majority of these were previously raised STCs, however, only 22 new STCs were raised during the past year.
- With respect to participation in STC discussions, in 2018, 39 Members (24per cent of membership) raised at least one STC, compared to 45 in 2017. Since 1995, 67 Members (41per cent of membership) have raised at least one STC in the TBT Committee.
- 68per cent of all STCs raised between 1995 and 2018 relate to notified measures, showing the complementarity between the notification of proposed measures and their discussion as STCs in the Committee

Did you know that 2018 was noted as a record year for notifications? 3065 notifications were received, with African countries leading the way in submitting notifications. Find more information here.

Ten Members that submitted most notifications (new notifications, amended notification, and revisions) during 2018



Side event – UNCTAD

At a side event to the TBT Committee meeting on 7 March, the United Nations Conference on Trade and Development (UNCTAD) presented findings from a recent publication entitled: The Unseen Impact of Non-Tariff Measures: Insights from a new database.

The presentation by UNCTAD is available here.

Update by observers

The committee heard updates from CODEX, International Bureau of Weights and Measures (BIPM), United Nations Economic Commission for Europe (UNECE), International Electrotechnical Commission (IEC), International Organization for Standardization (ISO), International Organization of Legal Metrology (OIML) and United Nations Industrial Development Organization (UNIDO).

Source: WTO Website





## IS IT SKILL OR COMPETENCY.! WHAT IS IMPORTANT FOR PROCUREMENT PROFESSIONALS!?

MS SUVARNA SUDAGONI, LIFE MEMBER & EC MEMBER IIMM HYDERABAD BRANCH, ssuvarna08@gmail.com

skill is the ability to carry out a task with determined results often within a given amount of time, energy, or both. Skill is very important to a professional of respective function to demonstrate the capacity and delivering the task uniquely.

Coming to Procurement function, it is not only as important as other functions do, but also gives an insight to get elevated to a respectable position in the organisational tree at par with other important functional management.

In Pharma Contract Research Organisations (CROs)/ Research & Development Laboratories (R&D Labs), procurement provides a fast-track to sustainable efficiency, greater competitive advantage and can support the dynamic changes of a business strategy. Though, procurement is having all these qualifications, it often fails to get the attention it deserves.

The procurement professional should always vigilant about the market trends, currency flows and currency crises (external imbalances), statutory requirements, apart from internal policies and behaviours.

From the days of evolution of CROs business in India to current date, there is no great change in the scenario of procurement of project chemicals. The advantage in current times is the advanced IT tools, which came in great support of procurement professionals.

In the past, it was a great task to fulfil the procurement job requirements and sustain in the position. It was very challenging task for a person without a thorough job training and a professional qualification, like Materials Management Studies.

The work most of the time, revolves around the fastness/ speed (time management); negotiation and lead time analysis. One should be capable of fully dipping herself/ himself in the ocean of bundles of series of transactions / reports / updations, so on.

Usually, the procurement lead time for these project chemicals will be ranging from 1 day to 3 days max. (for 90% of the project chemicals) including the indent updation to the Project Scientists.

So, what skills are needed for the procurement professional in the Pharma CRO/ R&D??

- Quick learning skills
- Good communication and interpersonal skills (good command over English will give you an additional edge)
- Time management
- Knowledge and handling of office equipment
- Computer skills with MS Office
- Good Training on ERP
- Analytical abilities

And of course, hard work and honesty is fundamental and will be helpful in whatever to be pursued. And apart from above two options, the entrepreneurial spirit will make the procurement professional on a great understanding of the company's goals and align in line with the business requirements.

Here we are talking about only the prominent skills, which are of-course, have both internal and external interfaces.

The availability of technology at work place and accustoming self to put this resource to digitalise the information acquired from numerous sources on the suppliers and their product lines. Without the use of proper technology, this gathering and synthesize of the information will take long time and till the time we compile and ready, that information goes out-dated and also, cannot be quickly circulated internally and reported to the management.

**Sourcing** – Sourcing activity of Pharma CRO/ R&D companies is very distinctive and time bound.



All the project chemicals (the raw materials) are very unique and some times, will not be available or listed in the known catalogs/ custom synthesis suppliers, whether it is locally or sourcing from foreign suppliers. For this sourcing, each CRO organisation will have the paid IT tools available in house, eg: row2technologies, ACD Finder, DWCP, some Scientific Tools, which will have vendor information, etc. Also, free search engines on internet.

The procurement person must know the techniques of searching in these tools, there are different options of search like CAS Number (Chemical Abstracts Service), Product Name, Structure Search, MFCD Number ((MDL's unique ID number, a scientific code of the compound/ chemical) search, Molecular Formula, Molecular Weight, etc.

While how to search is one big task and the other is, whether the searched compound matches our requirement. These apply to mainly the Key Raw Materials (KRMs).

For example: Though the search through CAS No. provides the correct compound named suppliers, but should check

on the form of the compound (like cis/ trans, etc) and also, a check on UoM (Unit of Measurement) should be very vital as some compounds will be available in "milli litre" and some are in "grams" as this will have the greater impact on the quantity required in the R&D process, and so on.

Sometimes, even the search engines, whether paid or free, will not provide the correct product availability information. The lists are not updated by the suppliers from time to time. When we send the Request for Quotation (RFQ), the reply comes saying they are not making this product any more, and so on. These data bases are majorly supporting but not 100%. The supplier websites mostly the catalog chemicals, are nearer to the reality.

Negotiation – There is a saying in recent conferences that "If only we could pick up all the money that we are spilling in negotiation, it's a huge number, definitely a substantial amount." So, we all must focus on more on good negotiation skills (organisation's win-win situation).



The following key performance areas must be understood thoroughly in order to ensure the success of any negotiation transformation initiative:

- Negotiation process
- Cross-organizational collaboration
- Data collection and analysis
- Preparation and planning
- Approval and escalation systems
- Negotiation training
- Measurement of negotiation success
- Motivation for negotiation success
- Common negotiation standards
- Board level support

The best negotiators are similarly twice as likely to test their understanding of what the other party has said, in order to successfully maintain momentum and clarity, and so avoid potential conflict or misunderstanding further into the negotiation.

The procurement person should be thorough with the negotiation requirements, include the involvement of Scientific and financial team and in certain cases, the Business Development team, is also essential. The negotiation is not just for the price of the product, it is the technical properties, lead times, terms, etc., means the overall product receivable costs.

Supplier Lead time management – This area also very very critical. Though the Suppliers mention the delivery period/ lead time, some times, it gets delayed beyond the scope and in such cases, some of the suppliers will not even give any updates on whether the compound synthesis process is in progress or it is not moving further. This happens mainly, (as per my understanding) the chemistries are dependent on the literature. If the literature is not supporting (non-workable literature), then there is every

chance that the compound supplies will get delayed without any firm commitment.

In such cases (I came across many instances like this) – the procurement person should be proactive and be in touch with the Scientific Team and update on the situation so that they can check on the feasibility of making in-house or inform the client. If decided making in-house, procurement person should follow up for the pre-cursers or the Raw Materials for the target molecule.

Though this looks very simple, it is bit complicated in view of the delayed deliverables to the client.



The procurement person's smartness in understanding the Supplier processes, follow up and giving timely updates to the indentor is highly crucial, in cases of delayed timelines. These kind of situations occur once in 20/ 30 compounds (roughly), where the products are not in stock and the suppliers synthesize against our orders. Otherwise, just follow up and get the products arranged as per time schedules.

The reduction in Supplier's lead time is the main part in the lead time management.

We achieved a 5 day time cycle from 3 weeks / 2 weeks / 10 days (Imported chemicals, which were available in stock from ourside India and the consignments through DHL/ Fedex, etc – including custom clearances and issuing to the Indentors).

Logistics – In case of import. The active knowledge is very much required. If we have a separate Logistics function also, the procurement person should understand the procedure and accordingly, provide all the required information and documents to the department. Simultaneously, tracking the shipment movement and also, internal follow up on the shipment up-dations is a must.



Finally, all other activities fall in-house, which could be in standard flow of operations.

Then What Is MOST Important for us to understand and ACT.!?

Having said all above, Do we know if or not, a competent person is handling the post occupied.!? And how competent is he /she.? We really don't know and the Top Corporate too.!

Hence, this demands a thorough Analysis of competency of the person handling this job, which is very crucial to the Organisation. How do we determine this .?

## What is COMPETENCY

Any underlying characteristic required for performing a given task, activity, or role successfully, can be considered as competency. A Competency is the ingredient (skills, knowledge, attributes) that contribute to Excellence.! Those core forms, also added by behavioural competency like Motives, Values, Self concept etc., enhances individual's performance.

Competencies may be grouped in to various areas.

- Technical or Functional Competencies (Knowledge, Attitudes, skills etc. associated with the technology or functional expertise required to perform the role);
- Managerial (knowledge, attitudes, skills etc. required to plan, organise, mobilize and utilise various resources);
- 3. Human (knowledge, attitudes, skills required to motivate, utilise and develop human resources)

## The behavioral competencies identified for Purchasing were.

- A. Organizational & Business Awareness
- B. Analytical Thinking
- C. Customer Focus
- D. Interpersonal Effectiveness Including Ethics & Integrity

## What is Competency Mapping?

Competency mapping is a simple way of identifying the competencies required to perform a given job. It is about identifying preferred behaviours and personal skills, which distinguish Excellent and Outstanding performance from the Average. In competency mapping all details of the behaviours (observable, specific, measurable etc.) to be shown by the person occupying that role are specified.

Often casually we comment "this position is not his cup of tea" or "that person is the best fit to the Role". On subconscious mind we try to assess one's profile or competency and match with role requirements. But such casual assessment is not only a stumbling block for creating a 'Talent Inventory' and use the same for vital management decision like Transfer, Posting and issues like Succession Planning, but also to take decision regarding basic recruitment and developmental requirement of individual, in a need based and cost effective manner.

Due to lack of any organized system, such decision making process obviously remains in the hand of a few persons, who often start believing themselves as the ultimate "Power Centre" and start directing the executive level to "act accordingly" - thus force them to compromise professionally.

Such style of management, even if at the best spirit with wisdom, only could serve the purpose on short term basis. One of the organized managerial movements to overcome such shortcoming is Competency Mapping.

## WHO CAN DO IT?

Competency mapping is a task which can not be done by anybody who claims.! Conceptual Background and Understanding of the business is important.

Familiarity with Business, Organisations, Management and Behavioural Sciences is useful. Consultants should have all the knowledge required to identify skills required for all jobs in the concerned function. A professional Body of repute, specialized in the chosen functional area to that particular industry, would be more apt.

The Management should keep the procurement/ scm personnel performance assessment on a quarterly basis. This will help the team in developing the required skill with the support of internal training and also, enrolling them to the suitable Materials Management Courses from Indian Institute of Materials Management (IIMM).

The procurement/ scm team performance evaluation/ assessment mostly should be as per the following as Key Performance Indicators (KPIs), for CROs/ R&D Labs:

- No. of Requisitions received and converted into orders
- % of Project Chemicals received on time (inclusive of material issued time)
- Cost Reduction/ Savings achieved on repetitive chemicals orders/ new chemicals orders
- Whether the person possess required skill or need any training for betterment of the procurement process.
- Any other issues which cannot be quantify to be discussed, after all the work place is like a family environment!

The remarks/ comments against each KPI to be understood and discussed, to overcome if there is any weakness point / or appreciate if it is outstanding!! As you all agree, apart from the Salary, there is one more significant value for any working person – THAT is..... the "Recognition".

## **Conclusion:**

The procurement personnel's work skill is very important and significant in any Industry, whether it is Pharma, Pharma CROs /R&D Labs, Engineering, Automobile, etc.

The procurement person's utmost skill is THE willingness to do the activity and line up the activity with customers' commitments.

Skills apart, temperament of the procurement professional is also equally important.

A competency Mapping exercise is the need of the hour to be done for all Procurement professionals.! This followed by a Gap Analysis will reveal the Training needs for each individual.! So upgradation of Skills where the individual is weak will be revealed and can be strengthened by proper training.

IIMM is the most competent authority and capable to do this Competency Mapping. No doubt, Over all Competency is Important for Procurement Professionals!

 $\emptyset$  A request to the readers of this Article: To please forward your valuable views and perceptions to the Author (to understand the other industry requirements and update the knowledge) and Editor of MMR, to improve on the future articles.

**References**: Internet; Self Knowledge & Experience and The Senior Associate's Review.

•••

# **BRANCH NEWS**

- AHMEDABAD BRANCH
- ALWAR BRANCH
- AURANGABAD BRANCH
- BANGALORE BRANCH
- CEHNNAI BRANCH

## AHMEDABAD BRANCH

**Report on 09<sup>th</sup> March 2019 : Ahmedabad Branch** organized a talk on "**STATE MANAGEMENT**" By **Mr.LOMESH DAVE**, who is Entrepreneur, at "TRANSFORMATION Intitute of Management" in lecture hall of **Ahmedabad Management Association** on 09<sup>th</sup> March 2019 under its Knowledge Augmenting Series. Audience consisted of 64 hard-core professionals who enjoyed the talk thoroughly.



Branch Chairman Mr. PankajPanchbhai mentioned in his inaugural talk:

Dear IIMM Family good evening...

Speaker of the Day Mr. Lomesh Dave, Members of Ahmedabad Branch, Today's Invited Guests, Ladies and Gentlemen, I extend a very warm welcome to you all on behalf of Executive Committee of IIMM Ahmedabad. Today we are having talk related to **State Management.** Mr. Lomesh Dave an eminent speaker will be giving us insight on topic which is very much useful to all of us in daily life. This will increase our

- HYDERABAD BRANCH
- PUNE BRANCH
- TRIVENDRUM BRANCH
- VADODARA BRANCH

daily work productivity .We are grateful to you Sir for this act of kindness.





# Mr. D.K.Goswamy will soon introduce him and the subject.

Friends, IIMM is a very unique institution having 55 branches across India and Ahmedabad is one of them. Out of national membership of 10000, we in Ahmedabad Branch contribute 386 members and we are targeting further for 500 marks. Some of you who are still not member should acquire membership immediately.



We are a very popular institution in city of Ahmedabad, which conducts evening lecture programs every month for members, and select guests since last Decade without any break and soon there will be a mega celebration of 100<sup>th</sup> Program. Stay connected.

We are happy to announce that we have started weekend certificate courses for professionals on **Integrated Materials Management**. Thanks to Mr.DKG for guiding and make the dream true.

2) Today we are trying to record live session. This will be done on regular basis. Thanks to Mr. Dasharathbhai - courtesy Mr. Purvish Patel. Our admissions to AICTE approved courses, PGDMM and PGDSCM &L are going on. You can enhance your knowledge with these courses to serve Nation better. Today we will be welcoming New Members in IIMM family. You are all most welcome to stay here this evening. I hope you will enjoy the rest of the program and thank you for sharing this special event with us.

**Mr. D K Goswamy,** Program Coordinator introduced Speaker and Subject:

## Good evening all,

There are many different types of emotions that have an influence on how we live and interact with others. At times, it may seem like we are ruled by these emotions. The choices we make, the actions we take, and the perceptions we have are all influenced by the emotions we are experiencing at any given moment. Emotions guide our lives in a million ways. Whether we're inclined to hide and avoid or ponder and express them, most of us don't realize the extent to which they are driving our thoughts and behavior. Exploring our emotions is a worthy endeavor for anyone hoping to know and develop themselves, build healthy relationships, and pursue what they want in life. Emotions may result in the drives. Whatever, we do is driven by our emotions.

We are happy to have with Mr. Lomesh Dave to make a presentation on state management where he would explain that how the state management would help

- in getting desired outcome
- to ensure full day positive state of mind
- in making right decision
- helps to your full day power pack with energy

Mr. Dave is known as a front stage magician. He is a great influencer, creating massive impact on lives of people in just few moments of the meeting.

He has created massive breakthroughs in recent years and also helped thousands of people in making their life wealthy in every aspect of life. He has done deep study on human minds and psychology because it plays a major role for success.

Mr. Dave is an excellent communicator, and explains difficult concepts in simple language so that the participants can understand and also apply the same easily. His only mission is to transform mankind by tapping their true potential.

Let us put our mobiles on the silent mode after informing the spouse that he or she is in an important meeting. Let us welcome Mr. Lomesh Dave with a big round of applause.

# Synopsis of Mr. Lomesh Dave's talk on "STATE MANAGEMENT" is as follows.

## STATE MANAGEMENT

**Peak State = Peak Performance :** "The difference between peak performance and poor performance is not intelligence or ability; most of time it's the state that your mind and body is in."

When was the last time you were in a negative state of mind Like angry, Frustrated, Bored? How did being in that state affect other parts of your life? We often feel like our emotions are beyond our control, but that's entirely untrue. In reality, you have the power to learn how to change your mood, and can do so in a heartbeat. Let's understand how you change your state instantly: Actually, there is Three key elements which affects your state:

**1.Body Language:** So, how do you change your mental state, even when you're dealing with immense stress? The secret is in moving your body. Emotion is created by motion. In other words, emotions are linked to movement in our bodies. Observe your posture when you are happy, as opposed to when you are sad — or what you look like when you are angry, versus when you are exited or Passionate

There's a difference, right? your Body language sends

signals to your brain, and the rest of the world, about how you're feeling and operating. It is not only in your physical appearance but also in your brain. If you have a poor posture, it only lends itself to poor emotions, or a negative state. Good posture and alertness produce a more positive state.

Once you accept that you are solely in control of your emotional well-being, you can move away from bad moods and learn to exist in a beautiful state, any time.

# Here I recommend 5 Changes for being in right Body Language:

- Shoulder Up and Chest high
- Walk Like a Leader (20% speed)
- sound tone up and speaking speed increase (20% high)
- Everyday physical exercise
- Keep smile on your face
- 2. FOCUS: 'Where focus goes Energy Flows'

In Life where focus on most that is only we receive in our Life let's understand how focus affect our Life.

Let's understand Formula:

## Focus=Feeling=Action=Result

Actually, Our mind is like camera when we taking click something in camera other things become blurry as so when we are focusing on problems we can see solutions & when we focusing on recession we can't see opportunities around us because its crate blind spot. And understand this what so ever we are focusing on it will be remaining so changing our focus on what we want on Life in stade of what we don't want.

But many times, we could change our focus when we are in difficult situation

So Here is the solution of it:

We are doing self-talk with Questions & answers with our self and interestingly.

Our mind can give any answer so when we ask negative question or doubtful question its give all the negative answers or it will create confusion & when we ask empowering question we get answer too.

Ex, How can loss my weight when I don't have time ? Or I donts love exercises or I am foody how can loss my weight?

Your Mind Ans: Many people are fatter than you or Ans you couldn't

Because, you are wrong question ...

If you change your question like this :

How can loos my weight with enjoy or easily?

Your mind Ans. Your mind find new Ans for that & how enjoy most & loss your Weight.

**'Chane your Questions & change your FOCUS** 

## 3.Language:

## 'Change your words Change your world'

In daily Life many negative words & phrases are spoken without understanding of its negative impact in our Life, I have studied a lot in my recent 10 years and observed that individuals have some specific negative words pattern which they speak a lot but they himself doesn't aware of it (Its metaphor for them )

## For example:

My one client speaks "Problem" word so many times in routine & and his whole life become problem. Another friend is very often use word 'Bogus' & and he got bogus everything. So, Avoid Negative vocabulary from Your Life & it will be dramatic Transformation for sure. Next time when someone say how is the day Say Fantastic, Superb & Extraordinary

## Some Tips :

- Read autobiography, watch video of successful persons, Champions or leaders
- Use language which successful peoples are using

Mentor Profile : Mr. Lomesh Dave (Business coach & Corporate Trainer ) is founder and Director of Transformation Institute of Excellence . He is known as a front stage magician. He is a great influencer, creating massive impact on lives of people in just few moments of the meeting. Lomesh has created massive breakthroughs in recent years and also helped thousands of people in making their life wealthy in every aspect of life. He has done deep study on human minds and psychology because it plays a major role for success.

**Services** : Corporate Training: Sales. Marketing, Leadership, Productivity, Inner Motivation & passion, Confidence Building Team Building and We can create customize session also.

Our Distinguished Member Mr. Sudhir Shah appraised us on Membership front and informed the house that we now stand at 386 and will soon cross 500 mark. New life members were recognized by momento and welcome kit to following members.

Mr. Yogesh Patel Adani Mr. Vikas More Chiripal Ms. Purvi Kotak Kotak Logistics Mr. Vaibhav Wattamwar from Vadilal **(Welcome Kit)** Mr. & Mrs. Venkateswarlu Mr. Amey Dhadve & Mr.Ankit Satwara Mr. Amit Ghosh & Mr. Mahesh Pandya Mr. Arvind Makwana

Mr. Rakesh Gupta, Hon. Secretary in his closing remarks said:

Dear Friends,

We are grateful to our very senior Past Chairman Shri D.K. Goswamy who have facilitated the talk of today's speaker Mr. Lomesh Dave. We thank Mr. Sudhir Shah for updating us on membership front. We thank Mr. Anil Patil for sharing the education details, which is a good revenue resource for us.

We could see the apt delivery done by Mr. Lomesh Dave. He gave us tips and ideas on STATE MANAGEMENT; i.e. state of our mind, which reflects in our actions in our daily work. Mr. Lomesh explained in simple words importance of "Emotional State of Mind" and how it can help in executing daily task. Todays' talk has been helpful to one and all; whether it be a Professional, Home maker, student, and even children.

On behalf of one and all, I express our sincere thanks to Mr. Lomesh Dave. I must also thank our members and guests for their qualitative participation.

We heartily welcome our new life and annual members mostly young ones, as they will be the future pillars if IIMM. We request the guests to obtain the membership form and we assure that you will get value for money invested rightly.

Plans are freezed for a mega program/seminar in a month's time now. I look forward to your effective participation in large numbers in programs which will follow continuously.

## ALWAR BRANCH

Indian Institute of Materials Management, Alwar Branch has taken up the the Joint meeting and program in big way . In the series of Meeting on 15/3/2019 the Branch committee Members had a meeting with "Bhiwadi Manufacturers Association President Mr. Surender Singh Chouhan along with the Members of Executive committee. The meeting continued for about Ninty Minutes . The President and the secretary Mr. Raghav are very much keen to have association with IIMM. In the Afternoon another meeting the Branch committee had with the president and some members of Bhiwadi Chember of Commerce and Industries Mr. R N Singh and Hon. Secretary Mr.Sunil Sharma . Very soon during the MM Month Celebrations IIMM Alwar Branch shall be Conducting two programs for the Industries of the area. Bhiwadi is one of the biggest Industrial town of Rajasthan. Major Industries in this town of Alwar district are, HONDA Four Wheeler's, HONDA 2 Wheeler's, Balkrishan Tyre Industries (3 Plants), SRF Industries (2 Plants), KEI, SantGlobin, Roca- Parryware, Jaguare Bath products, Kajaria Ceramics, Orient Tiles, Hero Honda and other Hub of about 25 large Scale, 200 Medium Scale and about 800 Small scale Industries in the Industrial area of Bhiwadi, Khuskhera, Tapukra and Chopanki.

With the efforts of Mr. L R Meena founder Chairman of the branch and Present National Secretary and Treasurer, IIMM, NHQ branch is likely to enroll Minimum 100 Members from this Industrial town of Alwar Districts.

On 25/3/2019 Mr. L R Meena, Mr. Gulab Singh Rathore

& Mr. V D Gupta along with other EC Members visit two major Industries M/s Havells India and M/s Roca -Parryware of Alwar. The committee had the meeting with the Plant heads along with HR and Materials head of both the Industries. The response is very much encouraging.

## **AURANGABAD BRANCH**

IIMM Aurangabad and Dr. Babasaheb Ambedkar Marathwada University's Model College, Ghansawangi, Dist. - Jalna jointly conducted the Seminar on "Career Counselling & Job Opportunities in Materials Management" on 9<sup>th</sup>March 2019.



Dignitaries on dias



Mr.N.B.Warade adressing the audience

Mr. N. B. Warade, Distinguished Member of IIMM, Mr.Sushil Pande EC Member and Mr.R.D.Jaulkar, Course Coordinator of IIMM Aurangabad Branch guided the college students and staff members .Mr.Lalit Lohade \_ Branch Treasures was the main coordinator for this event.

Honorable Principal Dr. Viswasrao Kadam welcome IIMM team and described the agenda to Model College staff and all the students.

Mr.Warde expressed the need of skill sets required for getting the job, and the opportunities available in the "Material Management" field . He describes about available short term and long term IIMM courses.

In the second session EC Member Mr.Sushil Pande elaborates about the dry port and potential job opportunities in SCM field in Jalna and nearby area. Mr.R.D.Jaulkar, Course Coordinator cleared all the doubts of the students like Course Fees ,Examination Centre, various course durations ,industry support available with IIMM.

About 100+ students attended this program and appeared to be interested in taking the admissions. Honorable Principal Dr. Viswasrao Kadam conclude the session. Proceeding for the program was done by Dr.Rushi Baba Shinde, Introduction of faculties was done by Prof. Uday Pawar.

Dr. Vitore offered "Vote of Thanks". Program was concluded by National Anthem.

## **BANGALORE BRANCH**

6<sup>th</sup> March 2019: Indian Institute of Materials Management (IIMM), Bangalore Branch conducted In house Training program on "Best Practices in Supply Chain Management" for executives of ARIBA Technologies on 6<sup>th</sup> March 2019 at their premises. Mr. K.S. Mohan Kumar, Sr. Faculty handled the session and covered contents on introduction to SCM, Sourcing Management and Strategies, Segmenting procurement, Application of Value analysis/ Value engineering methods and discussed some case studies. The program was very interesting with good interaction from the executives and speakers. The feedback received from participants has been rated at "Very Good".



Mr. K.S. Mohan Kumar, Sr. Faculty handling session for Executives of Ariba Technology on 6.03.2019



One day In - house training program conducted for ARIBA Technology on 6.03.2019

**13.03.2019 : Lecture Program :** Indian Institute of Materials Management (IIMM), Bangalore Branch conducted a lecture program for MBA Students of

Acharya Busines School. Mr. K.V. Sudheendra, Branch Vice Chairman and Mr. M.S. Shankar Narayanan, briefed about IIMM and gave a lecture session on "Introduction to Supply Chain Management". After the lecture presentation IIMM Bangalore Branch had meeting with Directors and Executive Director of ABB group of Management education, regarding educational activities and value added courses of IIMM Bangalore Branch and Membership for the Students of MBA Candidates ABB. Mr. K.V. Sudhindra, Branch Vice Chairman, Mr. Shankar Narayanan, National Councilor, Mr. P.M. Biddappa, National Councilor and Mr. S.M. Nagaraj, Manager Administration.



Lecture presentation at ABBS School of Business on 13.03.2019



Meeting Executive Director of ABBS School of Business on 13.0.3.2019

Dr. Goutham Sengupta, Vice Chancellor of Techno University, One of the advisor of CRIMM – IIMM Kolkata joined for the meeting. Discussed on Value added joint certification programs for their MBA Students, Membership Drive, Internship / Placement support and discussed on Job opportunities in SCM, MM, Retail Stores Operations, Warehouse Operations, and Inventory Management.

**21.03.2019 : Lecture Program :** Indian Institute of Materials Management (IIMM), Bangalore Branch conducted a lecture program for MBA Students of Koshys Group of Institution. Mr. P.M, Biddappa, NC Member briefed about IIMM and Mr. P. Viswanathan, EC member and Sr. Faculty gave a lecture session on "Introduction to Logistics Management". After the lecture presentation IIMM Bangalore Branch had meeting with Dr. A. Ravi, Director Academics of Koshys group of Institution, regarding educational activities and value added courses of IIMM Bangalore Branch and Membership for the Students of MBA Candidates

of Kosys. Drive, Internship / Placement support and discussed on Job opportunities in SCM, MM, Retail Stores Operations, Warehouse Operations, and Inventory Management.

## **CHENNAI BRANCH**

# Spectrum 2019 on 22 &23 Feb 2019 at MMA auditorium Chennai-Report

IIMM Chennai branch, conducted its annual mega event on 22 and 23 Feb 2019 at Madras Management Association Convention Hall. The theme of this event Spectrum 2019, providing for cross industry learning is "Multi disciplinary intelligent supply chain for business growth". About 150 plus professionals participated in this tech-packed event.



Master of Ceremony Mr. N S Sivaraman, former Chariman and CEO L&T (retd)

The inaugural event began with lighting of lamp by dignitaries Mr G.K.Singh National President IIMM, Chief Guest (Retd ) Vice Admiral B.Kannan, MD and CEO of L&T Shipping Ltd, keynote speaker Mr.Raghuttama Rao CEO-GDC-IIT Madras, MrB.Ramesh Spectrum Event Chairman and Mr.J.Ravishankar Vice chairman IIMM CHENNAI.

Professionals from 7 different industry verticals and 52 organizations and 12 sponsors- led by Barani Hydraulics Pvt Itd, Raj Group, JKIG Automotive India Pvt Ltd, Ramnashekar steels Itd, Sun Pressings (P) Itd and Motor India the media partner were welcomed by Mr J.Ravishankar, branch vice chairman.



Mr. M Sundaram, advisor spectrum - 2019 annoncing SCM corporate award



Recognition of work done by IIMM Chennai Branch



Mr. S Easwaran, Deloittee addressing on Circular Supply Chain



Prof. Dr. G Balasubramanian, addressing SCM to the Financial services



Mr. Murali Ramanathan Head Retail architecture & digital technology, TCS addressing on e-Commerce Shipping Strategy

Mr G.K.Singh National President IIMM awarded appreciation medals to all office bearers of branch, in recognition of excellent performance maintained by Chennai branch. Mr B.Kannan, Chief guest, highlighted the warm link he has with Chennai branch office and narrated how the Logistics industry has developed over the last 3 decades.



Success Sharing by Mr. Venkatesh, Director, Finance NTC Logistics



Mr. S Subramanian, Chairman Content committee summing up day - 1



Mr. Muthukrishan, GM, TATA Motors, addressing on Impact of e-mobility on SCM

The keynote address rendered by Mr.Raghuttama Rao, the CEO of GDC-IIT Madras, focused on shift in share of traded goods towards higher valued goods. He highlighted that IOT, Block chain and digital technologies etc will bring down transaction costs.

Ms NTL Logistics India Pvt Itd was honoured with Corporate Award given for year 2019., by the Chief guest.

The technical sessions of the 2 days programme had following tightly packed contents

T1 Session On Circular supply chain by Mr Eswaran Partner Supply chain &Manufacturing Operations Leader Deloitte India



Mr. N Sundar, Head, SCM, Neuland Lab addressing Patient-centric Pharma SCM



Dr. Vinayaka Pandit, IBM addressing on Blockchain tranformation

Mr.N.Sivaramakrishnan, former Director - Quality, Alstom and former branch chairman and senior distinguished faculty member from IIMM, chaired this session. The speaker of the session Mr.S.Eswaran was introduced by him. The speaker, Mr. Eswaran is Partner Supply chain & Manufacturing Operations Leader Deloitte India. Mr. Eswaran provided an overview of how circular supply chain will drive future. He highlighted its evolution from linear supply chain. In the presentation he focused on the note that circular supply chain is restorative and regenerative by intention and design. He shared the example of the building of Shangai city when almost one third of world's total backhoe population was aggregated for that purpose. But after the completion of work, there was no need for any backhoe.



Nitin Dhimole, Chief Materials Manager, ICF addressing on SCM impact on Capital Projects - Train 18



Mr. Vupendra Sai, Director, Ernst & Young addressing on Pannel disscussions



Dhivya Anand, Sr. Manager Beroe Consulting addressing on Pannel disscussions

# T2 Session-Supply chain management to the financial services by Dr G.Balasubramanian, Vice president IFMR Business school.

This session was facilitated by Prof. Dr G.Balasubramanian, Professior, IFMR Business school. Mr. M.Sundaram Chairman Corporate training chaired the session. The speaker gave a overview of the on generic valuation framework, he provided the following structure. The shareholder value creation process comprises business strategy and financial options as two lines of flow.



Speaker Felcitation

T3 Session E-commerce shipping strategy by Mr.Murali Ramanathan Head Retail architecture & digital technology of TCS.

Mr. N Govindaraj, executive committee member of

IIMM chaired the session. The session was facilitated by Mr. Murali Ramanathan Head Retail architecture & digital technology of TCS. He focused on the embracing of technology for a digital supply chain. He narrated the following developments as having significant impact on business Intelligent things and internet of things, Typical functions in warehousing such as sorting, picking, shipping and delivery will be shifting to augmented reality or conversational technologies like Alexa, to a lvel of 20%, in next few years.



Senior members of IIMM Chennai at Spectrum 2019

## T4 session – Success story of NTC Logistics by Mr R.Venkatesh from NTC Logistics India Pvt Itd

This session was facilitated by Mr R.Venkatesh from NTC Logistics. This organization was promoted by by 3 entrepreneurs. Initially, it started as a truck business. Gradually, they wanted to specialize and in year 2000, they shifted to Over dimensional cargo (ODC) operation. Starting from transportation NTC Logistics, provides complete solutions. It shifted from assetbased company i.e transporter to a solution focused organization i.e full service freight forwarder, taking complete responsibility for profit management of transportation logistics. It is currently, the largest player in ODC segment. It owns more than 2000 trucks and trailers. Now it is engaged more in engineering than in transportation. NTCL does extensive research on transportation. It has 4 axled and 5 axled trailers which can carry very heavy payloads. They have transportation capacity to haul up to 70 tonnes. They also provide training in complex equipment. Skill development council has certified NTCL for training in ODC transportation. They are also expanding into international operations. In freight-forwarding, they compete with China and also win business. They are fully moving into freight forwarding, where considerable fee is generated. They also have plans to enter into contract logistics such as such as auto, auto components customers, pharmaceuticals etc. They are now working on a wide range of payloads from 5 mgs to 1000 tonnes. The session was chaired by Mr. B Ramesh, Chairman – Spectrum 2019, IIMM Chennai.

For the year 2019 NTC Logistics India Pvt Ltd is awarded the IIMM Corporate Award The award was given by Vice Chairman Mr J.Ravishankar on behalf of IIMM CHENNAI BRANCH.

# T 5 Session- Impact of E mobility on supply chain by Mr.S.Muthukrishnan, GM Tata Motors.

The first session of second day was chaired by Mr. Sethu Venkataraman treasurer of IIMM CHENNAI BRANCH and the session was facilitated by Mr. S Muthukrishnan, GM Tata Motors. The session focussed on E mobility covering electric vehicles and entire electric eco system. The focus was on future E mobility comprising electric vehicles, batteries, E cars and autonomous driving. The narrative began from the inception of e-vehicles in the beginning of 20th century and needs and drivers of EVs. As they provide for clean environment, unlike the other energy resources like solar wind, e mobility could be the most preferred option, unlike their limitations. Increasing economic and environmental concerns will cause a shift from conventional fuel driven vehicles towards e vehicles.

## T 6 Patient centric pharma supply chain by Mr Sundar Narasimhan Sr Vice president &Head SCM Neuland laboratories Hyderabad.

The session was facilitated by Mr. Sundar Narasimhan Sr Vice president &Head SCM Neuland laboratories Hyderabad. This session was chaired by Mr. K. Nagappan – Head of Materials Retd. in Apollo hospital enterprises group The following aspects were covered in the presentation-

- Supply chain links to manufacturing, distribution, retail/pharmacy, and finally to patient process
- Delivering the product in the most convenient way—when and where they need it (Amazon like)
- Shifting Regulatory Landscape and integration with Supply Chain processes
- Use of IoT Devices, Data Loggers, Online Platforms in Pharma Supply Chain
- Management of Regulations, Expirations, Spurious Drugs - Branded and Generic Drugs

He gave a brief on Global Pharma industry with turnover exceeding \$1.3 trillion and growing. He highlighted the following 4 major trends large sized market, clocking decent growth rate, less Regulated markets driving volumes and the rapid growth of China market. He dealt at length the shift from traditional to patient centric approach. The traditional approach was product led and disease-centred.

# T7 Session - Fast moving goods, Smart thinking customers by Dr R.Arunachalam y CEO of Pro Connect of Redington group.

This was anchored by Dr R.Arunachalam who holds a Ph.D. in Supply Chain Management from Kanchi University. He is currently CEO of Pro Connect a logistics organization belonging to Redington group. The session was chaired by Mr.V.Ramachandran, executive committee member and advisor MSME -Govt of India. Dr Arunachalam, highlighted, in his presentation, the modern trends which drive the logistics and warehouse operations. He narrated, how the steps taken by Govt of India such as abolition of octroi, permits and gradually check posts, have led to better utilization of logistics assets.. All these steps lead to improved fleet utilization and parts delivery. He visualized that with the expected growth in E commerce, the market will cross US\$200 billion by 2026.

# T8 Session on Block chain technology by . Dr Vinayaka Pandit from Block chain research, IBM Research India,

Mr. Subramanian (Subbu) is the session chairman who briefly mentioned the origin of this "Block chain technology'. Dr Vinayaka Pandit from Block chain research, IBM Research India, facilitated this highly technical session starting from supply chain coordination. He the audience by providing a snapshot of Block chain Revolution, starting from **Bitcoin**. From the registration of Bitcoin in 2008, its software was made open source for large people to participate. Ethereum, which started in 2015 issued Ether- its crypto currency. A number of distributed applications through SMART contracts, led to Hyper ledger in Dec 2015.

He also stressed the key problem of identifying and monitoring asset ownership. He dealt at length on how a solution- shared, permitized ledger can become a usable block chain for business.

Core issues in Industrial block chain such as pluggable consensus were highlighted. He also stressed that managing externalities is essential. He closed with the key note on whom are you trusting and what is the trust model a the core issues in block chain.

# T9 Supply impact on capital projects by Mr. Nitin Dhimole Chief Materials Manager ICF Chennai.

Session Chairman Mr.T.N.Srinivasan introduced the facilitator for the session Mr. Nitin Dhimole Gr A IRSS Officer of 1985 batch and Chief Materials Manager ICF Chennai. Train 18-Best in Class train set as part of Make in India initiative was released recently. This carries no separate locomotive, in line with the latest trend all over the world of using trainsets. He narrated the development journey from concept finalization to the consultancy contract, i.e - new bogey design with fully suspended traction motor. The procurement contract and judicious selection of suppliers was elaborated. He highlighted the interactions with contracted suppliers and consultants on Key drawings, shop floor meetings, prototype rake readiness-to release it by 15 Oct 2018. He also stressed that with all the efforts ICF owns IPR and Govt has requested to make 100 rakes, which use LHB design as base. He also provided the testing methods up to 180 kmph speed running on track and the advantages of the train design, such as quick acceleration and interiors. The session also had a video play on the inauguration of the T18 introduction by PM of India.

# T10 Panel discussion on How will supply chain careers evolve in next decade

Panel speaker -SCM consultant from consulting - Mr Upendra Sai Director Analytics- E&Y He highlighted how the technology is going to transform supply chain and the changes that will come in supply chain. He dwelt at length on how supply chain professionals need to manage the change. In the narrative, he emphasized that the scope of SCM has remained the same, i.e., increasing the efficiency and effectiveness in both B2B and B2C segments. He stated that the technology- led developments do not change supply chain expectations. Management expectations have remained same but technology up gradation like data automation like in warehouses, in production functions, has major impact. While stressing that automation which is little more intelligent, does not result in net reduction of jobs. Before ATMs were introduced there existed only 250 tellers, in a bank in US. . After ATM introduction it increased to 3500 tellers. ATM machines made banks efficient with reduced cost and more business was generated. This required more people. However the nature and title of jobs could become different.

## Panel speaker -HR professional from manufacturing – Ms. Dhivya Anand Senior manager Learning &Development &HRBP at Beroe Consulting Pvt ltd

She narrated the session with a story on importance of problem solving. She also stressed the point that it is man and machine and not man versus machine. Collaboration with machines is necessary, in business today.. New job creation is need of hour. 65% of kids will shift in roles. Lots of roles were not accepted earlier, but have become normal now. Ability, motivation and opportunity enhancement are the three key challenges. Shift in human resource management towards strategic goal identification, was narrated. Key new roles that stand out such as digital engg i.e data science drawing insight from data, role of sales and marketing and emerging skill sets. She specifically focused on the skill like, Complex problem solving, Creative thinking, Adaptability, Flexibility, Agility, Innovation and Cultural change, need for being open and readiness to collaborate,, network and build foundations of clients were highlighted by her. While certification can be funded by employees, need to have full expertise in end to end supply chain was stressed. Knowledge sharing in forums, relationship building with suppliers and customers are equally emphasized. Besides sharing success stories, she stressed the need to share failures as well.

# Panel speaker - SCM educator-Mr. T Vallinayagam Consulting faculty CII Institute of logistics

He stressed that value analysis which are more into logistics is also moving into supply chain. Logistics has also taken many of the areas of supply chain. As country moves from service sector to manufacturing function, the savings in manufacturing can lead to investment in R&D. Less than 1% of our present GDP is spent on R&D. As an example he narrated on How the cold chain corridors have become a challenging issue. The essence of learning from the panel discussion was well summarized by Mr N.Sivaraman, the session chairman highlighting the need to continuously update the skills and knowledge. Mr. N. Sivaraman former CEO L&T Shipyard Ltd was the master of ceremony for the entire event . The event ended with a vote of thanks by Mr. Ramesh Spectrum 2019 Chairman.

## HYDERABAD BRANCH

## AIMING TO REACH DESIRED RESULTS

- 1. At the outset, we congratulate all branches in India for organizing respective signature events/ National conference/ National seminars including the latest Regional conference and NC meeting by team IIMM Bilaspur branch.
- We continue to thank our Chief Editor and MMR publisher and also Chairman Board of studies Dr. MK Bhardwaj Ji for advising his team in getting our branch news in MMRs. This aspect is helping us to boost, IIMM courses through our branch and professional satisfaction level of our IIMMians in Hyderabad.
- On education front, in January 2019 Admissions, a total of 13 students have come on to the roles of PGDMM/ PGDSCM&L courses approved by AICTE.
- 4. Our efforts are "on" to organize seminars/ EDPs/ introduction MEET with new students and also to build up the Membership strength.
- 5. We are proud to place on record the following, with all appreciations, about IIMM Hyderabad Committee Members, who have show cased in the respective mega events, attended by them, the goals of IIMM in one way or the other, directly/ indirectly, promoting the image of IIMM Hyderabad branch leading to upliftment of IIMM as a whole, specially on the aspect of Education and Membership drive during networking discussions.
- 5.1. During January 2019: Mr. DD Reddy, our NC Member, attended as a panelist at PHARMACONNECT 2019 – Pharma Supply Chain Conference, convened at Mumbai on 17<sup>th</sup> January 2019, attended by Pharma and Logistics industry professionals from India and abroad deliberating on main theme – Optimizing Value in the Supply Chain.





5.2. During February 2019: Our VP South, Mr. P. Mahender Kumar, attended National seminar organized by IIMM Thiruvananthapuram where he was also a panelist, on 23<sup>rd</sup> February 2019, interacting on the theme of the seminar – Materials Management: National Challenges and Solutions, for the benefit of various sectors including health, industry, space, Defence, science and technology etc. We congratulate our VP South on this Board.



5.3. During March 2019: Our Chairman Mr. A. Preetam Kumar, had the International exposure by attending, the International conference in Dubai (5-7 March, 2019), organized by Institute of Directors – India, on the subject – Leadership for Business excellence and innovation with a theme – Reshaping Board's strategy for business excellence through creativity and innovation. This is the global convention and the winners were awarded GOLDEN PEACOCK AWARDS.



5.4. During March 2019: Our Hony. Secretary and Course Coordinator Mr. Md. Ziauddin, attended a National seminar organized by Institution of Engineers (India) Hyderabad Branch on 15<sup>th</sup> and 16<sup>th</sup> March 2019, linking to their centenary celebrations of Institution of Engineers (India). This seminar was sponsored by Public Sector Undertakings (Coal India, NMDC Ltd., NLC India Ltd. and The Singareni collieries company Ltd.), besides few Cement industries. The program convener was Mr.Ramesh Kumar, former C & MD – NMDC Ltd.





With Convener Shri. Ramesh Kumar, former C & MD – NMDC Ltd., and Dr. G. Rameshwar Rao, Chairman – Institute of Engineers (INDIA) Hyderabad Branch



With working convenerDr. MS Venkataramayya, Professer and HOD (Mining - Malla Reddy Engineering College)

6. International Women's Day: During our recent EC Meeting on 10<sup>th</sup> March 2019, besides discussions

on regular Agenda, for giving equal importance, celebrated International Women's Day and placed on record our appreciations to our Woman EC Member Ms. S. Suvarna for her excellent and continuous contribution of very highly informative articles/ Technical papers to MMR. We also congratulated all women fraternity - in IIMM branches and at NHQ IIMM.



Our EC team present with Ms. S. Suvarna, EC Member

7. MM Day Celebrations 2019 - Theme: Future of Business: Circular Economy: Role of Supply Chain:

We, the team IIMM Hyderabad branch profusely congratulate NHQ IIMM for selecting an apt theme (following is our thought as a reason to select the theme) –

"keeping in view the Supply chains crucial role, needing to become circular to drive smarter strategies, eliminate waste and enable companies to maximize the value of their products and in the present trends, as linear processes are getting replaced by digitally driven networks coupled with Circular Economy with sweeping advances in technology, capturing new value for business, and adding extra dimensions to Supply Chains".

**PUNE BRANCH** 

IIMM Pune Branch organized a One Day Seminar at Autocluster Development & Research Centre, Chinchwad, Pune on 15<sup>th</sup> February,2019 on a very interesting & current topic "Industry 4.0 – Opportunities to Excel"

This seminar started well in time with the National Anthem followed by a One-minute silence for the martyrs of the CRPF jawans who lost their lives in the recent Phulwama attack. The seminar was attended by about 130 delegates from the industry & around 30 students from various colleges & Institutes in Pune.

Hon. Chairman Mr. Amit Borkar briefed all the present delegates about the activities done in the field of Materials Management & Supply Chain Management by IIMM. Prominent speakers were invited by IIMM Pune Branch for this event.

The session started with keynote address by Mr. S.

Seshasayee an expert in Industry 4.0, He narrated the journey this new concept has made so far & the scope of implementing it in the Industries in India, Followed by a session by Mr. Yogesh Zope – Chief Digital officer of Bharat Forge Ltd who explained the initiatives taken by Bharat Forge Ltd. in implementing Industry 4.0, he mentioned that it is a long-drawn process, but it will yields a lot of results.

Dr. Uma Ganesh, Director – 5F World, lectured was focused upon transforming businesses through Artificial Intelligence (AI). Later, Mr. Ramesh Adavi an expert in the field of Big Data Analytics briefed every one about the concept of Now Casting.

Two case studies, one by Mr. Rahul Narute – Managing Director, Asian Machine Tool Corp. & One by Mr. Sanjeev Shingte – Co – founder & VP, Quinta Systems Pvt. Ltd on Digitization of Machines & Smart Manufacturing by adapting Industry 4.0 were presented respectively.

All the above sessions were followed by a Panel discussion moderated by Hon. Chairman Mr. Amit Borkar on "Are we adequately Skilled to handle Industry 4.0" in which Mr. Amitabh Akolkar – Managing Director, Teamnet Solutions Pvt. Ltd participated with some of the above speakers& expressed their views on the topic very interestingly.

All the Speakers, Panel Members & Sponsors were felicitated by the hands of the Chairman & EC Members. Hon. Chairman Mr. Amit Borkar thanked the program co – ordinator Mr. Nitin Athavle & the back-office team, Mr. M G Ayyer & Mr. Yagnesh Nair for handling the whole program nicely.

The program was concluded by a vote of thanks by Mr. Nitin Athavle.

## **TRIVANDRUM BRANCH**

NATIONAL SEMINAR ON "MATERIALS MANAGEMENT: NATIONAL CHALLENGES AND SOLUTIONS" – IIMM Trivandrum Branch organized a one day National Seminar on the topic "Materials Management: National Challenges and Solutions" on 23rd February 2019 at Hotel Mascot, Trivandrum.

Dr Koshy M George, Chairman, Trivandrum Branch welcomed the IIMM National Leaders, guests and delegates to the inaugural function of the Seminar.

Sri G K Singh, National President, IIMM presided over the inaugural session. In his presidential address Sri G K Singh clearly pointed out the challenges faced by the material managers in the country in the present context and also offered possible solutions including digitization in various sectors.

Dr P V Venkitakrishnan, Director, CBPO/ISRO, Bangalore inaugurated the Seminar by lighting the traditional lamp. In his inaugural address Dr P V Venkitakrishnan highlighted the need to bring down the cost of materials production for strategic and other sectors by adopting novel techniques. He mentioned that the inventory shall be kept at optimum levels by resorting to just in time methodologies.

Dr A Ajayaghosh, Director, NIIST(CSIR), Trivandrum released the Sovenir published in connection with the National Seminar 2019.

The first Life Time Achievement Award instituted by IIMM, Trivandrum Branch consisting of Rs.25000/- cash prize and citation was presented to Sri G K Singh considering his outstanding contribution in the field of Materials Management in the country for the last three decades. In his response speech, Sri G K Singh thanked the members of IIMM, Trivandrum Branch and stated that this prize money along with his own contribution will be utilised for instituting Educational Award for the deserving students in the National level.

Dr Sam Dayala Dev, Director, IISU/ISRO, Trivandrum, Sri M Shahabudeen, Managing Director, Kortas Industries, Trivandrum and Sri Sunny Unni, Indian Representative, Bohler, Mumbai offered felicitations.

Dr Koshy M George, Branch Chairman, Sri M G Narayanan Nair, Hon.Secretary, Trivandrum Branch and Dr K G Nair, NC Member were honoured in the Seminar with National President's Medal for their significant contributions in IIMM activities.

The inaugural session was followed by a panel discussion which was chaired by Sri L R Meena, National Secretary & Treasurer, IIMM. Sri P Mahender Kumar, VP(South), IIMM, Dr S Sunil Kumar, Deputy Director,LPSC/ISRO, Prof. Dr Kuruvilla Joseph, Dean, IIST,Trivandrum and delegates actively participated in the panel discussion.

Following invited lectures were delivered in the Seminar on the subjects shown against each.

- 1. Materials Management in Aerospace Sector: Sri P Sankaravelayudham, Deputy Director, HSFC/ISRO, Bangalore
- Way Forward: Next Generation Innovative Materials Management, Exploring Opportunity And Challenges in India: Dr.Rabi Narayan Padhi, Fellow in Research Materials Management, Vizag.
- Extended Initiatives of Supply Chain Solutions for present day challenges: Dr.C Subbakrishna, Former National President, IIMM
- Impact of GST on Materials Management Activities: Dr. N Ramalingam, Professor, Gulati Institute of Finance and Taxation, Trivandrum.

Dr Biju Jacob IA & AS, Chief Controller, VSSC, Trivandrum delivered the valedictory address. Sri S Anandasivan, Treasurer, IIMM, Trivandrum Branch proposed vote of thanks.

More than 150 delegates from the Indian Industry, Scientific Establishments and R & D / academic Institutions attended the Seminar.



Release of Souvenir by Dr A Ajayaghosh, Director, NIIST/CSIR, Trivandrum



Dr Koshy M George, Branch Chairman receiving the President's Medal.



Sri M G Narayanan Nair, Branch Secretary receiving the President's Medal.



Sri K G Nair, NC member, receiving the President's Medal.



M G Narayanan Nair proposing vote of thanks in the inaugural Session.



Dr Sunil Kumar, Deputy Director,ISRO, Sri L R Meena, National Secretary & Treasurer, IIMM, Sri P Mahender Kumar, VP(South), IIMM and Dr Kuruvilla Joseph, Dean, IIST, Trivandrum leading the panel discussions.



Talk by Sri P Sankaravelayudham, Dy. Director,ISRO, Bangalore



by Dr Rabi Narayan Padhi, Fellow in Research Materials Management



Talk by Dr C Subbakrishna, Former National President,IIMM



Talk by Dr N Ramalingam, Prof. GIFT, Trivandrum



Valedictory Address by Dr Biju Jacob IA & AS, Chief Controller, VSSC/ISRO



Vote of thanks by Sri S Anandasivan, Treasurer, IIMM, Trivandrum Branch

## VADODARA BRANCH

GETRI Training Programme in FEB'19 : The training programme of Second Batch in 2018-19 for Five Days on 'MATERIALS, INVENTORY & STORES MGMT.', 'PROCUREMENT & SPARE PARTS MGMT.' and 'LEGAL ASPECTS IN PURCHASING' Topics was organised on 11<sup>th</sup>, 12<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup> & 15<sup>th</sup> February 2019 at GETRI in Vadodara for participants of DGVCL, MGVCL, PGVCL, UGVCL & GETCO, GSECL from all over Gujarat conducted by Three Faculties - Mr.L.L.Notani, Mr.H.M.Bhatt & Mr. Avadhoot Sumant. The participants (20 Nos.) intimated that training programme was excellent & knowledge enriching with their queries being answered by faculties which would help in their job.

They informed that this was best training programme attended by them till now at GETRI. The memorable moments have been shown in photos given below. The Feedback Report from participants about Training Programme & Faculties was Very Good and Satisfactory as Trng. Prog. contents like Ref. Mtrl., Exercise Mtrl. & Case Studies given to participants by putting up on GETRI Website for future usage and hard copies given for further reference & sharing with their subordinates.

The following Photos highlight the memorable moments during five days' training programme -



Mr. M. Sambhudevan Nair - Vice Chairman & Mr. Lalbhai Patel Director, IFPSM were present during the Inaugural Session of Trng. Prog. conducted by faculty. Mr. L.L.Nothani on 11/2/19 at GETRI



The group photo of participants attending GETRI Training Programme

An Evening Talk held on 16<sup>th</sup> FEB'19 : An Evening Talk with topic 'HABITS OF ACHIEVERS' was held on 16/02/ 19 by Mr. ROHIT DAVE and attended by about 35 persons comprising of members, invited guests, etc. Mr.Rohit Dave is International Motivational Speaker & Soft Skill Trainer. He retired as Manager from GSFC with 37 years of experience in Production, HRD & Training Depts. He delivered 1000+ lectures on various topics for Students, Youngsters, Sr.Citizens, Women in Corporates - Hospitals. He has written articles on different subjects in Magazines, Newspapers & emagazine of film industry. He has been visiting faculty & key note speaker at Universities, Schools, Mgmt. Associations, Clubs, NGOs in India & Abroad. He is Advisory Board Member of 'TED-Ed Club', Motivational Trainer of 'Centre for Entreprenuership Development', Jury Member/Master Trainer & Motivator for Start-Ups at GTU and Technical Advisor at PROFISM & Advisory Member of Gujarati World Assoc. He is founder President of Jigar Foundation & spiritual story teller. The talk included content on following aspects -

- # It is less important 'what you have' but more important is —- WHAT YOU DO —
- # The action is more important than IDEA.
- # I DO IS BETTER THAN I.Q.
- # HABIT is what keeps you continued. HABIT IS YOUR SECOND NATURE.
- # Most essential Habits to be Achievers Install, Cultivate and Follow.
- # True Stories of less known Achievers.

The Event glimpses are shared in photos given below -



Mr.M.Sambhudevan Nair welcoming Mr.Rohit Dave with Flower Bouquet

**An Evening Talk held on 16<sup>th</sup> MAR'19**: An Evening Talk with topic '**WHAT is RAJYOGA? as per Astrology**' was held on **16/03/19** by **Mr. YOGESH PAWAR** and attended by about **40 persons** comprising of members, invited guests, senior citizens etc. Mr.Yogesh Pawar has done B.E.(Civil) in April 1972 from M.S. UNIVERSITY of BARODA & has 20 Years of practical experience in Vedic Jyotish, as he works professionally in Astrology field. He is associated with educational activities since last 15 years & since 2005 his is running YOGCHANDRA

ASTRO INSTITUTE at VADODARA. He achieved M.A.V.J. [Master of Arts in Vedic Jyotish] from Yoga Samskrutam University, Florida, USA. He has been awarded an Appreciation Certificate by HINDU ASTROLOGICAL SOCIETY, LONDON for giving free service in JYOTISH NIDAN SHIBIR at Ahmedabad.

He was honoured as VISHARAD in April 2008 & as SHASTRI in April 2011 & thereafter in April 2013 honoured as ACHARYA in JYOTISH SHASTRA from M.S.UNIVERSITY of BARODA. He has conducted & participated in State Level Seminars on JYOTISH VIGYAN SAURABH jointly with SANSKRIT MAHAVIDHYALAYA, Vadodara in March 2007.

He has been Certified as JYOTISH PRADIP by JYOTISH GYAN SANSTHA, Vadodara in July 2003. He was honoured in July 2012 by SANSKRIT VARTMAN PATRAM-Vadodara. He was honoured by ALL GUJARAT ASTROLOGICAL SOCIETY in January 2008. He has attended & participated in many other ASTROLOGICAL & SANSKRIT seminars, programmes, workshops, etc. During the Talk it was discussed that Every Person visiting Astrologer has main question as 'When Will My RAJYOGA i.e. Splendour Come ?' But the meaning of Rajyoga is different. Rajyoga is formed by two words i.e. 'RAJ' & 'YOGA'.

RAJ means administering one's rights in their operational area and YOGA means joining the persons helping in Life's management as YOG is adding or joining. But for proper & systematic administration, it is important to supervise & control people involved in administration. In the same way, administration of kingdom of our body is done by head of kingdom i.e. King which is our mind who is helped by senses of our body. In order to properly administer our body, it is essential to control our senses. But how to control our senses is wrongly understood by almost everyone. So, to know actual meaning of RAJYOGA, it is important to know ways to control our senses and if senses are under control then only the person would be happy in all circumstances. This is real RAJYOGA, as to remain Happy should be the goal of Life & not splendour. The Event glimpses are shared in photos given below -



Mr. Arvind Parmar - EC Member welcoming Mr. Yogesh Pawar with Flower Bouguet



- To accord a prompt and courteous reception so far as conditions will permit, to all who call up on legitimate business mission.
- To respect one's obligations and those of one's organisation consistent with good business practices.

# **EXECUTIVE HEALTH** WORLD KIDNEY DAY 2019

## **Kidney Disease Prevention**

ealthy eating plays an important role in reducing the risk of getting chronic kidney disease (CKD). verweight and obese populations are at greater risk of getting obesity-related chronic diseases such as Type 2 Diabetes Mellitus, Hypertension and Hyperlipidemia. These obesity-related diseases can eventually lead to many serious complications including cardiovascular diseases and CKD. Therefore, let's start a healthy eating habit to protect your kidneys.

Consuming the right amount of calories (energy) helps you achieve a healthy body weight. Maintaining a Body Mass Index (BMI) of 18.5-22.9kg/m<sup>2</sup> can reduce your risk of getting obesity-related chronic diseases including kidney failure.

## Healthy eating includes a diet that is/has:

- Low in sodium (salt)
- Low in fat especially saturated fat
- Low in dietary cholesterol
- Minimise trans fat
- High in dietary fibre and whole grains

## Tips of healthy eating

## Eating Out

A lot of Singapore's residents are eating out every day. Healthy eating is possible by following the guide below:

- Remove the poultry's skin and fat before eating
- Ask for less oil, less salt and less gravy in your food
- Replace fried noodles with soup noodles
- Ask for healthier drinks like "siudai"/"kosong", choose "no sugar added" packaged drinks or packaged drinks with the Healthier Choice symbols or take plain water instead of sweet drinks
- Cut down consumption of fried food and high fat food to twice a week
- Reduce frequency of fast food consumption
- Do not add extra cheese to your pizza or spaghetti
- Ask for brown rice instead of white rice or flavoured rice
- Share your meal if the food portion is large

**Home cooking :** It is a lot easier to practice healthy eating if you cook at home or eat home-cooked food. Cultivate healthy cooking habits:

- Reduce the amount of salt and seasoning used
- Use low fat cooking method like steaming, boiling, stewing, grilling, baking, stir-fried with less oil.
- Enhance the flavour of food by using herbs, spices, lemon juice or vinegar instead of salt, seasoning,

butter, margarine, lard and shortening.

- Use healthier cooking oil
- Use brown rice or wholemeal noodle
- Remove poultry's skin and trim off the visible fat before cooking
- Use sugar and fat spread sparingly (butter, margarine, peanut butter, kaya, jam)

## Grocery shopping

- Read the ingredients list of the product
- Compare the nutrition information panel between similar products
- Choose products with the Healthier Choice symbols

**Hypertension and CKD**: High blood pressure damages kidneys over time. Keeping your blood pressure under control can protect your kidneys and prevent kidney failure. Healthy eating plays an important role in preventing hypertension and keeping blood pressure in good control.

You may follow these simple dietary guidelines to make a positive change in your health.

## 1. Shake the salt habit

- Taste your food before adding any seasoning. Your food might already have enough flavour and will not require any additional seasoning.
- Do not add additional salt to cooked food.
- Use less salt when cooking. Use herbs, lemon, ginger, garlic, pepper or other spices to add flavour to your food. Monosodium glutamate (MSG) is also a form of salt and should be used sparingly.
- Cut down on seasoning when cooking, and sauces contain high amounts of salt.
- Avoid foods that are high in sodium, such as canned food ham, bacon, sausages, fast food, salted snacks (nuts and chips), pickled vegetables and salted fish.

## 2. Reduce fats and cholesterol

- Steam, grill, stew, bake, boil or stir-fry your food
- Avoid fatty meat and use leaner meats or fish.
- Remove the skin from chicken or duck before cooking.
- Consume less coconut milk, egg yolk and animal innards such as liver and brain as they are high in cholesterol.
- Limit foods that are high in cholesterol; do not

consume more than 2-3 eggs per week.

• Use more polyunsaturated fats like soya bean, corn, sunflower or sesame oil when cooking.

## 3. Go green – have more fibre

- Include 2 portions of fruits and 2 portions of vegetables in your diet everyday
- Take whole grains, for example, wholemeal bread in place of white bread
- Select wholemeal biscuits or fresh fruits for snacks and desserts.

## 4. Do not bottoms-up

• Limit yourself to one alcoholic drink per day

Diabetes and CKD : For better health outcomes, it is important for diabetic patients to maintain normal blood sugar level by controlling carbohydrate intake. Having well-controlled blood sugar levels help to slow down the progression of Diabetes Nephropathy (kidney failure caused by diabetes). High blood sugar level increases the workload of the kidneys in filtering the blood. The kidneys will start to damage and leak out useful protein from the body after prolonged period of poor sugar control. Therefore, you should seek help from your dietitian and doctor for diabetic management.

Carbohydrate is one of the major nutrients that our body requires. It is broken down into glucose during digestion which will affect the blood sugar level if taken in excess. Carbohydrates should be taken in appropriate amounts for optimal blood sugar control and adequate nutrient intake. Do not avoid them completely, as they provide energy, vitamins, minerals and fibre, which are vital for good health.

# Carbohydrate can be found from the below food group:

- 1. Cereals and starch like rice, noodle, pasta, bread, biscuit, chapatti, tosei, kuehs
- 2. Starch vegetables like potato, yam, tapioca, pumpkin, sweet potato, corn
- 3. Legumes like dhal, red bean, mung bean, kidney bean, green peas
- 4. Milk and yogurt
- 5. Fruits
- 6. Sugary food and drinks like syrup, carbonated drink, doughnuts

## 3 simple steps to help you control blood sugar level

- 1. Regular meal timings and do not skip meals
- 2. Always practice portion control
- 3. Consistent amount of carbohydrate at each meal

Diabetic patients do not need a special diet. A healthy balanced diet can help to keep blood sugar level in good control and maintain overall health. Read more about **Diabetes** 

**Kidney stones and CKD :** Kidney stones can increase the risk of chronic kidney disease and cause permanent damage to kidneys.

Kidney stones can be formed when chemicals likes calcium, oxalate, urate, cystine, xanthine, and phosphate become highly concentrated in the blood. Drinking enough water will flush out the kidney stones or the chemicals mentioned above in the urine, preventing stone formation. You may need to follow a special diet if you have kidney stones. Your doctor will help you to find out the type of stones and determine which type of diet may be suitable for you.

# General recommendations to prevent kidney stones formation:

**1. Drink plenty of water**: When there is too little fluid and too much waste in urine, crystals begin to form, the first step is forming a stone. Drinking enough water helps to dilute the urine and prevent chemicals in the urine to form crystals. It also helps to excrete chemicals from the body and prevent stone formation. You are recommended to drink 2-3L of water a day. You may need to drink more if you have concentrated urine.

**2. Eat more fruits and vegetables :** Eating more fruits and vegetables make the urine less acidic, in turn kidney stones may be less likely to form.

**3.** Reduce excess salt from diet : Too much sodium (salt) consumption increases the urinary calcium excretion and potassium along with citrate resulting in a change in the urinary pH that will eventually increase the risk of stone formation. Read more about Kidney Stones.

**Gout and CKD**: Gout (Hyperuricemia) occurs when uric acid, a normal waste product, builds up in the blood and forms crystals in the joints and/or kidneys. Uric acid crystals deposit in the joints can cause pain, swelling, stiffness, deformity, and impair movement. Uric acid crystals deposit in the kidneys can become large stones. These stones can cause permanent kidney damage by:

- 1) Forming an obstacle that prevents kidneys from removing wastes
- 2) Causing infection and scarring the kidneys with rough or sharp edges

Both problems can lead to chronic kidney disease and even kidney failure. You need to follow a low purine diet if you have a gout problem. Purine is a chemical compound that can be found in many foods. When the body breaks down purine, uric acid is formed and excreted out from the body via urination. In some people, there is an abnormality in the metabolism of purine and it leads to high levels of uric acid in the blood, which is far more than what the kidneys can excrete into the urine.

Food high in purine are alcoholic drinks (beer, spirit), anchovies, sardines, herring, mackerel, gravies, meat extract, scallop, organ meats (brain, kidney, liver), yeast extracts (Marmite, Vegemite).

Source: www.nkfs.org



## IIMM HEADQUARTERS AND BRANCHES

IIMM NHQ : Plot No. 102 & 104, Sector-15, Instl. Area, CBD Belapur, Navi Mumbai-400614. Tel.: 27561754 / 2756 5831, Fax : 022-27571022 E-mail NHQ : iimmnhq55@gmail.com, members@iimm.co.in E-mail Edu. Wing : iimmedu@iimm.co.in, Website : www.iimm.org

#### AHMEDABAD BRANCH

Indian Institute of Materials Management C/o SaRaa Group of Companies 406, Kalasagar Shopping Hub, Opp. Saibaba Temple, Near Sun N Step Club, Sattadhar Cross Road, Ghatiodia, Ahmedabad-380061, Gujarat Cell: 91-9909996711 iimmahmedabad@gmail.com

#### ALWAR BRANCH

Indian Institute of Materials Management 15, Shopping Centre, Shanti Kunj, Alwar - 301001 (Bajasthan) Ph.: 09731245655/ 07877745655 Email: iimmalw@gmail.com

## AURANGABAD BRANCH

Indian Institute of Materials Management C/o. Training & Placement Cell GF-19, JNEC Campus, CIDCO, N-6 Aurangabad - 431001. Ph : 0240-2473339 E-mail : iimmau@rediffmail.com

#### BANGALORE BRANCH

Holian Institute of Materials Management # 304, A-Wing, III Floor, Mittal Tower # 6 M G Road, Bangalore - 560001 Ph.: 080-25327251/52 E-mail : iimmbg@airtelmail.in

BHARUCH BRANCH Indian Institute of Materials Management 303, Vinay Complex, Near Dudhdhara Dairy, Old NH Highway # 8, Bhaurch Ph.: 02642-283223 E-mail : iimmbhaurch@gmail.com

#### BHILAI BRANCH

Indian Institute of Materials Management Room No. 326, 3rd Floor, Ispat Bhawan, Bhilai Steel Plant, Bhilai - 490001 Ph · 0788-2892948/2222170

#### BHOPAL BRANCH

Indian Institute of Materials Management 4/9-B, Saket Nagar, Bhopal - 462024

#### BILASPUR BRANCH

Indian Institute of Materials Management C/o. Gen. Manager (MM) South Eastern Coalfields Ltd., Seepat Road, Bilaspur - 495006 (CG) Ph.: 07752-241087/75014 E-mail : iimmbilaspur2015@gmail.com

#### BOKARO BRANCH

Indian Institute of Materials Management Room No. B-237, Purchase Dept., Ispat Bhawan, Bokaro Steel City - 827001 Ph: 06542-240263/280768 E-mail : iimmbokarobranch@gmail.com

## BURNPUR BRANCH

Indian Institute of Materials Management Matls. Dept. New Matls. Bldg. IISCO, Burnpur Works Burnpur - 713325 (West Bengal) Tel: 0341-2240523/09434777116

#### CHANDIGARH BRANCH

Indian Institute of Materials Management SCO 19-B, Swatik Vihar, Mansa Devi Complex, Sector - 5, Panchkula - 134114 Ph. : 0172-2556646/4654205 E-mail : iimmchandigarh2@gmail.com

#### CHENNAI BRANCH

Indian Institute of Materials Management 4th Floor, Chateau D'Ampa, 110 (New # 37), Nelson Manickam Road Aminjikarai, Chennai - 600029 Ph.: 044-23742195/23742750 E-mail: chn.iimm@gmail.com iimmchennai@gmail.com

#### COCHIN BRANCH

GCDA Shopping Complex, Kadavanthra PO, Kochi - 682020 (Kerala) Ph.: 0484-2203487/9400261874 E-mail : iimmkochi@bsnl.in

#### DEHRADUN BRANCH

Indian Institute of Materials Management C/o. 30, Kalindi Enclave, Balliwala Chowk, Lane No. 2, Dehradun - 248001 (U.K) Ph.: 0135-2795486/9410397734

## DHANBAD BRANCH

Indian Institute of Materials Management O/o. GM (MM), B C C L, Koyla Bhawan Koyla Nagar, Dhanbad - 826005 (Jharkhand) Cell # 09470595238 E-mail : iimmdhanbad@gmail.com

### DURGAPUR BRANCH

Indian Institute of Materials Management Office of ED (MM) 3rd Floor Ispat Bhawan, SAIL, Durgapur Steel Plant Durgapur - 713203 Tel: 0343-2574303

## GANDHIDHAM BRANCH

Indian Institute of Materials Management 1,2,3, Plot # 356, Ward-12B, Tagore Road Gandhidham -370201 (Kutch) Gujarat Tel: 02836-231711/231745 E-mail : iimm\_gim@rediffmail.com

## GOA BRANCH

Indian Institute of Materials Management S-6 & S7,2nd Floor, Vasco Citicentre Opp: Canara Bank, Swantantra Path Vasco-da-Gama, Goa - 403802

#### GREATER NOIDA BRANCH

Indian Institute of Materials Management B-193, Swam Nagri, Opp: J P Golf Course Greater Noida - 201308 E-mail : iimmgreno@gmail.com

#### HARIDWAR BRANCH

Indian Institute of Materials Management C/o. 97-B, Vigyan Kunj, Indian Institute of Technology, Roorkee, Haridwar - 247667 E-mail : iimmharidwar@gmail.com

#### HOSUR BRANCH

Indian Institute of Materials Management Opp: Hosur Bus Stand, By Pass Road Above Axis Bank, Palaniyappa Building Hosur - 635109 (TN) Tel # 04344-24048 E-mail : iimmhosur1@gmail.com

#### HUBLI BRANCH

Indian Institute of Materials Management Karnataka Chamber of Commerce of Industry Building, 1st Floor, Jayachamaraj Nagar, Nr. Nehru Ground, Hubli - 580020 Tel: 0836-2264699/09972703336

#### HYDERABAD BRANCH

Indian Institute of Materials Management 4-8-68/A/21, G.D Enclave, 3rd Floor, Rang Mahal Road, Putli Bowli, KOTI, Hyderabad-500095. Email: iimm.hyd1719@gmail.com, TEL: 040-24608952 Off: Timing: 4:30 pm to 8:30 pm)

#### INDORE BRANCH

Indian Institute of Materials Management 03, Rajmahal Colony, Ext Manik Bag Road, Indore - 452007 (M.P)

## JABALPUR BRANCH

Indian Institute of Materials Management Jabalpur Email: iimmjabalpur2@gmail.com

#### JAIPUR BRANCH

Indian Institute of Materials Management C/o. Mr. Purushottam Khandelwa 48, Mohan Nagar, Gopalpura Bypass, Jaipur - 302018 Cell: 09799299157 E-mail : iimmjaipur1@gmail.com

#### JAMSHEDPUR BRANCH

Indian Institute of Materials Management Room # 6, Russi Modi Centgre for Excellence Jubilee Road, Jamshedpur - 831001 Ph.: 0657-2224670/2223530 E-mail : iimm\_jsr@yahoo.co.in

JAMNAGAR BRANCH Indian Institute of Materials Management C/o. Mr. Jayesh Joshi Riddhi Engineering Works 111, Madhav Complex, Opp: DKV Collage, Jamnagar - 361008 0288-2750171 / 9824263869 riddhieng@yahoo.com

#### KANPUR BRANCH

Indian Institute of Materials Management C/o. IGM Computer Academy Mallick Complex, Nr. Rama Devi Chauraha, G T Road, Kanpur - 208007 Ph.: 0512-2401291 iimmkanpurbranch@gmail.com

K G F BRANCH Indian Institute of Materials Management

KOLKATA BRANCH Indian Institute of Materials Management 8/B, Short Street, Kolkata - 700017 Ph.: 033-22876971/22834963 E-mail : iimmcal17@gmail.com

## LUCKNOW BRANCH

Mr. P.K.Bajpai Indian Institute of Materials Management 2nd Floor, Mishra Bhawan, Jurian Tola, Lal Kuan, Lucknow - 226018 Ph.: 9415752999, Res. 05222638264

LUDHIANA BRANCH Indian Institute of Materials Management

C/o. Guru Nanak Industrial Corporation Adj. Hero Cycle Ltd., G T Road, Ludhiana - 141010 (Punjab) Ph.: 0161-5212268 E-mail : iimmldhbr@gmail.com

#### MUMBAI BRANCH

Indian Institute of Materials Management 2-A, Arihant Bldg, Above Bhandari Co-op Bank Ltd., Goregaon (E) Mumbai - 400063 Ph.:022-26863376/26864528/26855645-46 E-mail : iimmbom@gmail.com

#### MUNDRA BRANCH

Indian Institute of Materials Management Management Adari Power (Mundra) Ltd. Village- Siracha & Tunda, Taluka- Mundra Dist. Kutch, PIN-370435, Gujarat Mobile: 9979847753 (Paresh Satasiya) Paresh.Satasiya@adani.com

#### MYSORE BRANCH

Indian Institute of Materials Management Anubhav Udyog, K-64, Hootagalli Ind. Area, Mysore - 570018 (Karnataka) Ph.: 0821-4282124 E-mail : mysoreiimm@gmail.com

MANAGALORE BRANCH Indian Institute of Materials Management C/o. B Sandeep Nail, GM (Matls.) MRPL, Materials Dept., PO: Kuthethur Via: Katipalla, Mangalore - 575030. DK Tel # 0824-2882203 Email: bsnaik@mrpl.co.in

## NAGPUR BRANCH

Indian Institute of Materials Management 404, Suryakiran Complex-1, Bajaj Nagar, Nr. VNIT Gate, Nagpur - 440010 Ph.: 0712-2229446 E-mail : iimmnagpur@gmail.com

## NAICO BRANCH

Indian Institute of Materials Management Qtr. # C-352, Nalco Township, Nalco Nagar - 759145 Dist: Angul, Orissa Cell: 09437081126 Email: snbaghar@nalcoindia.co.in

#### NASIK BRANCH

Indian Institute of Materials Management 1, Parag Bldg, Patel Lane # 4 College Road, Nasik - 422005 College Road, Nasi Ph.: 0253-2314206 E-mail : iim\_nsk@bsnl.in

## NEW DELHI BRANCH

Indian Institute of Materials Management U-135, Vikash Marg, Shakrapur Near Laxmi Nagar Metro Stn,Delhi - 110092 011-22464969/ 22466089/ 9818664267 E-mail : iimm1delhi@gmail.com

#### PUNE BRANCH

Indian Institute of Materials Management Pratibha Towers, Plot # 22, Old Pune Mumbai Road, CTS # 15/2, Above TVS Showroom, Wakdewadi, Pune - 411003 Ph.: 7276010854 E-mail : iimmpune1@gmail.com

## **RAE BARELI BRANCH**

Indian Institute of Materials Management 497, Near CMO Office, Jail Road, Rae Bareli -229001 iimmrbl@yahoo.com, iimmrbl@gmail.com

#### **RANCHI BRANCH**

HANCOLI BHANCO Indian Institute of Materials Management Gen Manager (MM) Office, Central Coalifields Ltd.,Darbhanga House, Ranchi - 834001 Tel.: 0651-2360716/2360198 E-mail : rajesh0021@yahoo.com

#### ROURKELA BRANCH

Indian Institute of Materials Management TH-01(West) Sector - 4, Near Mahila Thana Dist: Sundergarh, Rourkela-769002 (Odisha) Cell: 08260711943/08895501056 Email: iimm.rourkela@gmail.com

## SURAT BRANCH

Indian Institute of Materials Management C/o. Mr. Dilip Dhabarde, Hony Secy. Manager Matls, Krishak Bharati Co Ltd PO: Kribhaco Nagar, Nr. Kawas Village Suresh-394515, Tel: 0261-2802682 E-mail : dilipdhabarde@kribhco.net

TRIVANDRUM BRANCH Indian Institute of Materials Management TC-9/1447, 2nd Floor,Future House Temple Road, Sasthamangalam Thiruvanathapuram - 695010 Ph. : 0471-2724952 E-mail : iimmtvpm@gmail.com

#### UDAIPUR BRANCH

Indian Institute of Materials Management 2nd Floor, Above Manohar Furniture Ashwini Marg, Udaipur - 313001 Ph.: 0294-2411969/2421530 E-mail : iimmudpr@sancharnet.in iimmudpr@gmail.com

#### VADODARA BRANCH

Indian Institute of Materials Management 2nd Floor, Vishal Chambers, 34, Vishwas Colony, B/h Alkapuri Shopping Centre, Alkapuri, Vadodara - 390007 Ph::0265-2359060/2353410/M: 7043959060 E-mail : iimmbrd@yahoo.co.in, iimmvadodara@gmail.com iimmbaroda@gmail.com, www.iimmvadodara.org

#### VAPI BRANCH

Indian Institute of Materials Management 301, Fortune Mall, Above Vishal Mega Mart, VIA Road, GIDC, Vapi - 396195 Ph.: 09825119364 / 08758294011 E-mail : iimmedu.vapi@gmail.com

Indian Institute of Materials Management C/o. A V Rajendra Kumar

Droo No. 39-8-34/4 & 5, Sector - 8, Muralinagar, Visakhapatnam - 530007 Ph.: 0891-2704757 / 9701347694

Indian Institute of Materials Management Champs Engineering, 1-52, GIDC Estate Vitthal Udyognagar - 388121 Tel: 02692-230440/ 09825028050

Email: harshad.champs@gmail.com

VISAKHAPATNAM BRANCH

E-mail : iimmvizag@gmail.com

V U NAGAR BRANCH

**IIMM** Materials Management Review

## National Seminar on Materials Management : National Challenges and Solution at TRIVANDRUM



Dr P V Venkitakrishnan, Director, CBPO/ISRO, Bangalore inaugurating the Seminar by Lighting the Lamp



Dr P V Venkitakrishnan, Director, CBPO/ISRO, Bangalore delivering the Address



Memento Presentation



Sri. G.K.Singh, National President inaugurating the Seminar by Lighting the Lamp



Sri. G.K.Singh, National President, IIMM delivering the Presidential Address



Sri. G.K.Singh, National President receiving Certificate of Honour



Dr Koshy M George, Branch Chairman welcoming the National Leaders and Delegates



A View of participants



## RNI NO. DELENG/2004/13227 POSTED AT NDPSO, DATED 5/6/7

Postal Reg. No. DL(C)-01/1303/2019-21 L.No. U(C)-288/2019-21 Licensed To Post Without Pre Payment

**BUILD YOUR CAREER** 



# INDIAN INSTITUTE OF MATERIALS MANAGEMENT

# AICTE APPROVED COURSES ( PGDMM / PGDSCM&L )

# www.iimm.org

AICTE APPROVED COURSES					
S. No.	Programs	Approved By	Eligibility	Duration	
1	Post Graduate Diploma in Materials Management	AICTE	Graduate in Any discipline from any Recognised Univ.	2 Years	
2	Post Graduate Diploma in SCM & Logistics	AICTE	Graduate in Any discipline from any Recognised Univ.	2 Years	
	IFPSM	& WORLD BANK	APPROVED COURSES		
3	Graduate Diploma in Materials Management	IFPSM Accreditation	Graduate or Diploma in Engg./Pharmacy/Hotel/Hospital + 2/3 Yrs Exp.	2 Years	
4	Professional Diploma in Public Procurement	World Bank	Graduate in any Discipline or Diploma Holders	6 Months	
		INTERNATION.	AL COURSES	_ <b>I</b>	
5	Certified Purchase and Supply Manager (CPSM)	ISM – USA	4 years degree + 3 years of Relevant experience OR 3 years Degree + 5 years of Relevant experience	6 Months	
6	International Purchasing & Supply Chain Management	ITC – Geneva	3 Year Degree + 2 Years of Relevant Experience	18 Months – Modular Program	
	IIMM SKII	L DEVELOPMEN7	Γ CERTIFICATE COURSES		
7	Certificate in Supply Chain Management	IIMM	Graduate or Diploma in in any Discipline with 2 Years Exp	6 Months	
8	Certificate in Contract Management	IIMM	Graduate or Diploma in in any Discipline or 10+2 with 3 Years Exp.	3 Months	
9	Certificate in Logistics & warehouse Mgmt.	IIMM	Graduate or Diploma in in any Discipline or 10+2 with 3 Years Exp.	3 Months	
		IIMM PROFESSIC	DNAL COURSES		
10	Professional Diploma in Stores Management	IIMM	10+2 with 2 Year Exp. Or degree in any discipline	2 Semesters	
11	Professional Diploma in International Trade	IIMM	10+2 with 2 Year Exp. Or degree in any discipline	2 Semesters	
	PROSPECTUS	CAN BE HAD FROM	M FOLLOWING IIMM OFFICES		
ALWAR 09731245655/0877745655 AHMEDABAD 9374012684 / 9909996711 AURANGABAD 0240-2473339 / 9423455983 / 9130901884 BANGALORE 080-25327251/52 BHARUCH 02642-283223 BHILAI 0788-2892948/2222170 BHOPAL 08085856437 BILASPUR 07752-241087/75014 BOKARO 06542-240263/280768 BURNPUR 0341-2240523/09434777116 CHANDIGARH 0172-2556646/4654205 CHENNAI 044-23742195/23742750 COCHIN 0484-2203487/9400261874 DEHRADUN 0135-2795486/9410397734 DHANBAD 09470595238 DURGAPUR 0343-2574303 GANDHIDHAM 02836-231711/231745 GOA 09423007106 GREATER NOIDA 09818464359 HARIDWAR 098126111611 HOSUR 04344-240448 HUBLI 0836- 2264699/09972703336 HYDERABAD 040:65504252/24608952 INDORE 09993102374 JAIPUR 09799299157 JAMSHEDPUR 0657-2224670/2223530 JAMNAGAR 0288-2750171 / 9824263869 KANPUR 0512-2401291 K G F 09880994684 KOLKATA 033-22876971/22834963 LUCKNOW 9415752999 LUDHIANA 0161-2212268, 9815549987 MUMBAI 022- 26863376/26864528/26855645-46 MUNDRA098687660068 MYSORE 0821-4282124 MANAGALORE 0824-2882203 NAGPUR 0712-2229446 NALCONAGAR 09437081126 NASIK 0253-2314206 NEW DELHI 9818664267 / 9810830427 PUNE 7276010854 RAE BARELI 09451077744 RANCHI 0651-2360716/2360198 ROURKELA 08260711943/ 08895501056 SURAT 0261-2802682 TRIVANDRUM 0471-2724952 UDAIPUR 0294-2411969/2421530 VADDDARA 0265-2359600 VAPI 9825119364 VISAKHAPATNAM 0891-2704757 / 9701347694 V U NAGAR 02692-230440/ 09825028050 HIMM NHQ Education Wing: 102 & 104, Sector-15, Institutional Area, CBD Belapur, Navi Mumbai-400614					
Ph: 022-27571022, email: iimmedu@iimm.co.in					

**60** Printed & Published by Dr. M.K. Bhardwaj on behalf of Indian Institute of Materials Management, 4598/12-B, First Floor, Ansari Road, Darya Ganj, New Delhi - 110002 and Printed at Power Printers, New Delhi-110002