

July-Sept 2017

Quality INDIA



12th National Quality Conclave

Leveraging Quality to Drive Economic and Social Development

September 2017, Hotel Le Meridien, New Delhi



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Editorial

Dear Quality Professionals



I am indeed delighted to share with you that we had a very successful National Quality Conclave 2017 held in the month of September, 2017. The Conclave, over the years, has become the largest platform in our country for Quality Professionals from across different regions of the country as well as the world to come and discuss quality trends in various sectors. This year, the theme of the Conclave “Leveraging Quality to Drive Economic and Social Development” discussed the challenges, success stories and quality strategies for building an effective ecosystem, leading to creation and adoption of quality standards in everything we do.

We had invited several global quality experts as well as national experts to discuss the challenges, success stories and quality strategies for economic and social development of the country. The Inaugural session was addressed by Hon’ble Minister of Railways and Coal Mr. Piyush Goyal, Hon’ble Member of Parliament Mr. Jay Panda, Secretary DIPP Mr. Ramesh Abhishek and CEO NITI Aayog Mr. Amitabh Kant. The Valedictory session was addressed by Yog Guru Baba Ramdev. We had several interesting sessions ranging from Quality as a Driver for Economic and Social Growth, Digital Interventions – Driving Social & Economic Changes: Role of Quality, Multiplicity of Voluntary Sustainability Standards, Global Patient Safety Challenge – Medication Without Harm, Emerging Standards on Education – Technical/ Vocational, Higher Education & Schools, Improving Quality Healthcare Delivered to the Masses, Hospitals/ Medicines to Trade Deficit and Role of Standards. All the sessions were very well appreciated by 1000+ delegates. However, the sessions that got the maximum applause were the Yoga and Education sessions. These two were the star sessions of the conclave. The encouraging response from several policy and decision makers, thought leaders & managers from public and private sector, Government departments as well as scientific and professional institutes enthused us by the sheer focus on quality across all stakeholders. The Conclave ignited the imagination of people which was evident from the active question and answer sessions.

Your amazing contribution in propagating the quality drive in the country puts us on the toes and also humbles us for the enormous responsibility you have bestowed on us. We realize that we have to keep on making efforts to ensure that each year the message of quality becomes bigger, better and louder!

The Conclave indeed acted as a platform for sharing new ideas, and involved active discussion about promoting and achieving support from all stakeholders to improve quality.

I hope the discussions of the Conclave must have stimulated new ideas and new strategies to build a better India and will make people aware that for a sustainable economic prosperity of the country, focus on quality is paramount !

Dr. R.P. Singh

Secretary General

Quality Council of India (QCI)

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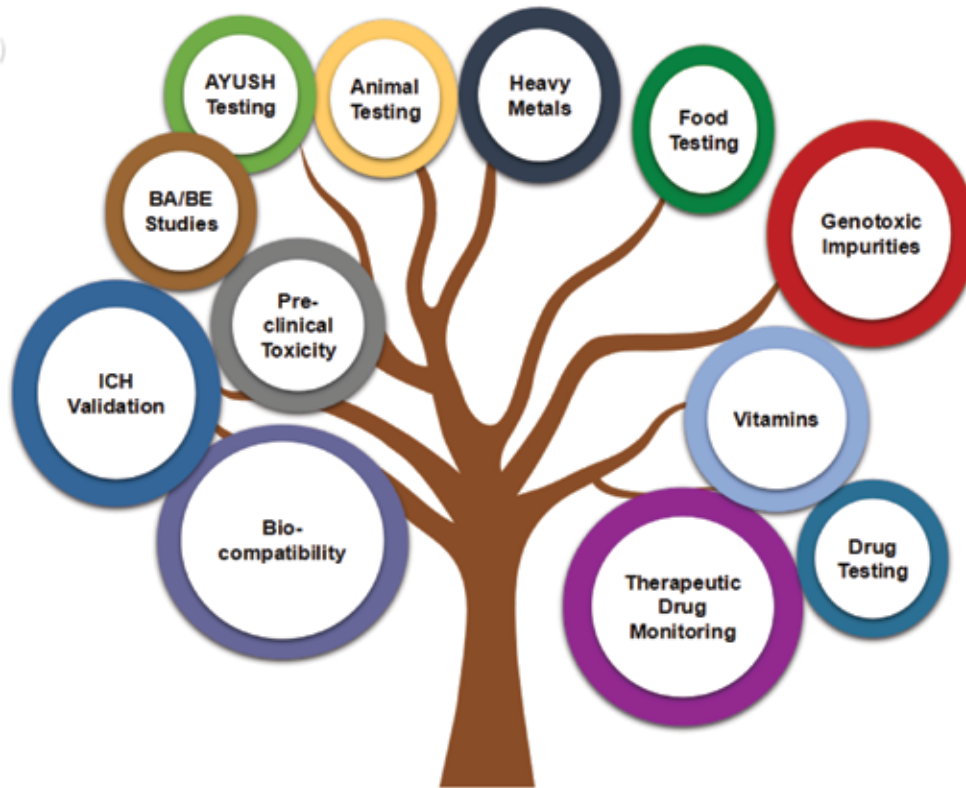
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12th National Quality Conclave, 2017

Inaugural Session

Key Speakers: Shri Piyush Goyal, Honourable Minister of Railways & Coal; Shri Jay Panda, Honourable Member of Parliament; Shri Amitabh Kant, CEO, NITI AYOJ; Shri Ramesh Abhishek, Secretary, DIPP; Dr. R.P. Singh, Secretary General, QCI

Dr. R.P. Singh Secretary General, QCI

- National Quality Conclave is the Flagship Event of Quality Council of India since last 12 years
- India is different from the rest of the world in many aspects, as reforms are happening here at a very fast pace
- QCI as an Apex Quality body focuses on ensuring that Quality of life is embedded with a dignity of life and our focus is on ensuring sustainability across all walks of life
- In the last two to three years QCI has gained momentum and a lot has been achieved by it. We have contributed to Government's flagship schemes like successfully completing a survey of 76 cities covering 500 villages under the "Swachh Bharat Mission" and accrediting 13,000 skill centers under the "Skill India"



program to name a few

- We at QCI are focusing on the use of technology across all our projects to ensure complete transparency in our assessments

Mr. Ramesh Abhishek Secretary, DIPP

- I would like to acknowledge and appreciate the work done by QCI under the leadership of Adil Zainulbhai, in helping several government departments implement projects aimed at providing better services to the citizens
- Over the last few years, our country is implementing several economic reforms, necessary for sustained economic & social development
- We must adopt modern technology so that we can attain higher level of development at a quicker pace
- The number of national standards in the country is very few which are being developed by BIS, though now more and more standards are being developed in India, the scale and pace needs to be improved further
- QCI is doing good work in the field of quality and we appreciate their efforts in this regard
- I hope the outcome of this Conclave will be useful for



the government and other stakeholders and I wish QCI all the very best!

Mr. Amitabh Kant CEO, NITI AYOJ



- I have been associated with QCI since last few years and I feel QCI can make a huge impact because Quality is very critical for any developing nation
- During the last 3 years government has taken many steps to ensure that ease of doing business is improved in the country. Around 1200 laws/regulations have been scrapped and various barriers have been removed to improve the ease of doing business in the country
- The government has implemented various social schemes in a manner which has resulted in generating a healthy competition among states to fare better than the other
- The government has adopted a 'name and shame' policy for states so that the states which are not performing well are motivated to perform better and those who are already doing good, strive more to maintain their position
- Since India is an integral part of the International Global Supply chain, our focus on quality is of utmost importance. Japan realized the importance of Quality after the Second World War and it's high time we as a nation focus more on being Quality conscious
- The government is facing a lot of questions as to why we have adopted the concept of Bullet Train from Japan. The reason is that till date in the history of Japan, the Bullet Train has not been late for more than 1 minute. This is the level of effort that Japan has put as a nation in ensuring quality infrastructure for its citizens
- In the last 3 years India's ranking in the "Global Competitiveness Index" has improved to 39 among 139 countries, this index reflects government's focus on various attributes in the field of Health, Education and Manufacturing Industry
- QCI has helped the Government in implementing various flagship schemes
- QCI's role in ensuring proper surveys of households under "Swachh Bharat Mission" is commendable
- QCI has played an important role in successful implementation of "Google Toilet Mapping" project of Govt of India
- QCI has already registered around 4000 MSME units under the ZED Certification Scheme under the "Make

in India" initiative

- QCI is also helping the government in assessing the impact of rural electrification of around 100 villages across 6 states
- The work QCI has done in the Field of Skill Development, ITIs, Hospitals and laboratories is commendable

Shri Jay Panda Honourable Member of Parliament



- I have been a social activist for a considerable part of my life working towards the Tobacco Control movement in the country
- India is currently at that stage where Japan was standing after the 2nd World War and where China was standing 10 yrs ago. The opportunities which lie ahead for us are immense. The only threat which we face as a nation are obstacles in the road of a free market and competition. Any world economy which has to grow at a rapid pace should first create an environment of free market and should have robust quality processes to tackle international competition
- Quality is based on continual improvement
- India is on the verge of exponential growth, in the year 2000 India's contribution to Global Trade was 0.7% and by 2015 it has increased to 1.6%. This shows the trend of continual improvement and needs to be maintained

Shri Piyush Goyal (Minister of Railways & Coal)



- We all must work together for a quality conscious society
- QCI in the last few years has played an important role in terms of helping generate a generic good system establishment process and procedure. In the Ministry of Coal also we have engaged QCI as we wanted to ensure that the coal which is coming out of our coal mines is of very high quality
- In the last 3 yrs Quality of coal has improved significantly. The focus was more on accurate rating of quality of coal; QCI has helped in ensuring that a mechanism is in place to ensure the quality of coal
- It's time we as a nation start maintaining quality in our day-to-day life, we should focus on becoming a quality conscious nation
- There are 2 problems which we Indians have inherited



and which QCI is trying to address – first is “Quality of Personal Skills” and second is “Quality in our day-to-day life”. The question is – are we willing to accept anything which is second best, are we willing to accept 2nd best in quality of products and services?

- ‘How can we engrave quality in each Indian’ is the biggest challenge and that is what we should aspire for. We need to change our thinking in our day-to-day life. Not even a single mistake, as small as a comma or a full stop, should be acceptable. That is the type of quality which we should aim for, as a missing comma or full stop in a document can actually lead to a major change in a law
- When I applied for ISO certification of my own company during corporate days, the best thing told to me by my auditor was “Write what you do and do what you write”. I was curious and was of the view that we should instead correct something first and then put it down as a document, but the auditor explained that first you need to write what you are doing because once it’s written and documented then only you can focus on correcting the same
- We as a nation are not conscious of quality in small things. Small things have large dimensions so, for example, in a case if the alignment of buttons in a garment is not proper and when this product goes out in international market people don’t buy our products. People may complain about our labor laws but our labor laws are far better than the ones in Europe. The primary rejection of our material is due to low-quality product and we need to change this aspect by ensuring that we maintain quality in our products which is second best to none
- We can aim for a high competitive edge only because of quality. How conscious are we about quality from beginning to end is going to give us that competitive edge. For example, for a religious purpose, we are very quality conscious but when it comes to ensuring quality in other aspects of life we miss that dedication
- We cannot compromise on quality and cannot afford even a single scope of error with respect to quality, as a small error can lead to national and international damage. Quality Council of India as an organization has a very high significance as it is at the helm of change of events
- In Railways, we are focusing on initiating a process wherein the investigation of a rail accident will be exactly like the investigation of an aircraft crash which is very robust and detailed. We are trying to reach to that extent where there will be a root cause analysis of the sequence of events. It is an inspirational

goal but we should aim to achieve this goal and get away from that “Chalta Hai”, “Janne Do”, and “Chalega” attitude

- We need to get out of that cycle “Manage ho jayegga”, “Pass karva lenge”, “Chalta hai” are words that should get out of our dictionary
- Truly we should start a Quality Movement and should become brand ambassadors of quality. We can have a 15-day period wherein every day we should be talking about quality and how to engrave quality in our teachers, government officials and also in politicians
- We as a nation should resolve that quality will be our highest priority and we should aspire to match up to a nation like Japan which has “Zero” tolerance for high Quality. Our aspiration as a nation needs to change and this could be a path to make this country reach the highest level of quality in all walks of life and shall be the defining feature of Make in India. **24x7 Quality should be our Mantra and Motto**

Plenary 1

Quality as a Driver for Economic and Social Growth

Plenary 1 Session Report:

The session theme for Plenary 1 was “Quality as a Driver for Economic and Social Growth.” Chair of the session was Mr. Sebastian Saez (Lead Economist from the World Bank)

Speakers of the session:

- Dr. Harsha Vardhana Singh, Executive Director, Brookings India
- Mr. Rene Van Berkel, representative of UNIDO
- Dr. Nishant Jain, representative of GIZ

Mr. Adil Zainulbhai

- Mentioned that QCI is trying to create some success stories in ZED for others to emulate
- Highlighted the issue of fake certification currently prevalent in the Indian market, and said that QCI is working with the government to set up systems in place that would require registration of certification bodies in the country
- Also mentioned that grading / certification of skills



of personnel based on their education, skills and competence is necessary so that they can be used by the industry for their certified skills

Dr. Harsha Vardhana Singh

- Mentioned that quality is a commonly accepted norm for systems in place for goods and services
- It has a wide ranging impact on health and safety of the consumers. He said that where price is a key factor, it results in a market for low quality products. India now has the largest digital network in place in the world to deliver efficient services
- Emphasised that only quality drives economic and social growth, it also is an indicator for it as it has relevance and significant effect in performance
- For all reforms and related policies to succeed, the products and services need to be of good quality, good infrastructure, better education and health services spurs market demand and growth
- As middle class incomes rise, they seek better quality. Middle class population in India will be the third largest in 2020 and will become second largest in the world by 2030. Summarized by saying that improved process standards can improve the cost effectiveness of products and services



Mr. Rene Van Berkel

- Spoke on the inclusive and sustainable industrial growth
- Briefed on how UNIDO is contributing towards sustainable development. He said that industrialization has lifted millions of people out of poverty and facilitated economic growth
- Mentioned that industry is challenged by various factors such as transformational capacity, energy, resources, environment, demographic dividend etc. There is a need to build resilient infrastructure to promote inclusive and sustainable industrialization and to foster innovation
- Stated that 2030 Sustainable Development Goals (SDGs) defines the quality of development which is collectively needed
- Also highlighted that good practices are aplenty but transactional effort remains high, especially in the MSME sector



Dr. Nishant Jain

- Stated that quality can be perceived, and investing in quality can give good returns and reduce the costs
- Quality can help in a big way in social sectors like health, and thus drive both economic and social growth
- Highlighted that Government is currently providing incentives through its various schemes for improving quality
- It is not that quality is important for some sectors, but it is relevant and important across the value chain and all sectors. Appreciated QCI for eliminating bad agencies in the health insurance sector
- Highlighted that there is a need to have measurable objectives for quality as perceptions differ. If quality of healthcare is improved, patients can recover fast from their ailments and become fit quickly to be able to contribute towards the economy of the country
- Emphasized that quality has now become a mindset and has to come from within to become an integral part of the system



Mr. Sebastian Saez

- In his concluding remarks stated that lot of investment is needed on education to improve quality and the efforts required are huge
- The need of the hour is to extensively use technology to reduce the time, efforts and cost in providing quality products and services for economic and social growth





Plenary 2

Digital Interventions – Driving Social & Economic Changes: Role of Quality

Dignitaries on Dais:

1. Mr. Anil Kumar Relia-CEO-NABL–Chaired the session
2. Mr. Amit Kumar Thakur–Head CSR Sustainability, TERI
3. Mr. Akhilesh Tuteja, Partner and National Head–Technology and BPM Sector, KPMG
4. Mr. Arnav Chakraborty, National Director, UNCTAD–Empretec Programme for India

Mr. Anil Kumar Relia

- Digital interventions do have an important role in social and economic quality. In the era of this digital world, the conventional system is moving out rapidly like paper-based filing to digital, hard cash to digital/plastic currency etc
- Many digital interventions have come into place that has made our life convenient. For example, now booking railway tickets, trading in the stock market, updating your bank passbook and others have become easier than ever before. Further, in context of our country linkage of Aadhaar Card Number of individuals with services like banking, health, LPG subsidy and others has eased the tracing of bank transaction with the LPG subsidy getting credited to your beneficiary account with just a click
- Government led initiatives like demonetization and tracking monetary transactions are being successful due to advancement in digital technology



Mr. Amit Kumar Thakur

- Storing the available information on a digital form will perhaps play a role in quality improvement. But there are many challenges like the amount of resources available, how to transform it into digital form, how to preserve it, how to access and share it etc
- In 2006, the total data available on digital form occupied an approx. 160 billion hexa bite. Nowadays, digital technology is becoming very useful in many



spheres of life and sectors

- e-governance –helps in bringing reforms in the country through technology which has resulted in quality improvement both social & economic sectors
- Early harvest program – sms based weather information system and disaster alert notifications have helped farmers in their daily life
- Recently, QCI is being involved in the survey for Swachh Bharat Abhiyan across the country and has thus collected huge data. Its digitized form may be helpful in getting various useful information out like the progress of the program, its status etc.

Mr. Akhilesh Tuteja

- He spoke about the evolution of the conventional system (paper-based system) to digital system and described the power of digitalization in today's world
- Recent development in technology like: 'Soil Wireless Sensors' – the device which automatically senses the soil moisture and tells about the need of irrigation. This has resulted in reduced dependency of farmerson watering the crops as it automatically turns ON and OFF as and when needed
- Another well know invention is 'Nano Ganesh' which allows farmers to use mobile phones to remotely monitor and switch on irrigation pumps used for watering crops in remote locations. Similarly, other devices like Automatic fire detection system, Blood Pressure Monitoring and others are very helpful digital inventions that have improved the quality of social and economic life
- He also spoke on matters relating to cyber security, IT strategy, selection of technologies that has helped them realize the business benefits of technology and a brief about IT risk



Mr. Arnav Chakraborty

- Emphasised on enhancing the entrepreneurship skills of people and their specific training needs
- The aim of training should be focus on entrepreneurial behaviour, attitudes and on key competencies. Such training programs encourage motivation and development of self-confidence of the participants and also help in building trust



that facilitates partnerships. Such drive can be supplemented by training of trainer's workshops to develop local trainers.

- The entrepreneurship / business development services component provides access to follow up consulting services to participating entrepreneurs in helping them grow and expand their business. These include programs in business planning, marketing, accounting, access to financing and other course
- The Empretec network has several levels, including local, national, regional and global. Local networks are created by participants to share experience and information, and facilitate their business opportunities. Local networks evolve into national networks that, with the support of UNCTAD, are integrated into regional forums. These programmes also build a national institutional facility

Session 1

"Multiplicity of Voluntary Sustainability Standards"

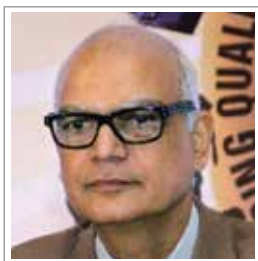
1. Chair: Mr. Shyam Bang, CEO, NABCB
2. Co-Chair: Mr. Anil Jauhri, CEO, NABCB

Speakers:

- a. Mr. Bonapas Ongulgo, Head of the Trade Analysis Branch, Division on International Trade in Goods and Services, and Commodities
- b. Mr. Thomas Feus, German Development Institute
- c. Dr. Ulrich Hoffman
- d. Mr. Rijit Sengupta, Chief Operative Officer, Centre for Responsible Business

Mr. Shyam Bang

- There is a need for efficiency in the introduction of new products and the importance of handling said issues by the regulatory body
- We need standards and their effects in the coming years. Voluntary standards are being introduced by various organisations as part of their auditing process and systems
- We need conformity assessment as industries have developed as per the surroundings and environments – such as population, climate etc – which is acting as a barrier to uniformity of standards over space and time



Mr. Bonapas Ongulgo

- Talked about the need to link the industry with the people that would lead to better income and livelihood. India is seeing a shift from Quantity of products to the Quality of products as consumers are now looking at labels and are willing to pay extra for organic substitutes which have health benefits in the longer run
- Complimented the 12th National Quality Conclave and QCI for bringing about a shift towards sustainability and for creating a platform for discussions to occur
- Sustainable development is the need of the hour and United Nation too has created Sustainable Development Goals (SDGs) and Millennium Development Goals (MDGs) to further assist in this process. These goals need to be attained by all countries and India has introduced 'Make in India' and ZED (Zero Effect and Defect) which will help refine the journey to sustainability



Mr. Thomas Feus

- Emphasised on the importance of government in the creation, implementation and governance of Voluntary Sustainability Standards (VSS)
- Elaborated on the role of the public authorities protecting the health of citizens, safeguarding the integrity of ecosystems and promoting inclusive growth. VSS to be an instrument of co-regulation between public authorities, business and societal forces
- Informed about the shift in policy and practice of the governments in the south and how they are now moving from being role-takers to role-makers in terms of the establishment and implementation of the VSS. However, VSS can pose various challenges that need to be tackled properly. They may act as a barrier to market access as many companies from developing countries may find it difficult to comply with standards without adequate knowledge, technical capacities and financial means
- Discussed about the limiting factors of VSS because of the ever-growing diversity, overlap and duplication of such standards which may sometimes openly compete with each other
- Further pointed out about the lack of domestic SMTQ (Standards, Metrology, Testing and Quality)



overcoming such constraints in support of SDG implementation should be a priority for South-South and North-South development cooperation

Dr. Ulrich Hoffman

(was not present in person, sent his presentation)

- Talked about the 'Need for Pro-active Government Policies to make Private Sustainability Standards Work for Harnessing the Sustainable Development Potential of the MSME Sector'
- Elaborated the economic importance of MSMEs. Market access/Global value chains and Evolution of public legislation (in India and abroad) were identified as key drivers while Marginalization of MSMEs on the basis of monetary aspects, insufficient cost reductions through standard-induced efficiency gains not compensating for higher standard compliance and certification costs, institutional constraints and lack of domestic demand were identified as the main constraint of this issue. He, however, mentioned that despite the importance of the subject in Brazil, China, India, Indonesia and South Africa, there is hardly a business case for standard use
- Stressed on the need to incorporate PSS into the National Development Sector as Multiplicity of standards may create confusion, PSS almost always work parallel to the public system and MSMEs have a risk of being excluded due to costs and capacity constraints
- He further mentioned about the requirements for making PSS more inclusive for MSMEs such as articulation of local actors, priorities and public-private relationship, strong producer organizations and internal development strategies, identifying & addressing shortcomings in physical infrastructure and other capacity gaps that support standards implementation and Markets demanding application of standards – stability in requirements (prices-volume-quality attributes)



Mr. Rijit Sengupta

- Highlighted the challenges and opportunities from Profusion of Sustainability Standards for Stakeholders
- Talked about the issue in terms of global context and the Indian context.



Explained in detail about the pros and cons of the VSS. VSS tend to provide a framework and parameters for meeting sustainability goals, enable transition towards sustainable products, enable recognition by consumers/investors/buyers, they act as a supporting mechanism to complement government's legislations and policies to achieve desired sustainability goals

- Discussed the negative aspects related to this issue such as misalignment between development & implementation of standards, problem of plenty (supplier driven market) and overall impact on sustainability is arguable etc. Growing interest among companies and other SHs (esp. supply chain angle) while only few VSS seem to have had significant uptake in India, there is hence a market for VSS in India at the moment. Standards to consider working together: mutual recognition, reduce costs to increase uptake and greater impacts

Session 2

Global Patient Safety Challenge – Medication Without Harm

Chaired by:

Dr. Harish Nadkarni, CEO, NABH

Speakers:

1. Dr. Pratibha Pareira – Clinical Trials Expert, JSS Initiative, Mysore
2. Dr. Kalai Selvan – Principal Scientific Officers, India Pharmacopeia Commission
3. Dr. Vikram Goel – Biomedical Engineer, Fortis Hospital

Dr. Pratibha Pareira

- Spoke about poly pharmacy, WHO global safety challenge and talked about general errors occurring in poly pharmacy where patient safety cannot be compromised and tracking at all levels at which errors occur. Also spoke about single disease model and categories of errors which can be skill-based or rule-based.



Dr. Kalai Selvan

- Spoke about health indicators of Indian population and national formulary for promotion of rational use of drugs to monitor patient safety

- Highlighted the importance of PVPI – Pharmacovigilance Programme of India, before which all the activities were scattered and also mentioned about National Formulary, stressing on the fact that if properly and judiciously used, it will help in reducing medication errors



Mr. Vikram Goel

- Mentioned about the center for re-use of catheters which would not only relieve the financial burden of patients but also comply with the quality requirements, without compromising on patient safety
- Informed about the guidelines for re-usable of catheters for cardiac, neuro and vascular diseases which cause the maximum number of mortality in India. Introduction of re-use catheter with proper policy and procedures has resulted in better financial and quality-based outcome, beneficial for patients and to the healthcare providers



The session was concluded with a question/answer session by the audience who actively participated and raised queries regarding the catheter processing system to ensure quality and safety of patients, billing and insurance policy and drug regulatory affairs on re-use of catheters and patients who are resisted to antibiotics

Speakers, while addressing the questions, mentioned about Materio-vigilance and Adverse Drug Reactions that have been identified in India. The central reporting system would help in drawing conclusions and corrective plans in future

- Mr. Venguswamy Ramaswamy, Global Head, TCS, TATAion
- Dr. Bijoy K. Sahoo, Chairman, Sai International School.

Prof. Sunaina Singh

- Discussed on how University education is all about critical thinking and how one evolves. According to her, today we are equipped with technology but are losing critical thinking
- Higher education is all about knowledge creation and the roles of schools and colleges is the same in this context. So every department should think about knowledge creation
- Ratio doesn't determine scholarship and academic audit needs to be done periodically. Institutions should have mechanisms to audit its course, monitor global scenario and discussion forums should be considered vital for building intellectual value
- India has a very good knowledge system, but today we have lost our own knowledge system, therefore we need to revisit the same which was once prevalent. In this context she mentioned the Shashtra-to-Shastra theory which is followed in the Nalanda University
- Head of Institutions need to dwell in the meaning of education and institutions should combine education with the ethos of the country. We should not be sceptical. Education should give back what to do to lead the world and let us lead the way for others



Dr. Gayathri Vasudevan

- Public money is spent on Vocational training which is drawing the maximum attention while there is a lack of knowledge about the same and she emphasized that today the entire focus of vocational education system is on infrastructure. We have not looked at what we are teaching even though there are easy ways of learning i.e. through Adult Learning and Amateur Learning
- Job-oriented growth- She apprised on whether we have a system in place to cater to the needs of young professionals. In this regard, she gave an example of Construction Workers- MASONS



Session 3

Emerging Standards on Education- Technical/ Vocational, Higher Education & Schools

Session Chair:

Ms Sindhushree Khullar, Ex – CEO, NITI Aayog

Speakers for the session:

- Prof. Sunaina Singh, Vice Chancellor, Nalanda University
- Dr. Gayathri Vasudevan, Founder, LabourNet

- Statistics suggest that agriculture and construction has maximum number of people working. Certification works when there is a barrier of entry. There is a need to define what to teach and where to teach. At the exit level standardization is required

Dr. Bijoy K Sahoo

- Gave a brief presentation on UNWIND (Unique learning experience for cultivating human values), an initiative taken up by the students of SAI International School. The presentation was about campaign through UNWIND for donation to government schools to create libraries. The idea behind this campaign considered the fact that most of the Primary schools do not have libraries. Therefore, a pilot project with around 20 government schools was initiated to create libraries
- Schools we are making are for academic excellence. Students today are glued so much to technology that they are socially cut off
- Emphasized on the need to inculcate values and Total Quality Management in children



Mr. Venguswamy Ramaswamy

- Described how learning is changing and the concept of GURUKUL is getting transformed into GURU 'COOL' in the present scenario.
- Learning is changing with time as we have asynchronous; non-lecture based learning, remote mobility, digital proctored exams, micro specialization and aggregated skills pedagogy in place
- Learners are also changing due to intervention of technology in their learning environment; classrooms are getting transformed into 'Glass' rooms, technology is playing a vital role and due to which the entire learning ecosystem is under transition.
- Learning itself is improving and as learners and educators are in a transition phase, administrators need to adapt to such changes accordingly



Session 4

Are Certifications driving Quality & Growth

The session was chaired by Mr Shyamsunder Bang, Chairman, NABCB

Speakers of the session:

1. Mr. Deepak Rao
2. Mr. J. Ravishankar
3. Mr. S.S. Wadhawan
4. Mr. N.P. Chandok

Mr. Deepak Rao

- Made a presentation on case study (Preparing response to Parliament questions) on how ES Division of DIPP experienced the improvement in quality and growth through implementation of systems and certification
- Mentioned that initially, it was the thinking of employees that being government sector, there is no need of system certification; however, once the system implemented, they realized that system helps a lot to run the organization smoother and not on persons dependent. Finally it was concluded that the growth is derived from good people and certification based on good procedures



Mr. J. Ravishankar

- Discussed how the quality improvement has grown in automobile sector with the support of ISO/TS 16919 certification
- Highlighted that the IATF driven automotive certification scheme has been quite successful in achieving Quality consistency and a growth driver for worldwide auto suppliers
- As seen, the focus shifted from documentation oriented approach to **performance oriented approach** for Certifying Auto Industry suppliers, which helped the industries to grow continually
- Emphasized that we should view certification in Holistic approach with quality as the single most important factor for customer satisfaction and repeat business



Mr. S.S. Wadhawan

- Shared his experience on implementation of systems in his organization and mentioned that those organizations which DO NOT work for Certifications alone BUT for the intent of Management System gets benefited
- Suggested that apart from checking/reviewing implementation of any management system requirements as minimum towards certification, there should be a system of rating which will indicate the improvement in a continuous manner



Dr. Ashish Jain

- Healthcare delivery rises through a skilled and certified workforce
- Brought up the issues in Healthcare with regard to human resources like high demand and limited supply pertaining to both quality and quantity
- Highlighted various aspects related to a skilled workforce in the health sector viz-a-viz demand for more skilled human resources, training, enhancing the skill of existing workforce, optimal utilization of existing human resource and use of technology
- Informed about the current work of HSSC in various states and their achievements. Citing example of defense personnel skill development he informed that courses are done and their services are used depending on their skill and training of the trainers



Mr. N.P. Chandok

- Shared his experience in change of concept of quality management certifications since 1994 till date
- ISO 9001:1994 was having more focus on documentations whereas its next version (year 2001- 2008) focused on process approach and out-sourcing management and now in 2015 version of standard talks more about the risk base approach management.
- According to him "Certifications shall prove to be a **BANE** if they are treated as process of merely acquiring a Certificate rather than bringing about a change in the work culture."



Mr. Rajiv Vasudeven

- Ayurveda can bring in the change and increase the quality of life and spoke about how health professionals only do symptomatic treatment and do not do root cause analysis of the disease
- Another interesting aspect which was highlighted was the role of government after the patient is discharged from the hospital
- Ayurveda is a robust scientific system which caters to complete healing. Addressed the issues of public health and how AYUSH doctors can contribute to quality healthcare system at the grassroots level as well
- Spoke about the synergistic role of both the systems of medicine like Ayurveda taking over allopathic medicine in chronic and lifestyle conditions like hypertension, diabetes etc.



Session 5

Improving Quality Healthcare Delivered to the Masses, Hospitals/ Medicines

Chaired by:

Dr. Manoj Jhalani, Addnl Secretary MoHFW
Co-Chair: Mr. Bejon Mishra, Founder- Consumer Online Foundation

Speakers:

1. Dr. Ashish Jain – CEO, Health Sector Skill Council
2. Dr. Rajiv Vasudeven – CEO, Ayurved Hospital
3. Dr. RK Shrivastav – WISH Foundation

Dr. R.K. Shrivastav

- Mentioned about equitable, affordable healthcare and spoke about concerns of patients in the health facility
- Highlighted the role of WISH foundation and how it is contributing towards public health by using mobile-based technology





Session 6

Progressive India Sustainable Public Social Initiatives

Speakers of the session:

1. Mr. Chandan Bhavnani, Executive VP, Head North & East, Yes Bank
2. Mr. Ashutosh Jindal, Joint Secretary, MoPNG
3. Dr. Bala Prasad (*Session Chair*), *Additional Secretary Ministry of Panchayati Raj*
4. Mr. Hiranya Borah, Deputy Director General, Ministry of Drinking Water and Sanitation
5. Mr. Siddhartha Das, India Sanitation Coalition

Mr. Ashutosh Jindal

- India is home to more than 24 crore households out of which about 10 crore households are still deprived of LPG as cooking fuel and have to rely on firewood, coal, dungcakes etc as the primary source of cooking
- The smoke from burning such fuels causes alarming household pollution and affects the health of women & children causing several respiratory diseases/disorders. In addition, women and children have to go through the drudgery of collecting firewood.
- Pradhan Mantri Ujjwal aYojana (PMUY) aims to safeguard the health of women & children by providing a clean cooking fuel – LPG, so that they don't have to compromise their health in smoky kitchens or wander in unsafe areas collecting firewood
- Pradhan Mantri Ujjwala Yojana was launched by Prime Minister Narendra Modi on 1st May, 2016 in Ballia, Uttar Pradesh. Under this scheme, 5 Cr LPG connections will be provided to BPL families with a support of Rs.1600 per connection in the next 3 years. This scheme promotes women empowerment, especially in rural India, the connections will be issued in the name of women of the households. Rs. 8000 Cr has been allocated towards the implementation of the scheme
- PMUY is likely to result in an additional employment of around 1 Lakh and provide a business opportunity of at least Rs. 10,000 Cr. over the next 3 years to the Indian industry. The launch of this scheme will also provide a great boost to the 'Make in India' campaign as all the manufacturers of cylinders, gas stoves, regulators, and



gas hosepipe are domestic

- Usage of technology was also mentioned in ensuring Geo-Tagging of the various LPG distributor – agency (Target – To ensure every 10 Km coverage of distributorship) & Photos with each connection will contain unique identity numbers to avoid duplicate connections to the same household

Dr. Bala Prasad

- GoI initiative to award high performing panchayats was discussed.
- GoI has allocated Rs 2,00,292 crores fund in 2015-2020 for development of panchayats across India @ Rs 488 per capita per annum



** National Average population per GP (Gram Panchayat) – 3,427

Some statistics:

- No. of PRI (Panchayat Raj) in country – 2,55,629
- No. of Gram Panchayats– 2,48,160
- No. of Block Panchayats– 6,284
- No. of District Panchayats– 595
- Panchayat in India represents the social issues of the local population (including women & children). These panchayats have administrative powers in meeting the local needs – Infrastructure, Jobs, Increase Literacy, Sanitation, Clean drinking water, Social needs etc.
- It is an initiative which will also boost women empowerment by making participation of women with minimum 1/3rd in Panchayat at senior leadership position of Chairperson or Sarpanch

Some statistics:

- No. of Elected members of PRIs – 31 Lakhs
- No. of Elected Women Reps – 14.39 Lakhs
- GoI also initiates training sessions to upgrade/build capacity of such panchayats. By 2020 GoI plans to cover 100% such panchayats through training sessions. Purpose of such sessions is clear, to have no poverty and have proper sanitation& clean drinking water for all
- 24th April of every year GoI plans to award such Panchayats who have been performing better in meeting the GoI initiative through a public awarding ceremony. Nomination for such awards is done online

* Various categories of Panchayat Award – Deen Dayal Upadhyay Panchayat Sashaktikaran Puraskar

(DDUPSP), Nanaji Deshmukh Rashtriya Gaurav Gram Sabha Puraskar (NDRGGSP) & e-Panchayat Puraskar

General & Thematic categories for all three levels of Panchayats to the best performing Panchayats (District Immediate & Gram Panchayat) in recognition of good work done by PRIs at each level for improving delivery of services and public goods

The 9 thematic categories are – Sanitation, Civic Services Natural Resource Management, Serving Marginalized Section, Social Sector Performance, Disaster Management, CBOs/Individual taking voluntary actions to support Gram Panchayats, Innovation in revenue generation and e-governance

** Award money ranging from Rs 50 Lakhs for district panchayats, Rs 25 Lakhs for Intermediate Panchayats and Rs 5-15 Lakhs to Gram Panchayats.

- The sole purpose of GoI in the initiative is to leverage economic & social development

Mr. Siddhartha Das

GoI Swachh Bharat initiative was elaborated by mentioning it not as a program but as a movement across India for a better tomorrow. Role of sustainability was mentioned to be the utmost important parameter for success of any GoI initiative in India



- Objectives of Swachh Bharat – Open Defecation Free (ODF) India, Toilets Installation, Cleanliness of Toilets (Water Availability) & Sludge Management.
- The initiative was made sustainable –
 - Third party checks in implementation
 - Behavioural change mandate
 - All people involvement including women, children & disabled
 - Multi-stakeholder support systems in place
 - Corporate support – i.e. HUL, Dettol (through various campaigns)
- An initiative was extended to railways in the introduction of BIO-toilets instead of the standard toilets ensuring cleanliness of railway tracks
- Some facts as on date –
 - Rise from 30% to 65% in sanitation across India
 - 40% Panchayats ODF
- It was highlighted if Sanitation management is done properly, it would be a reform for public & social development across India

Mr. Chandan Bhavnani

- Elaborated the initiatives that have been taken regarding financial services for economic growth for everyone including businesses and poor individuals. Also, mentioned how technology has been a financial inclusion in making financial services better to make the initiative sustainable yet increasing the reach
- The collaborations across banks to introduce better payment systems in place.
- The wide usage of RTGS (Real Time Gross Settlement) in making transactions with the inclusion of technology
- Introduction of various instant money transfer mediums has helped businesses in a reduction of the credit cycle and in-turn leveraging businesses in better utilization of funds
- It was stressed to further scale up the benefits of financial services available. There is a need for financial literacy, changing non-smartphone users to smartphone users, better internet connectivity & women empowerment for intensive growth.
- He mentioned the specific public & social initiatives “Yes Bank” has taken for progressive India - Support to 2000 odd MSMEs in energy efficiency
- CSR activity in spreading awareness and awarding for best practices to businesses investing in occupational health and safety



Mr. Hiranya Borah

GoI objectives in Swachh Bharat initiative was further elaborated in the session

- GoI envisions India to be ODF by 2019 & provide clean drinking water to all rural areas
- GoI is making third-party checks to ensure good quality toilets are built and gainfully utilized across India also
- Currently, all toilets are Geo Tagged with the help of Quality Council of India having 68% coverage. By 2019 GoI Targets coverage of 100% areas
- GoI is also keeping a check that the scientific toilets are not more than 4ft in depth as it doesn't contaminate the soil and the groundwater
- Targets of Government under Swachh Bharat Initiative are in priority order as mentioned below:
 - Ensuring Sanitation



- ODF (Coverage 100%) – Building Toilets and use of the same
- Ensuring Water Connection at the toilets
- Ensuring Water Quality at the toilets
- ODF + – Toilet availability with properly built quality

Session 7

Scaling up Lab Accreditation across sectors (to 1 lakh)

Speakers of the session:

1. Dr. S.K. Joshi
2. Dr. D.K. Aswal
3. Mr. Anil Relia
4. Dr. Puneet Nigam
5. Dr. S. Esware Reddy
6. Dr. N. Bhaskar
7. Mr. B.N. Dixit

Dr. S.K. Joshi

- In future one lakh labs can be accredited by NABL to maintain the quality of testing and calibration and different aspects to be dealt during the session. It will be an uphill task to accredit one lakh laboratories in different fields in the country and final recommendations will be on the basis of decisions by various boards of Quality Council of India



Dr. D.K. Aswal

- Quality infrastructure in the country can be developed by the manufactures and policymakers on the basis of four pillars i.e. National Metrological Institute of India-NPL, NABL-Accreditation body, BIS-Bureau of Indian Standards and Legal Metrology. The backbone of the quality system is traceability



Mr. Anil Relia

- NABL can accredit one lakh laboratories in the future. Highlighted the success story of NABL since its inception in 1982 as NCTCF and existence of NABL in 1993 as an independent body under the Department

of Science and Technology

- NABL has undertaken special projects other than the regular accreditation, these special projects are with various ministries and departments ranging from Drug & Pharma Testing (Ministry of Health and Family Welfare), Water Testing (Ministry of Drinking Water and Sanitation), Food Testing (Food Safety and Security Authority of India, MHFW), Environment Testing (Central Pollution Control Board, MOEFCC) Weights & Measures (Ministry of Consumer Affairs) Bio-Medical Equipments Test & Calibration (Association of Indian Medical Device Industry), Software Testing in collaboration with STQC (MeitY) having huge potential for the future accreditation



Dr. Puneet Nigam

- Raised the issue that ambulances, colleges and other labs, where testing is done, are not accredited. In the US, CLIA gives certification to all the labs for two years and the same can be implemented in India also. WHO proposed a model in South Africa that labs will be rated stage wise and once a lab reaches its last stage, accreditation will be granted to that particular lab



Dr. S. Esware Reddy

- Joint drug controller emphasized that various sectors are under drug control and there is a need to accredit their quality labs
- Discussed that inadequate manpower and infrastructure becomes a hurdle in accreditation and stressed the importance of every quality assurance labs to be accredited to maintain quality. Medical devices are to be tested by the accredited labs
- There are 220 labs which are doing testing for manufacturers with only 80 labs being accredited. All labs must be accredited



Dr. N. Bhaskar

- Elaborated the inception of FSSAI and its importance and discussed about the working of the FSSAI i.e. licensing, inspection and formation of food standards

- There are 142 labs from govt/private/public sector which are approved by FSSAI for testing the food items. FSSAI is working on a project of Indian Food Laboratory management through online and also conducting various training to build up the capacity in the food testing
- FSSAI is also thinking for accreditation of mobile labs and color coding of food which is consumed by humans



Mr. B.N. Dixit

- Discussed about the importance of legal metrology and there being more than 1400 labs in the ambit of legal metrology which also includes 5 regional reference standard laboratories and two more laboratories that are accredited. The labs can be accredited phase wise starting from secondary standard laboratory to working standard laboratory



- We file only 10000 patents/ year whereas China files 1 million patents each year
- In the 21st century, there is a huge opportunity for entrepreneurs to flourish
- The question in front of us is if we do create that much of education, will that be able to deliver the number of jobs required
- The definition of a smart person has changed today due to improved technology

Mr. Sanjay Sinha

- The cognitive system focuses on dark data
- Following eras have been there before cognitive system:
 - I. Tabulating system era (1890)
 - II. Programmable system era (1940)
 - III. Cognitive system era (2011)
- Watson is a pioneer in computing:
 - I. Focus on language/speech/vision
 - II. It learns with every single interaction done
- Challenges for our education system:
 - I. Demand Supply
 - II. High Costs
 - III. Disengagement: A Large population of kids drop out in India
 - IV. Misalignment: 47% graduates are not suitable for the job; they don't have the skill required
- Learning Journey:



SESSION 8

21st Century Learning Environment and Employability

Speakers:

1. Mr. Vineet Gupta – Chair
2. Mr. Sanjay Sinha
3. Prof. Victor Gambhir
4. Mr. Rishabh Khanna
5. Mr. Arnab Chakraborty



Mr. Vineet Gupta

- We are facing a challenge of higher education in India
- Though we have the highest number of institutions and 2nd largest number of students going to colleges, there is still a need to cater to our current population as the number of institutes in the country is very less
- We need to double our educational institutions to cater to such a large population.
- 67% of our higher education comes from private institutes encouraged by entrepreneurs



- Interaction with students is not possible with E-learning, we need an intelligent interactive way to improve this and IBM is working on the same
- We are creating a system to identify kids who are not performing well by interacting with teachers
- Human Tutor – System will be able to answer all the education-based questions by the student through cognitive computers
- How to improve teacher's capability to identify skills of students
 - I. Learning & planning is to be made playful
 - II. Bring computing in skill advice
 - III. Work with stakeholders to advise the students in a particular skill.

- IV. Identification of skill and skill gap
- V. Mentor identification
- VI. Counselling

Prof. Victor Gambhir



- 40% of school education is in private sector, we have 800 universities and 400 colleges
- We are the largest affiliating country of the world, out of 40000 colleges, most are affiliated with state universities
- New learners are more self-directed and better equipped to capture information.
- Electron-proton concept was tough to understand earlier, but now with digital learning, we are able to teach complex concepts easily using pictures and videos
- Digital Learning Platforms:
 - I. Learning Management System. Eg. Blackboard Learn
 - II. Massive Open Online Courses (MOCs). Eg. SWAYAM, NPTEL
 - III. Internet content/tutorials. Eg. YouTube, Webinars, E-books
- Popular modes of E-learning:
 - I. Self-paced e-learning: Where students decide, what to learn, where to learn, when to learn.
 - II. Live online Learning: Here tutor sets the pace through studio.
 - III. Flexible online learning: Here tutor & student work together to set the pace of the class.
- Challenges faced by digital learning:
 - I. Online degrees are not recognised in India
 - II. Only 15% people in India understand & speak English, but most of the material available online is in English language.
- In last 2-3 decades, there is a high dependency on tuitions which was not there earlier.
- In last 2 years, 50% students have supplementary exams in one or more subjects in IITs, due to this tuition system
- 500000 welders are required in India, but 20-25 kilos of welding electrode has to be burnt to produce a good welder, which is a huge investment and is not happening currently.

- Can digital learning replace teacher? The answer is big 'no'; since synchronous mode cannot work with teacher, teacher should become a facilitator now rather than only knowledge provider

Mr. Rishabh Khanna



- What has happened suddenly, why everyone is behind it?
 - I. Our education system was once the best in the world but today we are lagging behind, there is a need to upgrade with new skills with the changing times. We cannot survive with just one skill throughout our life.
- How to develop these skills in cognitive learning?
 - I. Critical learning is about continuous improvement, it won't come in just a 2 hour session
 - II. 90% of teachers are not comfortable with technology
 - III. More than 90% of the schools do not make proper lesson plans
 - IV. Solution is Cognitive Learning
- Cognitive learning requires cognitive teaching, only then teachers will accept technologies like Watson

Mr. Arnob Chakroborty



- Entrepreneurship can't be taught to anybody, similarly education can't be taught. It can only be inspired because one learns when one wants to learn
- One learns using experiences which are already available. If entrepreneurship can at all be taught, it can only be done using mentorship program from industry people
- Motivation helps in facilitation process for entrepreneurship
- Do we check what we are receiving as information in this digital era? We need to think what we need to do to improve this education system
- We should focus more on promoting Entrepreneurship program in the country

Session 9

Trade Deficit and Role of Standards

Speakers of the session:

1. Mr. Anil Jauhri
2. Dr. S.K. Saxena
3. Mr. Anupam Kaul

Mr. Anil Jauhri

- Discussed about the importance of voluntary and private standards in cross border trade and mentioned that standards or technical regulations is one of the dimensions of trade deficit, which can be overcome by meeting the compliance as per International standards, by encouraging voluntary standards to promote excellence in the market especially on quality and handholding to SMEs
- Highlighted that the recent amended BIS act has provision under which any technical regulation can be made mandatory



Dr. S.K. Saxena

- Shared his experience on role of EIC in Compliance, in Increasing Importance of Standards in Trade
- Mentioned that the international trade focus is now

changing to mainly three areas like Consumer safety, food safety and biosecurity

- The challenges faced in export are many like Compliance to standards of importing countries, changing in regulatory requirements, credible export certification system, Surveillance mechanism up to Primary production, Capacity building (Infrastructure and human resources) and Digitalization of Services etc.



Mr. Anupam Kaul

- Informed the audience about the involvement of CII as industry association in standard development through BIS
- Mentioned that CII has developed and maintained a public standards portal ([www. http://indiastandardsportal.org/](http://indiastandardsportal.org/)). The Portal is an online resource to provide updated information on India's Quality infrastructure comprising prevailing systems for standardization, technical regulations, conformity assessment and support activities. Information on this portal has been structured to facilitate easy access to information both on the webpages of the portal and through links, to the different organizations responsible for providing services in the relevant areas



Valedictory session

Topic-Spiritual Path to Daily Life Management-Yoga

Yog guru Baba Ramdev was welcomed by Dr. R P Singh, Secretary General, Quality Council of India. He thanked him for attending the Valedictory session in 12th National Quality Conclave.

"Remedy of all illnesses lies in Yoga and healthy lifestyle," said Baba Ramdev at the conclave. Yog Rishi Baba Ramdev inspired the audience to practice the sun salutation (Surya Namaskar) as a measure of physical fitness to attain quality life. He also said that stress, pollution and unhealthy eating habits can act as a pre-cursor for illnesses and urged the





audience to adopt healthier ways. In order to accomplish that Baba suggested the audience to incorporate Yoga, and healthy diet in their lifestyle to maintain longevity and stay youthful.

He focused on Pranayam, which is a collection of breathing exercises, to eradicate the ailments of human body. Pranayama helps in increasing the blood circulation, which accelerates the flow of blood in the internal organs and give them enough impulsion to lead a healthy life.

According to the Yog Guru, Kapaalbhati pranayam can keep away various diseases from our bodies. Our body needs proper oxygen and with the help of Kapaalbhati our stomach and lungs get proper oxygen apart from required movement which is helpful in keeping good health.

He discussed about the Bhasstrika and Anulom Vilom and how the sepranayam maintains the blood pressure and keeps our body fit.

"The human body is designed to live for 400 years, but we torture our bodies through excesses of food and unhealthy lifestyle. We invite high blood pressure, heart ailments and other diseases that lessen our lifespan and forces us to depend on doctors and medicines for the rest of our lives," he told the gathering at the conclave.

A good quality life can be attained through six hours of sleep, physical exercise for an hour and healthy eating, he said. Citing an example, Ramdev said that



BJP President Amit Shah lost 38 kg by following a disciplined lifestyle.

Ramdev also demonstrated various Yogic postures and gave tips to the audience about how to live a quality life in today's fast-paced world. He said poor immunity is behind many diseases, particularly cancer, and said regular practice of yogic breathing exercises 'pranayam' and consumption of giloy (*Tinosporacordifolia*) could prevent them.



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BRIDGE ENGINEERING : Cross drainage structures, Elevated structures, Grade separators, Major bridge, Minor bridges, ROB/Flyover, Toll plaza, Hydrological studies, cost estimation, Preliminary & detailed GAD, Earth & water retaining structures, Subway planning & designs and PMC.

RAILWAYS : Demand analysis, Route selection, Private siding, Economic & feasibility studies, Detailed project report, Terminal & yard planning, Cost estimation & PMC.

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Significance of Atmospheric Air Quality in Environmental Impact Assessment (EIA)



Dr. S.K. Mishra
Joint Director
NABET



A.K. Jha
Senior Director
NABET

- *Module 3 (Air pollution measurement and interpretation of baseline data)*
- *Module 4 (Assessment of potential pollution generation)*
- *Module 5 (Impact identification, assessment including modelling)*
- *Module 6 (Air pollution prevention and mitigation)*

2. Brief on modules developed

2.1 Module 1: (Basics of atmospheric sciences and air quality modelling)

The atmospheric science is a branch of applied science which deals with structure and formation of the planetary atmosphere. Under the ambit of the earth or geosciences, this branch of science deals with physics, chemistry and fluid dynamics of the atmosphere. The above module is developed for remittance of knowledge on basics of atmospheric science, air pollution and modeling to benefit new learners in the field of air quality and EIA related activities. The basics of atmospheric sciences and air quality modeling have been presented in detail. Explanation on important atmospheric parameters and aspects of air quality and modeling like Gaussian Plume Model (GPM), Area Source Model and AERMOD Model has been presented. A number of tabular and graphical presentations have been incorporated during the training course development for better understanding of the professionals. A typical example in the tabular form is shown below which presents the fraction concentrations by volume of the major gaseous constituents of the earth atmosphere.

2.2 Module 2:

Depicts the EP Act' 86 and rules under the Act including major amendments related to the air pollution. It also details out the EIA Notifications 2006, major amendments, the Air Act' 81, its amendments, National Ambient Air Quality standards-2009, updated emission standards for industries, vehicles and fuel quality specifications with concept of clean fuel along with a brief of Indian and USEPA emission factors for various industries.

2.3 Module 3: Air pollution measurement and interpretation of baseline data broadly discusses

The module 3 is developed to inculcate knowledge and practical expertise in the field of air pollution measurement and interpretation of baseline data in professionals who are working in EIA and air quality related areas. The module is broadly explained in the form of graphics and there is ample pictorial presentations (Fig. 1.) towards in-depth understanding of air pollutants and interpretation aspects.

Preamble

Environment Impact Assessment (EIA) is one of the most important activities to identify the amount of probable impacts on the various facets of environment due to a proposed developmental project. Along with the EIA, an Environment Management Plan (EMP) is also prepared which explains the mitigation measures to minimize the negative impacts of the project on the environment. The combined EIA-EMP reports are essential requirements to obtain environmental clearance for most of the development projects as per the Environment (Protection) Act 1986 and 2006. However, EIA reports require expertise in the areas like air and water pollution, noise, vibration, geology, hydrogeology, ecology, socio-economy etc. In the present report, we have made an attempt to discuss and develop air pollution and its quality characteristics for creating knowledge bank which shows tremendous importance in the preparation of an EIA report. Besides, we have successfully developed an e-learning programme for the air pollution and its quality characteristics to benefit professionals from industries, environmental scientists, academicians, students, NGOs as well as persons belonging to air pollution and control authorities.

1. Knowledge Bank and its Composition

The as-developed knowledge bank and e-learning online training programmes include important topics like air pollution monitoring, prevention & control technologies, meteorology, air quality modeling as well as the air acts which have been notified by the various regulatory agencies of the government. The online knowledge bank is discussed in brief in the following six modules:

- *Module 1 (Basics of atmospheric sciences and air quality modelling)*
- *Module 2 (Rules and regulations applicable to AP and AQ in respect of EIAs)*

Table 1: Fractional concentrations by volume of the major gaseous constituents of the Earth's atmosphere up to an altitude of 105 km, with respect to dry air.

Constituent	Molecular Weight	Fractional Concentration by Volume
Nitrogen (N ₂)	28.013	78.08%
Oxygen (O ₂)	32.000	20.95%
Argon (Ar)	39.95	0.93%
Water Vapor (H ₂ O)	18.02	0-5%
Carbon dioxide (CO ₂)	44.01	380 ppm
Neon (Ne)	20.18	18 ppm
Helium (He)	4.00	5 ppm
Methane (CH ₄)	16.04	1.75 ppm
Krypton (Kr)	83.80	1 ppm
Hydrogen (H ₂)	2.02	0.5 ppm
Nitrous Oxide (N ₂ O)	56.03	0.3 ppm
Ozone (O ₃)	48.00	0-0.1 ppm

(Source: http://en.wikipedia.org/wiki/Atmosphere_of_Earth)

2.4. Module 4:

Elaborates discussion on the assessment of sources, quantities and the concentration of pollutants. Pollution is the introduction of pollutants into the natural environment that causes adverse change. Pollution can take the form of substances or energy. Substances can be particulate matters, oxides of nitrogen or sulphur, carbon monoxide, hydrocarbons, volatile organic compounds, chlorofluoro carbons etc. Noise or heat are considered as pollutants in the energy category. The main objective of this module is to explain about the factors that affect the generation of pollution. This module also depicts how to identify sources and types of potential air pollutants.

2.5. Module 5:

Describes the impact identification and assessment of impact due to changes in the air quality. Project activities and related aspects may result in change in the baseline conditions that may impact resources and receptors prevailing within the area of influence of a project. An impact is beneficial if a project activity and related aspect improves the baseline condition while it is adverse if it deteriorates baseline condition i.e. adverse change in air quality. This module also broadly describes about the effect of high concentration of air pollutants on human health, flora, animals, wildlife, crops and likely damages to properties including infrastructure, properties of cultural and archaeological importance.

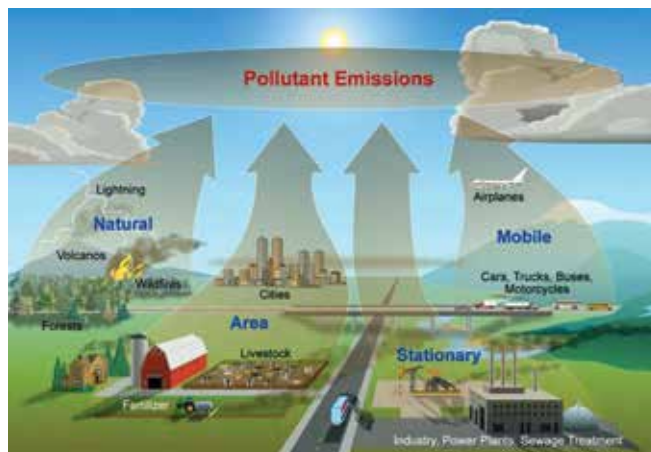


Fig. 1: Sources of air pollution

2.6. Module 6:

Ensures description on techniques which are adopted to prevent air pollution and explains broadly about the air pollution mitigation mechanism. The objective of this module is elaborated to provide hands-on understanding about the air pollution control technologies, control of specific pollutants from industrial emissions, operation and maintenance of Air Pollution Control Equipment (APCE) and capital investment mitigation measures. The relevance of Air pollution control management plan with reference to coke quenching, clean fuels, clean coal technologies have been discussed and presented.

3. Concluding Remarks

As a national quality body, QCI has developed a number of e-learning knowledge modules relating to important areas like health, skill, yoga, education etc. QCI-NABET has introduced e-Learning online training modules on Air Pollution (AP) and Air Quality (AQ). It is also important to mention that the developed knowledge bank on air pollution and air quality online training modules are extremely useful from the point of view of the Environment Impact Assessments (EIAs) which is a tool for decision-making to the regulatory authorities and subsequently to benefit the health of the environment and the entire ecosystem. ■

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ZED @ 23rd General Assembly of African Organisation for Standardization (ARSO)

The 23rd General Assembly of ARSO has been held at a time when the African Continent is focusing on the implementation of AU's Agenda 2063 which is a roadmap to ensure greater Manufacturing and Industrialisation of the Continent, and Women Empowerment with women playing active role in social, political and economic development. The African leaders and experts are calling for greater manufacturing, industrialisation and integration in Africa and the Continent is celebrating the year 2017 as the year for the Quality Infrastructure in Africa, to create awareness on how Quality Infrastructure can play a major role in Africa's Industrialisation and sustainable development. The Zero Defect Zero Effect (ZED) concept and India's roadmap towards enhancing the global competitiveness of Indian MSMEs was shared with the participating nations during the 23rd ARSO General Assembly which was also attended by representatives of the African Union Council.



Mohit Singh
Deputy Director, ZED, QCI



Sierra Leone, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia and Zimbabwe).

The General Assembly that meets once a year, and composed of the ARSO members, is the Supreme organ of ARSO while the Council consisting of the President with a minimum number of six or a maximum of twelve active Member Bodies administers the ARSO.

The 23rd ARSO General Assembly was hosted by the Government of the Republic of Burkina Faso, through the Agency for Standardization, metrology and quality (ABNORM). One of the key objectives of ABNORM is to cover all priority areas of Burkina Faso in Standardization (including the sectors food, electrical engineering, the environment and the building and civil engineering). The events were held on 26th – 30th June 2017



in the City of Ouagadougou, the capital city of Burkina Faso with delegates from all African countries and from around the world. Ouagadougou, or as the locals simply call it, Ouaga, is a truly African capital. The QCI team was represented by Dr. A. Raj, Senior Director and Mr. Mohit Singh, Deputy Director.

The **economy of Africa** consists of the trade, industry, agriculture, and human resources of the continent. As of 2012, approximately 1.07 billion people were living in 54 different countries in Africa. Africa is a resource-rich continent but many African people are poor. Recent growth has been due to growth in sales in commodities, services, and manufacturing. Sub Saharan Africa, in particular, is expected to reach a GDP of \$29 trillion by 2050 but its income inequality will be a major deterrent in wealth distribution.

In March 2013, Africa was identified as the world's poorest inhabited continent; however, the World Bank expects that most African countries will reach "middle income" status (defined as at least US\$1,000 per person a year) by 2025 if current growth rates continue. In 2013, Africa was the world's fastest-growing continent at 5.6% a year, and GDP is expected to rise by an average of over 6% a year between 2013 and 2023. Growth has been present throughout the continent, with over one-third of Sub-Saharan African countries posting 6% or

ARSO is an intergovernmental Organisation established by Organization of African Unity (OAU, currently African Union (AU)) and United Nations Economic Commission for Africa (UNECA) in 1977, with 21 African Governments as founding members.

The principal mandate of ARSO is to harmonize African Standards and conformity assessment procedures in order to reduce Technical Barriers to Trade and therefore promote intra-African and international Trade as well as enhance the industrialization of Africa. Currently, ARSO has 36 member States (Benin, Botswana, Burkina Faso, Cameroon, Cote d'Ivoire, Congo Brazzaville, Democratic Republic of Congo, Egypt, Ethiopia, Gabon, Ghana, Guinea Bissau, Guinea, Kenya, Liberia, New State of Libya, Madagascar, Malawi, Mauritius, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles,

higher growth rates, and another 40% growing between 4% and 6% per year.

The Events of the 23rd ARSO General Assembly, chaired by the ARSO President, Dr. Eve Gadzikwa, included:

- 56th ARSO Council Meeting
- ARSO Training (global quality challenge- Business approach to the role of NSB)
- 5th African Day of Standardisation. The theme for 5th African day of standardisation is "Celebrating the year 2017 as the Year of Quality Infrastructure in Africa". The activities include:
 - o Official opening of the 23rd General Assembly
 - o Presentations and Discussions on the theme under four sessions.
 - o 4th ARSO Standardisation Essay Competition Awards to the African Youths.
- 23rd ARSO General Assembly
- Open Forum: Industrial Visits, Members and Stakeholders Open General Assembly Workshop
- Made in Africa EXPO: To run concurrently with the events.

The QCI team attended the ARSO General Assembly, events of which were held under theme "Celebrating the year 2017 as the Year of Quality Infrastructure in Africa" "Role of standardization for Better quality and better life within a continental free trade Area".

In the inaugural, it was highlighted by the Minister that the continent had made significant progress in development, particularly in terms of economic growth, social development, democratization, human capital development, peace promotion and political stability, and highlighted the challenges the continent face despite the growth.

In her official address to the ARSO General Assembly, ARSO President Dr. Eve Gadzikwa reminded the ARSO General Assembly about the role of ARSO. The ARSO Goodwill Ambassador Her Excellency Prof. Mrs. Ameenah Gurib-Fukim, the President of the Republic of Mauritius, in her video message to the General Assembly, highlighted how the ACP Countries are bound to gain



A Memorandum of Understanding has been signed between QCI (Signatory Dr. R. P. Singh) & ARSO (Signatory Dr. Hermogene Nsengimana) on August 13, 2015 to promote mutual interest and cooperation to deliver affordable & effective standardization and conformity assessment training with specific objectives like developing skills of stakeholders, improving education systems through standardization and conformity assessment and training on Maturity Model for the SMEs. This visit was also undertaken in order to take forward the above MoU and to initiate discussion with ARSO & AU for further engagements on ZED.

from the just concluded 2017 European Development Days 2017 (EDD 2017) in Brussels, Belgium.

Ms Ron Osman, Senior Policy Officer of the African Union Commission, in her address to the Assembly, under the topic "Industrialisation and increased Intra-Africa trade as stepping stones toward Africa's sustainable development", re-emphasised the need for better Quality Infrastructure in Africa as the surest way of socio-economic development of the continent through effective trade ties within the regional trading blocks and at the global level.

The Quality Council of India team presented the ZED Maturity Assessment Model and how India is gearing itself to face the challenges of industrialization through inculcating Zero Defect and Zero Effect manufacturing practices amongst the MSMEs of India. The presentation by the team, which also included how ARSO member nations can adopt ZED in their ecosystem, was very well received by the audience comprising of representatives of ARSO member nations, dignitaries and representative of the African Union

amongst others.

The President of ARSO, Dr. Eve Gadzikwa, specifically praised the efforts by India in implementing the ZED Model amongst its MSMEs and expressed interest in implementing the same as a pilot in a few member nations.

The African Union Commission's Senior Policy Officer, Ms Ron Osman, congratulated QCI on developing this model and invited QCI representatives to visit the African Union Commission to discuss how ZED can be taken forward in Africa. The QCI Team also interacted with various representatives of ARSO member nations, including Nigeria, Rwanda, Egypt, Uganda amongst others and also connected with the Standards body of Turkey & South Korea who were also invited for this event.

The ZED team will be taking forward the MoU with ARSO and the presence of ZED in the continent of Africa. It will not only provide an opportunity to test this model in a different business environment but also pave way to explore possibilities of eliminating trade barriers through ZED. ■

Team ZED

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Yoga Professional and School Certification Scheme goes to South Korea



Dr. Manish Pande

Joint Director and Head PAD Division

The Ministry of AYUSH, in collaboration with the Quality Council of India (QCI), has launched Voluntary Certification Scheme for Yoga Professional and Yoga Schools.

The country's top yoga experts from some of the oldest yoga institutions – such as Sri Sir Ravi Shankar Ji; Dr. H. R. Nagendra, Prime Minister's Yoga Guru; Swami Ramdev; Sri O. P. Tiwari of Kaivalyadham; Smt. Hansaji of Yoga Institute; representatives of Sivananda School, Isha Foundation, and Art of Living, and officials of the Ministries of AYUSH and Commerce have contributed towards the design and development of this Scheme. In addition, all eminent Yoga experts have been brought together in an Advisory Group to advise the Steering Committee.

The approach towards the design of the Scheme has been to have a scientific, secular, universal, unbiased, balanced and practical approach for yoga certification



to provide global acceptability while promoting Yoga as per the ancient *Sutras*. It is a known fact that in the modern day stressful lives, benefits of Yoga has pulled a very large population across the globe to Yoga to have a better quality of life.

To gain the complete benefit of Yoga, it is imperative that the knowledge base and tenets are kept intact and

referred appropriately to the Indian ancient texts. The transfer of this very knowledge needs to be required to mentor individuals that seek to practice Yoga across the world.

The launch of the Yoga Scheme has propagated the above concept and led to opportunities for the young Yoga Professionals to aid in popularising



Yoga nationally and internationally. This has been in line with honourable Prime Minister's vision for regaining the leadership in promoting Yoga globally.

Furthering the vision, QCI has been working towards the promotion of Yoga Scheme globally by identifying and entering into MoUs with various countries across the globe. In one of such interactions we were happy to receive interest from Miryang City Council that wished to take up the responsibility of promotion of Yoga in South Korea.

Miryang (Korean pronunciation: [mi.rjaŋ]), often spelled Milyang, is a city in Gyeongsangnam-do Province, South Korea. The economy of Miryang draws heavily on its central location and prominence as a tourist destination. In addition, agriculture continues to play an important role, particularly in outlying districts. The Miryang City government co-organised the 1st Miryang International Yoga Therapy Conference that aimed for Global Peace through a Healthy Mind. The Miryang City Government, South Korea, has been promoting Yoga since 2010 and feels that this MoU will accelerate their outreach to the 4 million Yoga practitioners and 40,000 teachers in South Korea.

QCI acknowledges the work carried out by Miryang City and signed an MoU with them for promotion of Yoga Scheme that focusses on certification of Yoga Professionals and Yoga Schools in an event



held in New Delhi on 13 Nov. 2017. The MoU was signed by Mr. Anil Relia, C.E.O., NABL, of QCI on behalf of SG, QCI and Mr. Park Il Ho, Mayor, Miryang City, South Korea in the presence of representatives from various organisations from the South Korea including Nano Future Strategy, Public Affairs and Information Technology Department, Korea India Cultural Exchange Centre, Miryang Chamber of Commerce and Industry etc. From India, officials from the Ministry of AYUSH, and other organisations were in attendance.

Dr. R.P. Singh, Secretary General QCI, welcomed this initiative. He was confident that the Miryang City Council under Mr. Park, Mayor will accelerate the pace of

promotion of Yoga as prescribed in the ancient text. He congratulated all the stakeholders on this important event. Mayor of Miryang, Mr. Park Il Ho, said, "As we sign the MoU today, we will promote Indian Yoga in Korea and furthermore develop cultural and economic exchange between India and Korea." Mr. Chang, Economic Policy Advisory, said that Korean people are excited to receive authentic and traditional yoga from India.

QCI looks forward to extend all possible support to Miryang City in promotion of the Yoga Scheme including setting up of Personnel Certification Body, certified School in Miryang, finalization of Korean version of Official Guidebook etc. ■

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Company Profile:

Shivalik Solid Waste Management Limited an offshoot of UPL Limited group of companies –Mumbai .UPL Limited is one of the leading player in the field of Environmental services in the country .UPL Limited group was established in 1969 and always made a conscious effort in maintaining and improving standards of environmental care. To give all its efforts a concrete shape Tatva Global Environment Pvt. Ltd. has been formed . This group rooed the experts in environmental care. The name include , Bharuch Enviro Infrastructure Ltd. (BEIL), Envrio Technology Ltd (ETL) and DJAI Power Ltd.

Accreditation & certification: Shivalik Solid Waste Management Ltd is ISO 9001 , ISO 14001 , OHSAS 18001 certified Company having NABL accredited & MoEF recognized Laboratory . Also we are QCI -NABET accredited EIA consultant.

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IndiaGHP/IndiaHACCP Certification Schemes



Praveen Gangahar

Senior Advisor, QCI

The FSSAI has in Schedule 4 to the FSSAI Licensing Regulations, while prescribing hygiene and sanitary conditions as a pre-requisite to both registration and licensing of FBO, also encouraged the Food Business Operators (FBOs) to go for implementation of HACCP. The regulations states:

“...These are the basic – compulsory requirements for ensuring safety of the food manufactured in any premise and FBOs shall continuously try to improve the sanitary and hygienic conditions at the premises **with a goal of attaining India HACCP standards** within a – previously determined period...”

Codex Alimentarius Commission has published **CAC/RCP-1 1969 – Recommended Code of Practice – General Principles of Food Hygiene**, describing the controls recognized internationally as essential for safety and suitability of food, while HACCP is recommended for ensuring enhanced food safety. The Codex General Practice of Food Hygiene (GPFH) is applicable across the food chain and is so written that each industry has to interpret and apply it. It is a guidance document and is therefore not amenable to auditing or certification, which needs a normative document or a requirement standard.

Since this Codex GPFH and HACCP document is not a normative document that enables assessment, the Indian industry is having to resort to foreign HACCP-based food safety standards for demonstrating compliance to HACCP like Dutch HACCP, SQF etc.

In keeping with the intent of FSSAI for promoting food safety by FBOs, QCI with multi stakeholder participation has developed two Schemes namely **IndiaHACCP Certification Scheme** and the **IndiaGHP Certification Scheme**, for enabling verification of compliance by FBOs through a voluntary certification initiative.

These Certification Schemes are based on the international best practices and global standards for development of certification standard(s) and schemes to ensure internationally acceptable certification. These Certification Schemes would not only help provide assurance that food is suitable for human consumption but also maintain confidence in internationally traded food. It would also provide Indian FBOs an alternative to foreign certifications and outgo of foreign exchange.

These Certification Schemes have been designed using the principles of third party assessment and the Scheme document include:

- Governing Structure – the structure, components, roles and responsibilities of participating organizations and committees, if any;
- Certification criteria – the standard for certification, which have been developed following the Code of Good Practice enshrined in the WTO TBT;
- Certification Process – initial evaluation, frequency of surveillance, requirements for evaluators etc.;
- Requirements for Certification Bodies.

QCI had constituted an **Agrifood Steering Committee** under **Mr. Rakesh Kacker**, former Secretary, Ministry of Food Processing Industries, to lead these initiatives.

The details of the Schemes are available on QCI's website at link <http://www.qcin.org/India%20GHP%20&%20India%20HACCP.php>

Many countries including US have mandated HACCP for certain high risk sectors like meat, juice etc. through their food regulations. Although Indian regulation is using the term IndiaHACCP, it had not yet designed the scheme and therefore QCI has developed this scheme with active support from FSSAI.

These schemes would serve as a stepping stone for achieving certification against any of the international schemes which are prerequisite for food industry to enter international markets. ■

Need for adoption of Big Data Analytics to stay competitive for SMEs in India



Dr. Indrajit Bhattacharya

Director, NABET

The Ministry of MSME is implementing “**Digital MSME**” Scheme for promotion of Information & Communication Technology in MSME Sector with a total budget of Rs. 85.705 crore including Government of India’s contribution of Rs. 58.105 crore during 2017- 18 to 2019-20.

The scheme envisages promotion of ICT applications to make them “Digital” by adopting new approach of **Cloud Computing** with the objectives to sensitize and encourage MSMEs towards new approach i.e., Cloud Computing for ICT adoption in their production and business processes with a view to improve their competitiveness in National and International Market; Adoption of best practices to improve quality of products and services; and to benefit large number of SMEs in terms of standardizing their business processes, improvement in productivity through Cloud Computing by reducing the burden of investment on Hardware, Software and Infrastructural Activities using Cloud Platform.

Cloud computing and **Big data** are considered as two sides of a coin: cloud computing’s killer application is seen as **Big data**, whereas IT infrastructure of big data is provided by cloud computing (Jin et al., 2015).

Big Data Analytics (BDA) is the process of examining large and varied **data** sets – i.e., **Big data** – to uncover hidden patterns, unknown correlations, market trends, customer preferences and other useful information that can help organizations make more-informed business decisions.

Analytics firms worldwide are also deploying analytical tools and techniques with big data gaining significant traction. More big data pilot projects are expected to be successfully delivered in the next few

years because the returns on investment meet client expectations.

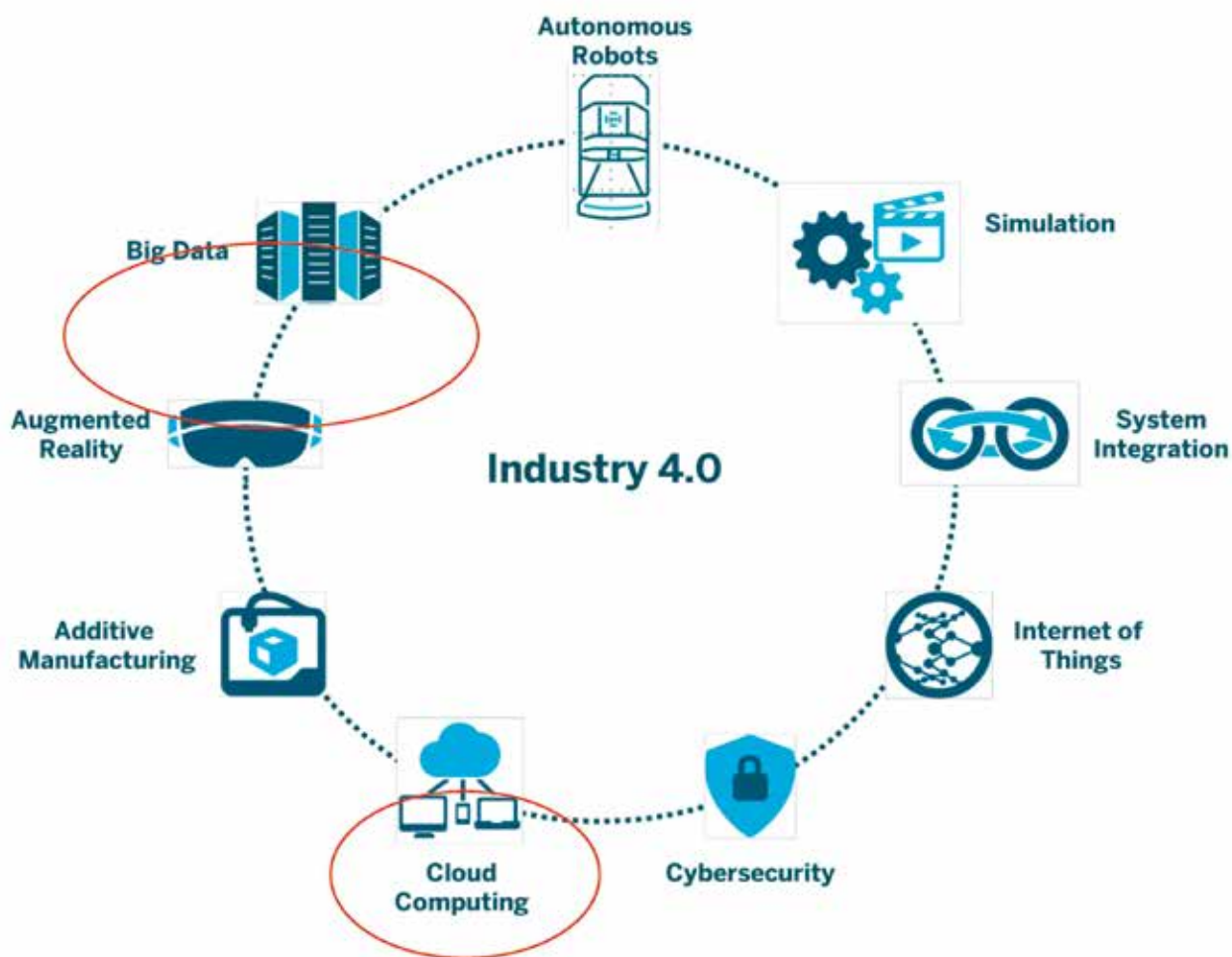
“Compared to traditional data, the features of big data can be characterized by 5V; namely huge Volume, high Velocity, high Variety, low Veracity, and high Value” (Jin et al., 2015).

- **Volume:** Large volume of data that either consume huge storage or consist of large number of records (Exabyte, Zettabyte)
- **Variety:** Data generated from greater variety of sources and formats, and contain multi-dimensional data fields
- **Velocity:** Frequency of data generation and/or frequency of data delivery data creation like streaming and aggregation
- **Value:** The extent to which big data generates economically worthy insights and or benefits through extraction and transformation
- **Veracity:** Inherent unpredictability of some data requires analysis of big data to gain reliable prediction. (Wamba et al., 2015)

Three subcategories of business analytics are distinguished:

- Descriptive analytics** summarise, condense and aggregate data in a way to make big and complex data sets more easily accessible for human understanding. Graphics and aggregate statistical metrics are the basic tools of descriptive analytics.
- Predictive analytics** enable forecasts of future effects based on historical data. The methodology of predictive analytics comprises statistical learning, machine learning, data mining and knowledge discovery from databases.
- Prescriptive analytics** transforms the results of descriptive analytics and predictive analytics into business decisions. Methods from optimisation theory and operations research are important





quantitative tools of prescriptive analytics. Work in these areas is referred to as data science with people proficient in data science being referred to as data scientists. The rapid rate of big data adoption by SMEs is fuelling **SME Big Data Market** growth at a **CAGR of 42.94%** for the 2013-2018 period.

A leading supply chain industry (X) in India recently aims to make optimal use of available data to guide entrepreneurs and artisans on areas like deciding on the right selling price, payment automation, proper packaging, transportation, brand building. It will help MSMEs to sell their products directly to buyers across the nation and this will create huge employment opportunities even in the ancillary industries and reduce the migration of rural population to the urban areas. Analytics and market intelligence provided by X will assist in improving product R&D to help the artisans and master craftsmen create better saleable product ranges. The focus will be to continue to help entrepreneurs create products in tune with buyer requirements and grow significantly so that they may become manufacturers not only at a local but also at a national level. This, in turn, will help them plan their production and expand their business, revolutionising manufacturing in India, encouraging entrepreneurship and growing the rural economy.

In the recent past, enterprises have been sceptical about the adoption of **Big Data** and its return on investment. However, **Small and Medium-sized Enterprises (SMEs)** across various industry verticals have begun to leverage investments in big data analytics. Data is a highly valued asset in today's connected world and is growing in volume like never before. Enterprises across the spectrum, from multinationals to SMEs, are exploring avenues to harness and exploit data. The use of big data technologies is altering the way businesses across industries operate. To address their voluminous data challenges, there is a dire need for SMEs to seriously think about big data adoption. This plunge will help them improve customer understanding, penetrate new markets, and eliminate overhead expenses in real-time. Big Data Analytics (BDA) renders various opportunities for SMEs to create a competitive strategic influence on decision making. Advanced data management and analytics drive growth for industries and companies. SMEs have proved themselves to be slow adopters of the new technology of BDA and are in danger of being left behind.

Scope of Big Data Analytics in SMEs : SMEs are under intense pressure to prove themselves against corporate giants. Large businesses are equipped with technology infrastructure

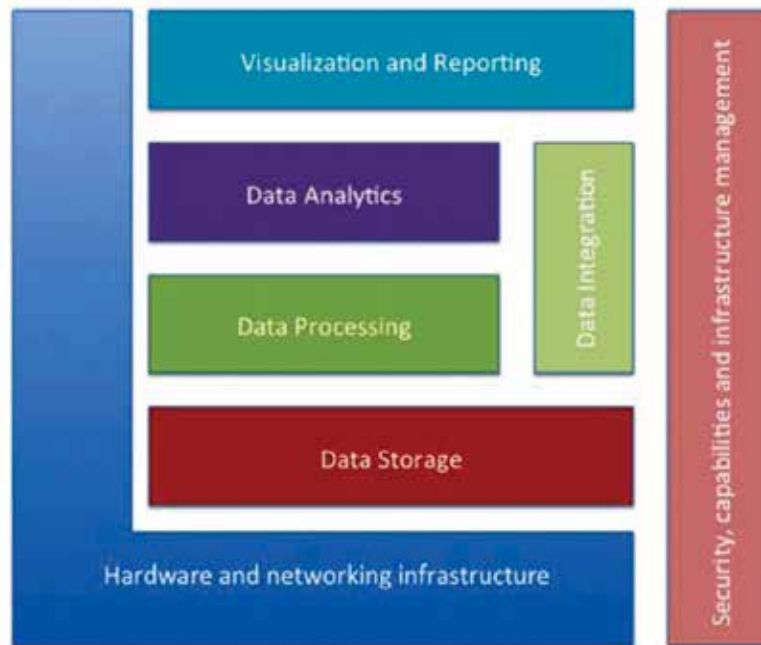


Figure 1: **Reference IT Architecture for Big Data Analytics;** S.Coleman et.al.

and operational abilities. They use these capabilities to harness actionable insights from data with analytics. On the other hand, SMEs are limited by constraints such as scale, storage, capital, and security. These factors leave a lasting impact, especially when technology is maturing at a rapid pace, and keeping up with change becomes challenging.

Apart from the large unawareness of Big Data potential for SMEs and general major concerns for data security and privacy, advocates reduced the challenges to six main points for SME growth:

- Ways to compete with enterprises & franchisees
- Inability to invest in customer acquisition
- Inability to manage supply chain, distribution & sales force
- Lacking timely insights into market movements
- Inability to deliver large order size with short cycle times
- Lacking Big Data expertise

Cloud technology and open source Hadoop systems for storage and computing are considered as cost-effective solutions in terms of hardware and software investments to process and analyze structured & unstructured data as well as reducing the total number of IT employee within the company. Also, reducing the focus on IT with intelligent business systems can lead SMEs to innovate hence, to growth. On the other hand, it takes us back to the privacy and security concerns. As SMEs create and store more transactional data in digital form, they can collect more accurate and detailed performance information on everything from product inventories to sick days, and therefore expose variability and boost performance. Big data allows ever narrower segmentation of customers and therefore much more precisely tailored products or services. McKinsey Global Institute's analysis report states that big data helps organizations to make more efficient demand forecasting, shaping and supply planning,

sensor data-driven operations analytics, "Digital Factory" for lean manufacturing, product sensor data analysis for after-sales service, concurrent engineering, design-to-value, crowd sourcing possible. (Manyika et al., 2011).

The future of the BDA industry looks bright. According to a NASSCOM report, the data analytics market in India is expected to touch \$2.3 billion mark in 2017-18. **SMEs have the perfect opportunity to restructure their tech knowledge and infrastructure to leverage large-scale benefits of BDA. Real-time and affordable cloud services facilitate SMEs across verticals to exploit BDA potential to their advantage. This is possible without making huge capital investments and by taking advantage of available cloud services to access data anywhere, anytime.** BDA offers the freedom and mobility of using technology to improve customer understanding and penetrate new markets. Adoption of BDA has paved the way for SMEs to outperform their peers and competitors. Cutting across industry lines, both established and new players are now leveraging data analytics for driving strategies and innovation. Now is the time to move to BDA and organizations should do this before the opportunity has passed!

Conclusion: Potentials and promises of Big Data are significant for SMEs. Big Data can offer SMEs by arriving at real-time solutions to challenges in every industry. Two reasons are: a) A small change in SMEs can have larger macro level effect due to their overall position in the economy; b) They have the advantage and flexibility for quicker adaptation to changes towards efficiency. The first step towards deriving benefits from Big Data Analytics is to embrace Cloud Storage of all transactional data. Modern analytics tools assist in building a serious strategy for collecting digital data and for harnessing the potential available through modern data analysis. ■

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- Through Mentor the Hero Program we are in the process of transforming orphan children into holistic individuals.

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Language, Arts & Culture



- Co-initiated Navyandhra Pusthaka Sambaralu, a festival to promote Books, Telugu language, Literature & Culture.
- 7 Lakh footfalls at Navyandhra Pusthaka Sambaralu across 7 major cities in Andhra Pradesh.
- Launched a prototype of NTR Museum. This museum attracted 35,000 visitors in 7 days.

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- Kurnool & Mahabubnagar Floods - Mobilized 54 medical teams. Rs. 15 crores worth of medicines, cloths, bed sheets relief provided.
- Uttarakhand Floods - 510 Telugu people were rescued & brought home safely through a special flight.
- HUD HUD Cyclone - food & safe drinking water to 45,000 people.

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Creating an Eco System for Quality – Contribution of EIA Consultant Organisation Scheme



Meenakshi
NABET

Over the last ten years the “*Scheme for Accreditation for Environment Impact Assessment (EIA) Consultant Organizations*” has evolved itself with interactions of stakeholders and guidance from eminent experts in the field. The journey of accreditation started with 20 EIA consultants and has reached now to 182 EIA consultants spread over all parts of India. It includes public sector units, private companies, partnership firms, Universities and Research Institutes. Accreditation assures Competency, Capability, Credibility, System-oriented approach and Continual Improvement of the Organisations.

Accreditation Scheme has identified the capable consultants in the field of EIA. For the first time in the country, a list of capability verified EIA Consultant Organizations has been made available in public domain (<http://nabet.qci.org.in/Environment/&http://environmentclearance.nic.in/>) with sectors of expertise, category, contact details etc. Industries also feel comfortable in giving work to Accredited Consultant

Organisations. The EIA Consultant Organisations are approved in **Category A and Category B**.

Category ‘A’ EIA Consultant Organisations are capable of executing Cat A & B EIA projects (as per EIA notification & subsequent amendments) and Category ‘B’ that is capable of executing Category B EIA Projects. These categories keep on changing based on their performance during the assessment period.

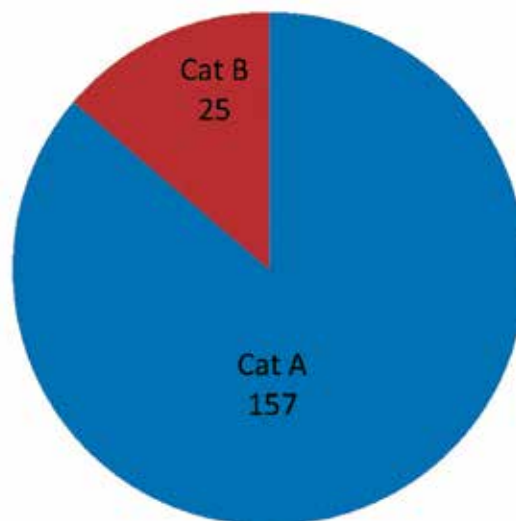
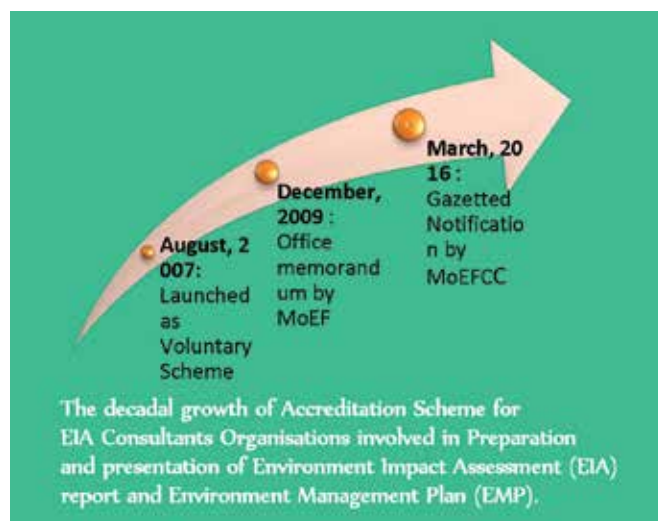
MoEF&CC has notified the Accreditation Scheme dated March 3, 2016. Improvement in quality of EIA reports was the main objective of MoEF & CC while introducing the provision of accreditation of environmental consultants. The Scheme has contributed in:

- Improving the Quality of EIAs
- Skilling India

Quality of EIAs:

A well-executed EIA for projects helps in addressing the environmental aspects in a proactive way during the project life cycle – site selection, construction and operational stages. EIA gives environmental and social considerations and its due place in the decision-making process by clearly evaluating the consequences of the proposed activity before action is taken. Good quality EIA /EMP (Environment Management Plan) report is a pre-requisite for grant of environmental clearance.

There still remains a gap between the quality of EIAs being prepared and that is desired. MoEF&CC has mentioned the contents of EIA in the EIA Notification of 2006 and also developed the Guidance Manuals for all 39 sectors. However, many a times the quality of EIAs being prepared in the country falls short of the mark because of the following reasons:



Statewise distribution of Accredited EIA Consultants in India

S.No	State	No of Consultants
1	Jammu & Kashmir	1
2	Delhi	12
3	Punjab	2
4	Haryana	12
5	Tamil Nadu	12
6	Telangana	19
7	Maharashtra	29
8	Gujarat	21
9	Rajasthan	16
10	Uttar Pradesh	19
11	Jharkhand	6
12	Odisha	5
13	Madhya Pradesh	3
14	West Bengal	7
15	Assam	2
16	Karnataka	8
17	Kerala	3
18	Uttarakhand	1
19	Goa	1
20	Andhra Pradesh	3

- Poor or inaccurate site description
- Terms of reference are partially complied
- Integrity of data in terms of status of baseline data
- No proper interpretation of data in respect of probable impacts from the project
- Generic mitigation measures

- Ineffective monitoring plan
- Unsatisfactory response to public concerns


QCI-NABET has played an important role in improving the quality of EIAs. Minimum two EIA reports prepared by an accredited consultant undergo in-depth scrutiny by NABET Assessors during the assessment process. There is a 10-point criterion for assessing the quality of EIAs by QCI-NABET. Most of the EIA Consultant Organisations show improvement in their EIA reports during subsequent assessments by implementing assessment findings.


Skilling India

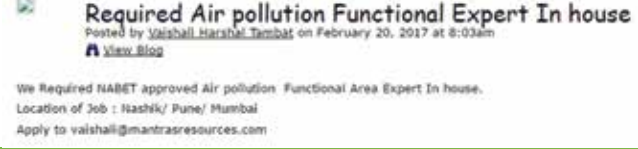
After the 1st EIA Notification, it was a new field of specialization in the country and not many competent agencies were available to take up such studies. In fact, many consultants and even individuals were preparing the EIA reports without having the requisite expertise, competence and resources. Scheme identified 12 essential areas like Solid waste, Air pollution, Water pollution, Land use, etc. and emphasized the need of different field experts to fulfill the requirement of an EIA. This has created demand over time and lead to entering of people in this profession.


Crucial concept of team work has ultimately strengthened the EIA preparation process in the country. Today, most of the EIA Consultant Organisations have all requisite Human resource as per Scheme requirements. This Scheme has created multiple job opportunities and has given recognition to Human Resource at all levels. It involves people of all age group from 24 to 80 years. In India, approximately 4000 approved experts are involved in preparation of EIA reports. The important role of team work by the 'EIA Coordinator' (EC) and 'Functional Area Experts' (FAEs) for preparation of quality EIA. We are happy to mention that approximately 1000 ECs and 2500 FAEs are with us who got approved through a rigorous process of assessment which involved in-house and empanelled experts. FAEs are specialists and subject knowledge is their focus. NABET accreditation has created demand for people in the field of environment as shown below.

QCI-NABET is continuously working towards capacity building through workshops on Quality of EIAs, Accreditation Scheme and Quality Management Systems and online training programmes. ■











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Popular Advanced Materials



Dr. S.K. Mishra
A.K. Jha and Samra Khan
NABET

The approach to excel in manufacturing of new products following the concept of Industry 4.0 is being widely followed by the big players in the world. To ease the development of commercially viable products and devices, the technological exploitation of advanced materials (also popularly known as smart materials) in Industry 4.0 revolution has become a necessity as well as an art.

Smartness is appreciated everywhere and machines are not exception. Any machine can be made smart by employing actuators, sensors and control system. Actuator is a transducer that transforms to drive energy into a mechanical displacement 'or' force. In addition to the conventional actuation systems such as pneumatic and hydraulic systems, mechanical actuation systems and electrical actuation systems, the demand for new actuators have increased significantly in recent years especially for positioner, mechanical dampers and miniature motor applications. Actuator that operates by means of a mechanism different from those found in the conventional AC/DC electromagnetic motors and oil/air pressure actuators are generally classified as "new actuators". They are also called as *solid state actuator* because most of the new actuators are made from some type of solid material with properties specifically tailored to optimize the desired actuation function. We can easily analyze that how the actuators based on materials (smart materials) are superior to conventional actuators in terms of response time and accuracy.

The Lead Material (smart composition system)

Piezoelectric ceramics are the backbone of smart systems and structures. Over

the last several decades, smart materials with Morphotropic Phase Boundary (MPB) characteristics such as $\text{Pb}(\text{Zr}_{1-x}\text{Ti}_x)\text{O}_3$ (PZT) and $(1-x)\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})-x\text{PbTiO}_3$ (PMN-xPT) have dominated the sensor, transducer and actuator industry due to their ultrahigh piezoelectric response obtained for the compositions around MPB. Despite 'Pb' being toxic, the Pb-based MPB ceramics have dominated the sensor, transducer and actuator industry over the last several decades due to the unavailability of the lead free piezoelectric materials with responses comparable to or better than their Pb-based counterparts. The MPB compositions of PZT are very attractive for designing various actuators, electronic sensors, capacitors and piezoelectric transducers due to their high dielectric and piezoelectric response.

Actuators of new era based on Smart PZT system

These actuators may be classified into two categories based on the type of driving voltage applied to the device and the nature of the strain induced by the voltage i.e. (i) rigid displacement device for which the strain is induced unidirectional along an applied dc field and (ii) resonating displacement device for which the alternating strain is excited by an AC field at the mechanical resonance frequency (ultrasonic motors). The first can be

Input Parameter	Actuator Type/Device
Electric Field	Piezoelectric/Electrostrictive Electrostatic (Silicon MEMS)
Magnetic field	Magnetostrictive Magnetorheological fluid
Stress	Rubber actuator
Heat	Shape Memory Alloy
Light	Photostrictive
Chemical	Mechano-chemical Metal-Hydride

Table 1. *New actuators classified in terms of input parameter*



Fig. 1. *Piezoelectric transformer as a high voltage inverter for the LCD backlight.*

further divided into two types: servo displacement transducers (positioners) controlled by a feedback system through a position detection signal and pulse drive motors operated in a simple on/off switching mode.

After two decades of intensive research and development of solid state actuators/transducers, the focus has gradually shifted to applications. Various examples in this category like piezoelectric shutters (Minolta camera), automatic-focusing mechanisms in cameras (Canon) can be discussed. Starting from dot matrix printers (NEC), we have now inkjet printers (Epson) and cell phones where they are extensively in role. These are some of the examples to which we interact in our day-to-day life. These actuators have also great impact on air forces particularly in aircrafts where they are used to control the vibrations of the aircrafts. Smart systems are those, which have both sensor and actuator with a control system. An automatic modulated automobile shock absorber developed by Toyota Motors using both a multilayer piezoelectric sensor and actuator is another example. In the current period, advanced PZT systems are under extensive application in producing step-down and stem up transformers.

Concluding Remarks

Most of the current commercially available piezoelectric materials are ferroelectric polycrystalline ceramics, such as BaTiO_3 and PZT. These ceramics materials are easier to fabricate than single crystal and also exhibits the high piezoelectric and dielectric properties which make them useful to be widely exploited for practical actuator and sensor applications. These materials are basis of the development of advanced materials which are being found to be an important ingredient for Industry 4.0. We shall come forward with another set of advanced materials in the next issue of Quality India. ■

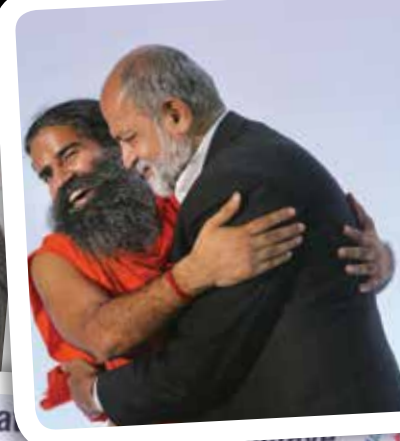
Author SKM has extensively contributed in developing PZT smart materials as a researcher as well as a Technopreneur for the indigenous prototype development of piezo stepdown transformer under Technopreneurship Promotion Programme (TePP) of DSIR, Government of India.

(To be continued)

A peep into



Conclave 2017



The Dynamics of Jidoka and Disruptive Automation vis-a-vis Manufacturing in India



Abhinav Bajaj
Executive Officer, NABET

Research based on World Bank's data states that the proportion of jobs threatened in India due to Automation stands at 69% and in China at 77%. It clearly signifies that the traditional route for a developed country – to move from an agrarian economy to light manufacturing and then to full scale industrial manufacturing – could soon not be possible for developing countries like India. A deeper understanding as to the impact on the most vulnerable domains of work in an Indian manufacturing setting is required to assess and accordingly brace for impact.

If we study figure 1 (source: McKinsey Global Institute), we can observe that even though India is poised to lose out almost \$1.1 trillion jobs, compared to other economies, it still has the advantage of low labour cost. A white paper from the BRICS Skill Development Working Group pegs India's hourly compensation cost in manufacturing at \$1.9 versus \$11.9 in Brazil, \$2.5 in Russia, \$6.4 in China and \$5.8 in South Africa. Therefore, our labour arbitrage still stands and will not be lost overnight.

However, we must begin to understand that with regards to manufacturing sector, the majority of job losses are in lower-level jobs requiring little to no

skill and in most cases involve long-hours of repetitive work. Still, it is imperative to sit up and take notice of the trend of robotics and automation creeping up in use and becoming more and more 'cost-effective'. The emergence of low-cost robots with a quicker payback period will accelerate adoption. To quote Shripad Ranade, Practice Head of Automotive, Engineering & Infrastructure at TATA Strategic Management Group, "Robots did not cost less than Rs.10-15 lakh; now, they cost Rs.5 lakh. They will not be as good but they will be better than having no robotics." He says, "Manufacturers will consider installing lower-cost robots with a payback period of two to three years compared to expensive ones that have a payback of six to seven years". Companies such as TAL Manufacturing Solutions Limited, a subsidiary of TATA Motors, has developed a low-cost robot, BRABO, specifically for small and medium enterprises, paving way for future disruptive innovation.

Figure 2 shows the growing technological intervention in our lives and a detailed insight into its impact on future jobs.

All signs point towards the inevitability of automation becoming a daily part of our workplace. Coincidentally, a known Japanese technique by the name of **Jidoka or Autonomation** could provide an insight into turning with the tide and better preparing ourselves for the rising giant that is automation.

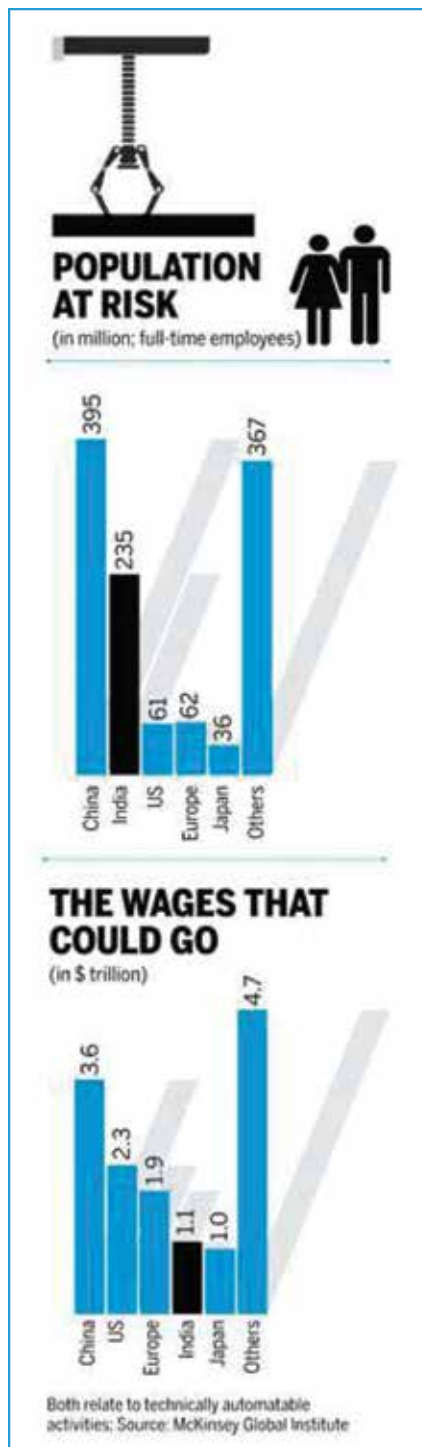
Jidoka or Autonomation

To understand **Jidoka or Autonomation**, we must briefly understand the history of the industrial world. The industrial world has seen a rapid change in manufacturing practices over the past years from the mould systems which produced single pieces at a time to modern manufacturing lines that produce mass volumes per

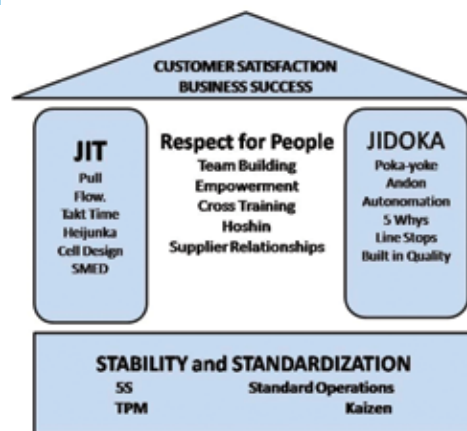
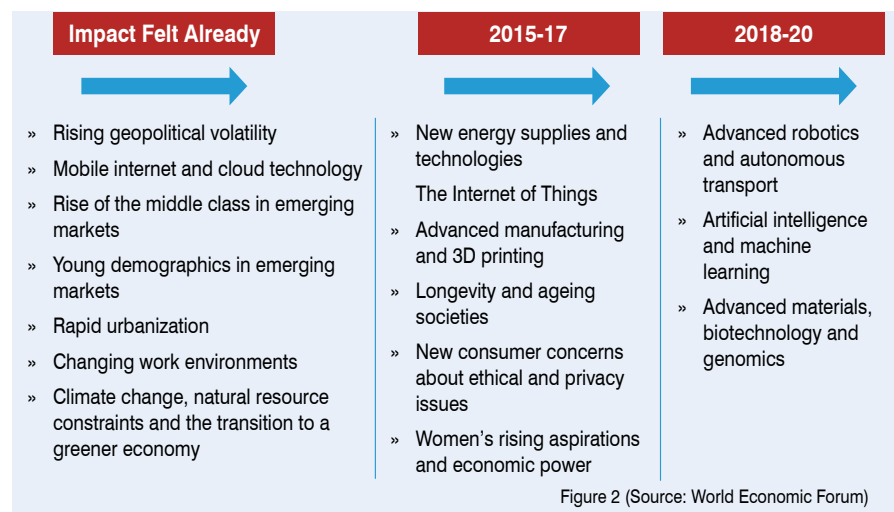
day. The last time the world witnessed a revolution in manufacturing systems was in 1913 when the world came to Detroit to see Henry Ford's line. Today, manufacturing has advanced, and industry has reached a point where products can be manufactured in production sequences that usually involve less or no human intervention from start to finish in a process called **automation**.

In Industry 1.0 and Industry 2.0, the operator can be perceived as a commander. He was to manage everything, the machines, the cutting tools, measurement devices and so on. In Industry 3.0, he can be thought of as a captain because he told the machine, 'I want you to do this using this software'. In Industry 4.0, the operator is like a conductor; he communicates to the machine. The machine talks back to him and uses the data to improve the process. But being a conductor isn't that easy. It requires a deep understanding of both new technology and of the processes and the ability to handle unforeseen deviation.

The term "**Autonomation**" is a combination of autonomy and automation. It implies the independence of automation or allowing a process to be able to make its own decisions, thereby giving it a human touch. The **autonomation** process is a conversion from manual processes to the use of complex manufacturing systems, presenting long-term benefits with the application of lean principles. This has been improved over the years to enable these automated lines to do a type of self-diagnosis when a problem arises. This self-diagnosis as a quality control measure among automated lines is what is commonly referred to as **autonomation**. Developed in the 1930s under the umbrella of the **Toyota Production System (TPS)**, it is one of the pillars of the Lean Manufacturing. It targets to separate the workers from the machines



by way of automated mechanisms that detect abnormalities or deviation from procedure. The worker is relieved from judging whether the operation being run is normal and instead focuses on the deviation flagged by the running machine.



Thus the need of the worker remains as he maintains his relevance by developing an expertise, a skill in mastering course-correction of the machine. It endorses the 'Ludite Fallacy' i.e. technology doesn't kill jobs; it changes the composition of jobs.

Shigeo Shingo, the authority on TPS, declared that there are 23 stages between purely manual and fully automated work. A fully automated machine will be able to self-detect and correct its own problems which is currently not cost-effective. 90% of the benefits of full automation can be gained by autonomation. **It is here that the role of the shop floor personnel and his skill in handling deviation becomes increasingly relevant.** His competency in managing irregularities will ensure his place on the shop floor, although with industry 4.0, the functions that constitute his job could change.

What can India do?

Shop floors in India requires a new type of collaboration between the IT guy, who has no idea how the process works, and the assemble guy who knows exactly how the operation works but has no idea about the IT equipment. They have to come together, embrace Industry 4.0 and use statistical methods in the process. We might need less shop floor workers in future but we will definitely need skilled workers. India is set to go through an adjustment phase before the current generation of workers is retained or up-skilled and the skilling approach is adopted from the top-down. More courses on robotics, 3D printing, machining, mechatronics, or technology combining electronics and mechanical engineering, are the need of the hour at least in the manufacturing sector. "We need people who can manage, maintain and monitor machines; not people who can work on it. The skill development ecosystem, starting from ITIs and before is to come together to make this a reality.

Sources:

- "Autonomation: The Future of Manufacturing" by KwabenaBoakye-Adjei, RavindraThamma& E. Daniel Kirby, Central Connecticut State University
- Wikipedia
- <http://leanmanufacturingtools.org>
- <http://www.businesstoday.in> ■

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Quality fun time



12th National Quality Conclave Receives Mainstream Media Attention

The 2017 conclave for the Quality Council of India was a two-day event where experts from across sectors came together on a common platform to discuss the issue of quality services for the Indian citizen. As India is poised on the verge of emerging as one of the financial giants in the global economy, its vibrant and rapidly growing markets, and huge population of young, working-age adults, makes it the future manufacturing hub. With the added impetus on “Make in India”, it is the best time to remind the nation that productivity needs to go hand in hand with quality of work, otherwise it may result in a short-lived glory. The QCI’s Conclave focused on how to bring quality services across sectors to the Indian citizens, and the message resonated with all the stakeholders. This was reflected in the wide media coverage that the conclave received, including prominent pieces in mainstream- print, electronic and online: the theme of this year’s conclave was **‘Leveraging Quality to Drive Economic and Social Development’**

The media was involved throughout the event in the conclave and provided an avenue to transmit the discussions and recommendations that were being thrown up in the course of the events, packaged in a manner that would make it accessible to everyone. The coverage spanned all the media forms – digital, television, print, online and there was a significant buzz around the conclave, which was picked up by media houses. This was not only validating of the fact that the general populace is interested in the quality related issues of the services they access, but also reflective of the fact that the event and QCI’s vision for the conclave was also shared by the citizens of the nation.

All together QCI’s conclave coverage was spanned all



the media form in day one and day two, the news was picked up by several major, mainstreamed media houses including HT Media, NDTV, Hindustan Times, Times Now, ABP News, ZEE News, Business standard, India Today, Yahoo News, Outlook, Business Standard and NDTV, to name a few.

Dr. RP Singh, secretary General QCI was quoted in the ANI, Newsxior, The Hans, Yahoo News, Business Standard, Outlook, Sify Finance, IBTN9 to name a few.

QCI secured print coverage, as well as online coverage, Dr. RP Singh, Secretary General quote has been carried in various clips, photograph shared was carried by leading publications, apart from this, electronic coverage has appeared in CNBC Aawaaz Total TV, DD News, ANI and ETV.

It was not just bytes and TV screen time though, and the conclave also threw up several moments that were worth capturing on the film. The IANS photo and Newsxior and United News of India website highlighted several clickable moments from the two-day policy extravaganza.

On this momentous occasion, Dr RP. Singh, Secretary General, QCI, said
“Over the last two days, the body of knowledge that participated in the 12th NQC was immense. The deliberations gave a progressive pathway for India to steer its growth not only economically but also keeping the social development as the bedrock of a new developed India. We discussed how the demographic dividend can become a strength and how employment can be generated through innovative schemes which India has embarked upon over the last few years. QCI wants to touch the life of every citizen of the country and make quality a demand-driven initiative in every walk of life and every sector of economic development.”

indiatoday NEWS LIVE TV

Human body designed to last 400 years: Ramdev

September 22, 2017 11:00 AM IST

New Delhi [India] Sep 22 (PTI): Yoga guru Baba Ramdev said the human body is designed to last 400 years, but faulty lifestyle is the reason for its premature demise.

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NewsVair Quality Council of India

Quality Council of India Hosted the Culmination of its '12th National Quality Conclave'

The second day was again a roaring success amongst industry leaders

Nov 23, 2017 11:00 AM

12th National Quality Conclave

27-28 Nov 2017

Quality Council of India

The Telegraph Press Release

NewsVair

Quality Council of India to Host its '12th National Quality Conclave'

New Delhi, Sep 19, 2017

The Quality Council of India (QCI) is pleased to announce that it will host its 12th National Quality Conclave on 27-28 September, 2017 at Hotel Le Meridien, New Delhi. The theme 'Leveraging Quality to Drive Economic and Social Development' reflects the commitment of the Council towards creating a quality culture in the country.

जामरुण

रेल लाइनों के विद्युतिकरण को तेज करने पर हो रहा काम: गौयल

पिप्लू आई बी

news

Quality Council of India Hosted the Culmination of its '12th National Quality Conclave'

Quality Council of India hosted the culmination of its 12th National Quality Conclave on 27-28 September, 2017 at Hotel Le Meridien, New Delhi. The theme 'Leveraging Quality to Drive Economic and Social Development' reflects the commitment of the Council towards creating a quality culture in the country.

Business Standard

Human body designed to last 400 years: Ramdev

New Delhi [India] Sep 22 (ANI-NewsVair): Quality is known for its ability to simplify the nation's economic and social development, and QCI has extended this fact by successfully hosting the second day of its 12th National Quality Conclave.

Outlook THE NEWS SCROLL

Quality Council of India hosted culmination of its '12th National Quality Conclave'

New Delhi [India] Sep 25 (NewsVair): Quality is known for its ability to simplify the nation's economic and social development, and QCI has extended this fact by successfully hosting the second and final day of its 12th National Quality Conclave.

Quality Council of India hosted culmination of its '12th National Quality Conclave'

IBTN

Quality Council of India hosted culmination of its '12th National Quality Conclave'

newKerala.com

Quality Council of India hosted culmination of its '12th National Quality Conclave'

FINANCIAL EXPRESS

Human body designed to last 400 years, says yoga guru Baba Ramdev

The human body is designed to last 400 years, but faulty lifestyle is the reason for its premature demise, says yoga guru Baba Ramdev.

National Quality Conclave

Coal quality has significantly changed from last three years: Piyush Goyal

Piyush Goyal

Quality Council of India hosted culmination of its '12th National Quality Conclave'

HANS INDIA

Quality Council of India Hosted the Culmination of its '12th National Quality Conclave'

The second day was again a roaring success amongst industry leaders

indiatoday NEWS LIVE TV

Railways looking at ways to speed up electrification process

HTDS

Quality Council of India Hosted the Culmination of its '12th National Quality Conclave'

HEALTH FOUNDATION BAGS AWARD

New Delhi: The Public Health Foundation of India (PHFI), the country's largest public health advocacy group, has been awarded the prestigious QCI-DL Shah Platinum Award for skill building initiatives for primary care physicians in chronic conditions in the healthcare sector during the inaugural session of the 12th National Quality Conclave here.

NewsVair Quality Council of India

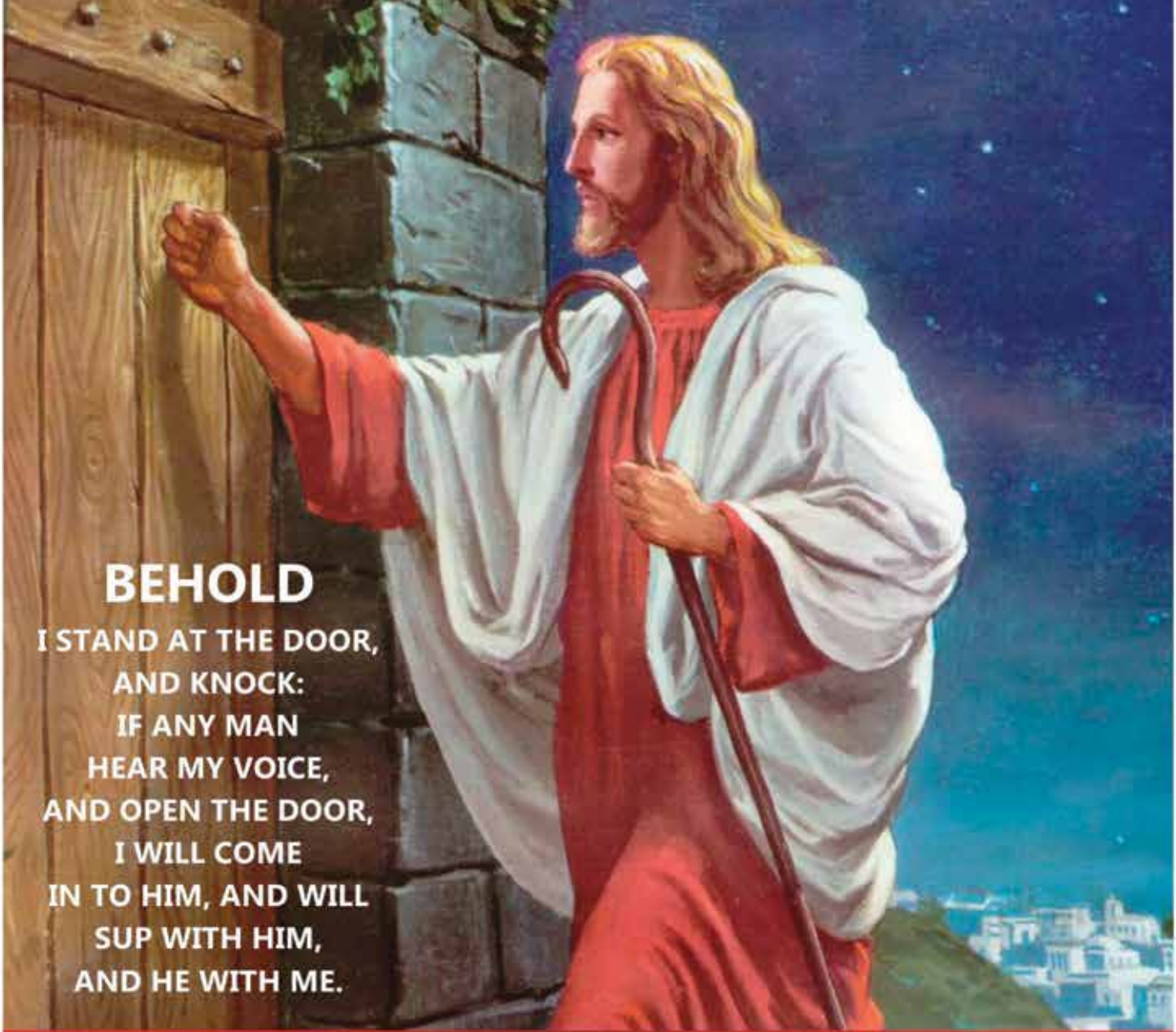
Quality Council of India Hosted the Culmination of its '12th National Quality Conclave'

The second day was again a roaring success amongst industry leaders

FREE PRESS

Quality Council of India Hosted the Culmination of its '12th National Quality Conclave'

The second day was again a roaring success amongst industry leaders



BEHOLD

I STAND AT THE DOOR,
AND KNOCK:
IF ANY MAN
HEAR MY VOICE,
AND OPEN THE DOOR,
I WILL COME
IN TO HIM, AND WILL
SUP WITH HIM,
AND HE WITH ME.

PSALM 122

The peace of Jerusalem

A song of degrees of David.

1. I was glad when they said unto me, Let us go into the house of the lord. Is 2:3; Zech. 8:21
2. Our feet shall stand within thy gates, O Jerusalem.
3. Jerusalem is builded as a city that is compact together: See 2 Sam. 5:9
4. Whither the tribes go up, the tribes of the Lord, unto the testimony of Israel, to give thanks unto the name of the Lord. Ex 23:17; Deut. 16:16; Ex. 16:34
5. For there are set thrones of judgment, the thrones of the house of David. Deut 17:8; 2 Chr. 19:8
6. Pray for the peace of Jerusalem: They shall prosper that love thee. Ps. 51:18
7. Peace be within thy walls, and prosperity within thy palaces.
8. For my brethren and companions' sakes, I will now say, Peace be within thee.
9. Because of the house of the Lord our God I will seek thy good. Neh. 2:10

PSALM 121

Help from the Lord

A song of degrees.

1. I will lift up mine eyes unto the hills, from whence cometh my help. Jer. 3:23
2. My help cometh from the Lord, which made heaven and earth. Ps. 124:8
3. He will not suffer thy foot to be moved: he that keepeth thee will not slumber. 1 Sam. 2:9; Ps. 127:1; Is. 27:3
4. Behold, he that keepeth Israel shall neither slumber nor sleep.
5. The Lord is thy keeper: the Lord is thy shade upon thy right hand. Is. 25:4; Ps. 16:8
6. The sun shall not smite thee by day, nor the moon by night. Ps. 91:5; Is. 49:10
7. The Lord shall preserve thee from all evil: he shall preserve thy soul. Ps. 41:2
8. The Lord shall preserve thy going out and thy coming in from this time forth, and even for evermore. Deut. 28:6

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INTERNATIONAL MINISTRY OF MINISTERS

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RIGHTEOUSNESS EXALTETH A NATION



National Accreditation Board for Testing and Calibration Laboratories

International Recognition of NABL

NABL is a full member and Mutual Recognition Arrangement (MRA) Signatory to International Bodies, Asia Pacific Laboratory Accreditation Cooperation (APLAC) and International Laboratory Accreditation Cooperation (ILAC) since the year 2000. Such international arrangements facilitate the acceptance of test reports issued by NABL accredited CABs with other MRA signatories. The MRA status is based on the peer evaluation of an Accreditation Body once in every four years in accordance with

procedures detailed in the relevant APLAC/ ILAC documents.

NABL had undergone five APLAC evaluations in the years 2000, 2004, 2008, 2012 & 2016 and all were completed successfully without any concern. In the year 2016, NABL attained the MRA signatory status for the Proficiency Testing Providers (PTP) and Reference Materials Producers (RMP) schemes along with extension in the existing fields of Testing and Calibration.

In order to achieve the objective of the acceptance of test/

calibration data across the borders, NABL operates and is committed to update its accreditation system as per international norms. ILAC/ IAF jointly organises annual meetings wherein significant number of Committees, Task Forces, and Working Groups come together and elaborate on implementation of key work items for both organizations. 2016 ILAC/IAF Joint Annual meetings were held in New Delhi and this year it was held in Vancouver, Canada. NABL regularly participates in these Joint Annual meetings which provide an opportunity for IAF and ILAC peers to interact face-to-face with stakeholders from diverse backgrounds along with liaison partners.



AWARENESS PROGRAM FOR POLLUTION CONTROL BOARD

Awareness program for Pollution Control Board

NABL joined hands with CPCB and organized four awareness programs with Pollution Control Boards and Pollution Control Committees on 10th August 2017, at CPCB Regional Directorate, Nisarga Bhawan, Bengaluru; 24th August 2017 at Hotel Critine, Bhopal; 12th September, 2017 at Meghalaya State Pollution Control Board, Shillong and 18th September, 2017 at Gujarat Pollution Control Board, Gandhinagar to meet the growing challenges and concerns raised due to pollution.

Technical sessions emphasized on benefits of accreditation and detailed about importance of mutual acceptance of test results and measurement data across the borders. The programs



Awareness program for Pollution Control Board

served as a platform for National / Regional stakeholders in the pollution monitoring domain to exchange their ideas.

Proficiency Testing Providers (PTP) & Reference Material Producers (RMP) Conclave 30th – 31st August 2017



An exclusive two-day conclave for accredited/applicant PTP and RMP was conducted for the first time on 30th & 31st August 2017 at Hotel Radisson Blue, Dwarka, New Delhi. The conclave served as a forum for PTP, RMP and various other stakeholders to exchange views and share experience. All the accredited PTP/

RMP organizations utilized this opportunity to showcase their proficiency testing schemes and reference material production plans. Top three presenters were rewarded for sharing their experiences.

Awareness program for Drugs and Pharma Sector



To habituate Drugs & Pharma Sector with quality compliance by self-regulation, NABL had organized the first awareness program as per ISO/IEC 17025:2005 on 24th July, 2017 at St. John's Medical College, Bangaluru. The program was graced by State Drugs Controllers (Ex. DC, DDC & ADC), CDSCO, Drug Inspectors and representatives from Indian Pharmacopoeia Commission. The program comprised of interactive and informative sessions on ISO/IEC 17025: 2005, NABL and its accreditation process.

Seminar on 'Laboratory Accreditation and Perspective from Government, Regulators and Industries' and Interactive Meet at Kathmandu, Nepal

As an outcome of SAARC-PTB MoU the concept of NAFP was introduced in the SAARC region. To strengthen accreditation infrastructure in Nepal, nine applicants/ accredited laboratories including their NMI along with three Assessor's training courses has been done by NABL. Taking this forward a seminar on 'Laboratory Accreditation and Perspective from Government, Regulators and Industries' was conducted by NABL, Marketing Wing in coordination with NBSM, Nepal on August 01, 2017 at Kathmandu, Nepal and CEO, NABL had an interactive meet with the officials of Nepal Bureau of Standards & Metrology (NBSM), Nepal with an aim to address the issues encountered by the accredited laboratories in Nepal and educate the applicant laboratories on 02nd August, 2017.



Awareness Program on Mass Metrology

A national level awareness program on mass metrology was jointly conducted by NABL and Legal Metrology from 12th July to 14th July 2017 at Gurugram for 50 participants of Legal Metrology- Weight and Measure, Department of Consumer Affairs.

The program was focused on calibration and uncertainty measurement of Mass, Balance and Volume. The gathering was also apprised about NABL accreditation Process and requirement of various forms and formats. Furthermore Mass, Balance and Volume theory along with practical calibration was explained by the experienced faculty



Seminar on “Accreditation: Tool for Global Acceptance of Solar and Allied Products”



Government of India has targeted for (175 GW) renewable power generation by 2022 as volume of business is expected to increase wherein quality checks play significant role in solar PVM production and allied products.

The objective of the Seminar was to encourage the use and acceptance of renewable energy (Solar) products/ resources by common man. The seminar deliberated on present scenario of conformity assessment structure in India and the way forward to accreditation of PV Module and allied products. NABL plans to initiate a joint venture with Ministry of New and Renewable Energy (MNRE) for laboratory accreditation to strengthen the reliability, durability and acceptance of Solar Products, which in turn would minimize the risk factor of onsite failures.

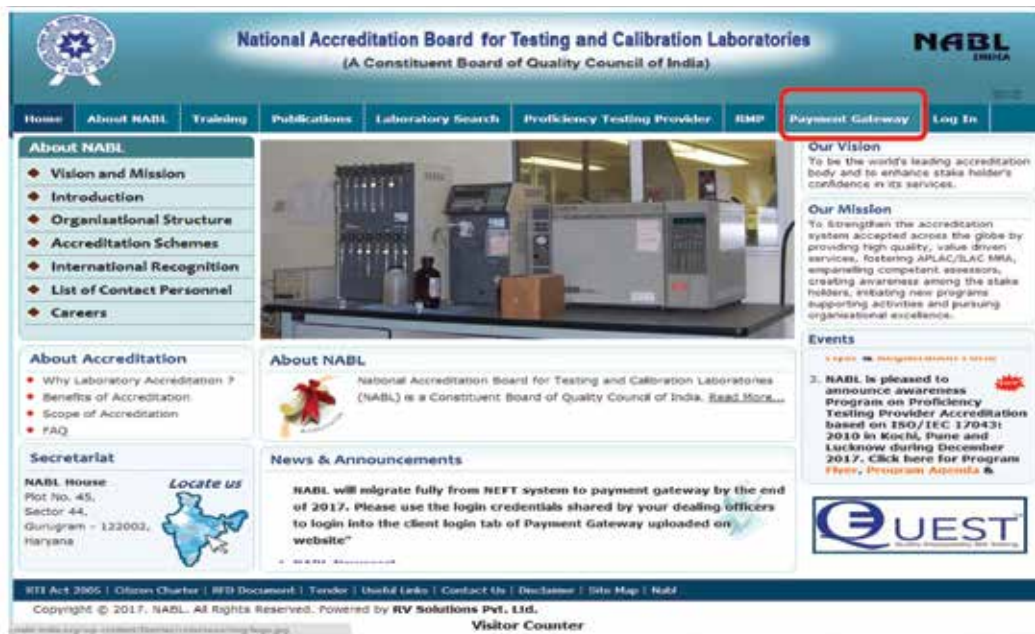
NEW INITIATIVES BY NABL

NABL introduces Payment Gateway

To facilitate our stakeholders in terms of making payments, NABL has developed payment gateway through HDFC bank. The gateway has been uploaded on NABL website. It is planned to migrate completely from NEFT system to payment gateway by the end of 2017. Individual User ID and Passwords will be shared with CABs.

NABL has modified its procedure by introducing condition 7, clause 4.4, NABL 216 which states “non-payment of outstanding amount of the Accreditation/ Membership fees or assessment charges or any charges for over 3 months in response to the bills raised by NABL would put the accreditation status of laboratory under ‘Abeyance’”.





New Format of NABL Accreditation Certificate

NABL has introduced a major change in the Accreditation Certificate being issued to the accredited Conformity Assessment Bodies (CABs).

NABL being the Constituent Board of Quality Council of India (QCI) has incorporated QCI logo in the accreditation certificate.

Also, International Laboratory Accreditation Cooperation (ILAC) has permitted the use of ILAC MRA mark by NABL and the same has been integrated in the NABL accreditation certificate.

Further, to differentiate the certificate number and the CAB ID, NABL has prefixed TC, CC, MC, PC and RC for Testing, Calibration, Medical Testing, Proficiency Testing Provider and Reference Material Producers for the Accreditation Certificates respectively.

The above changes have lead to issue of new accreditation certificates to the accredited CABs. This transition in certificate number is underway. A time of six months is being given to the CABs to switch over to the stationary printed with the new certificate number.

In addition, this system aims to reduce the circulation of fraudulent NABL accreditation certificates in the market. Now by scanning the QR Code printed on the Main Certificate, the scope of the accredited CAB can be instantaneously extracted and verified from NABL website.

Besides these advantages, QR code system is envisioned to make the accreditation certificate process paperless and environment friendly in near future.



Measurement Audit

NABL has started 'measurement audit' for radiography testing in Non-Destructive Testing field. Measurement Audit is an effective tool to enhance the confidence of end-users in NABL accredited laboratories. Measurement audit aims to ensure continued compliance & confidence in test results issued by NABL accredited Non Destructive Testing labs for radiography testing. Proficiency testing including measurement audits is an important means used by accreditation bodies to ascertain the technical competence of laboratories





National Accreditation Board for Certification Bodies

NABCB undergoes PAC Re-evaluation for FSMS & ISMS

The Pacific Accreditation Cooperation (PAC) conducted re-evaluation of NABCB for the Food Safety Management Systems (FSMS) and Information Security Management Systems (ISMS) accreditation programmes in the week starting from 13 Nov 2017. PAC peer evaluation was carried out by a 2-member peer evaluation team led by Mr Fei Yang from CNAS, China, and Ms. Melissa Yeh from TAF, Taiwan as the other team member. PAC team also comprised of Mr. Khumrak Narathip as Trainee Evaluator and Ms. Loawattanatrakul Wimaluck as Observer. NABCB underwent this PAC re-evaluation successfully as no non-conformity was raised.



PAC Peer Evaluation Team with NABCB Team

Presentation to Hon'ble Minister of Commerce & Industry on Standards and Technical Regulations

Mr. Anil Jauhri, CEO, NABCB gave a presentation to Ms. Nirmala Sitharaman, the then Hon'ble Minister for Commerce & Industry (CIM) on Standards & Technical Regulations in a meeting held on 03 July 2017, where top officials from various other manufacturing ministries /departments/regulators were present. As a result of this meeting, number of initiatives have been identified relating to standards, technical regulations and conformity assessment, the major one being to establish regulations for identified products especially those that are being currently imported in the country to bridge the regulatory deficit India has, leading to free flow of goods in Indian market without any health or safety requirements. It is expected that keeping in view the revised BIS Act, 2016, these regulations would increasingly rely on 3rd party conformity assessment and NABCB (and NABL) accreditations. One such initiative taken was to amend the Import Policy on Toys and the same has since been notified by DGFT.

CIM took follow-up meetings on 25 July and 1 Sept 2017 and some important decisions were taken as follows:

- India should not accept foreign accreditation/conformity assessment automatically in its regulations unless there is a national need and such acceptance should be based on reciprocal acceptance through G-to-G agreements
- India's participation in international standards setting should be governed by expertise and continuity and concerned

Ministries/organizations should identify experts – whether from Govt. or industry or individuals – and find ways of funding them

- Instead of product-by-product regulation, approach of regulating by product category should be adopted
- In identified areas, Indian regulators should conduct on-site audits overseas as other regulators do in India

NABCB signs MoU with International Accreditation Service, USA

NABCB signed an agreement with the International Accreditation Service, an accreditation body in USA, on 15 Sept 2017 to promote each other's accreditation globally to facilitate international trade, to work together in harmonizing accreditation practices as well as to have stronger cooperation in accreditation between the two internationally recognized accreditation bodies such as in conducting joint assessments, sharing assessors / technical expert, participation in each other's assessor workshops etc. NABCB is in dialogue with few other foreign accreditation bodies for MoUs / agreements, especially in order to have joint assessments in India for accreditations they do here.

Training on ISO/IEC 17021-1 Standard in Bhutan

NABCB conducted a 3-day training on ISO/IEC 17021-1:2015 for Bhutan Standards Bureau in Bhutan during 02-04 August 2017. 18 participants from BSB attended this training. The faculty for training were Mr. Anil Jauhri, CEO, NABCB and Ms. Shobha Hegde, Lead Assessor, NABCB. The main aim of this training was

to build BSB's capacity and to strengthen its capability to implement the requirements of the standard. This training is a part of the support which India provides in SAARC region. NABCB received overwhelming feedback from BSB on the training.

Training on Global G.A.P. and Bangla G.A.P.

NABCB conducted a 4-day training programme at Dhaka, Bangladesh during 08-12 August 2017 covering GlobalG.A.P. as well as BanglaG.A.P. scheme under a project assigned by FAO. A total of 39 participants attended the training programme. The training faculty was provided by NABCB and was conducted by Mr. P. Sainath Naidu, Lead Faculty and Mr. K. Dinesh Menon, Faculty. The training material and the faculty for the training were highly appreciated.



Mr. Anil Jauhri, CEO, NABCB making presentation to the then Hon'ble Minister of Commerce & Industry Ms. Nirmala Sitharaman

PAC Training on ISO/IEC 17021-1:2015

PAC conducted a training on ISO/IEC 17021-1:2015 standard during 27-29 Sept 2017 which was hosted by the Sri Lanka Accreditation Board for Conformity Assessment (SLAB) at Colombo, for which funding support for participants from eligible developing economies including India was provided by the Physikalisch-Technische Bundesanstalt (PTB), Germany, under the Strengthening Accreditation Networks in the Asia Pacific (SANAP) programme. Mr. Anil Jauhri, CEO NABCB and Ms. Azusa Nakagawa from Japan Accreditation Board (JAB) were the faculty for this training. A total of 33 participants from different economies were trained during this programme which also included two participants each from NABCB and NABET. Participants were provided training on the requirements in the ISO/IEC 17021-1:2015 standard as well as relevant IAF documents. Participants also exchanged procedural and assessment experience for having a common understanding on how PAC members consistently apply the specific requirements of ISO/IEC 17021-1 standard.

CEO NABCB Mr. Anil Jauhri also delivered a Guest Lecture for officials from the Government ministries and Regulators of Sri Lanka on 28 Sept 2017 on how accreditation can help public policy and specifically the domestic regulations. He explained the use of accreditation in public policy as well as the challenges of standards and conformity assessment that the industry faces which government officials also need to understand

NABCB facilitates visit of ECHA Delegation to India

NABCB in the last 3 years, under the EU funded project on Capacity Building Initiative for Trade Development (CITD) in India has facilitated many capacity building programmes in India including on EC REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) Regulation, which is implemented by the European Chemicals Agency (ECHA) in Europe.

NABCB, as a part of the process, invited ECHA Delegation to visit India during 01 – 03 November 2017 to hold further interaction meetings on EC Regulations on chemicals and their implementation status with various relevant stakeholders in India such as the Department of Chemicals and Petrochemicals, the Ministry of Commerce and Industry, the Central Pollution Control Board, Industry bodies like Confederation of Indian Industry (CII), Federation of Indian Chambers of Commerce and Industry (FICCI),

Indian Chemical Council (ICC) etc. as well as the Export Promotion Councils relevant to the Chemical industry sector such as CHEMEXCIL. ECHA Delegation was led by its Executive Director Mr. Geert Dancet and comprised of Mr. Andreas Herdina, Director of Cooperation and had very successful meetings with various relevant stakeholders. This initiative would pave the way and provide momentum for bringing a comprehensive regulation on chemicals in India. ■



ECHA Delegation at Seminar on REACH in Mumbai



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	Voltage (Volts)		Current (Amps)		R (Ω)	L (H)	C (F)	Power (watts)	
	DC	AC	DC	AC				DC	AC
Range	0.5m-40k	2m-28k 10Hz-0.5MHz	10n-3000	20μA-3000A	75μ-1T	0.1m-10	1p-0.1	1m-12k	1m-4.8k
CMC	0.0005 to 2.0%	0.01 to 2.8%	0.0045 to 1.2%	0.019 to 3.5%	0.0014 to 1.8%	0.06 to 0.24%	0.06 to 6%	0.08 to 0.65%	0.12 to 0.8%

	Temperature °C	RH in %	IR Thermometers	Vibration Displacement	Vibration Acceleration	Vibration Velocity
Range	-196 to 1200	10-95	50 to 1200°C	0.2 to 1 mm	0 to 4g	9.8mm/sec to 125mm/sec
CMC	0.02 to 1.96	0.6%	0.33 to 1.55 °C	2.7%	2.6%	3.2%

	Frequency	RF Power	Attenuation 1KHz-18GHz	Modulation AM depth	Modulation FM Deviation	Band width	Harmonic Content	Reflection Coefficient
Range	1mHz to 40 GHz	-100 to +13 dbm	0-110 dB	1 to 98%	50Hz to 4MHz	Up to 18Ghz	Up to 30GHz	0.024 to 1 rho
CMC	10 μHz to 500Hz	0.17 to 0.65 dB	0.03 to 0.5dB	0.2 to 2% of value	0.1%	0.5%	0.03 to 0.2%	0.032 rho

	Mass (Weights & Balance)	Volume	Pressure	Hydro meters	Acoustics	RPM	Viscosity	Torque	Force Tensile
Range	Weights(E1 Class): 1mg to 50 kg, Balances:1mg to 1 ton	1μl to 5000ml	0 to 1200 bar	0.6 to 1.6	94 dB, 114dB	10 to 10k	B2,B3 & B4	0.1Nm to 1000 Nm	3N to 100kN
CMC	0.001mg to 0.18mg , 0.005mg 100 g	0.03 μl to 0.08ml	0.05% to 0.09%	0.002	0.7 dB	0.1 to 0.21%	0.33%	0.22% to 0.89%	0.29% to 0.59%

	Force compression	Shore hardness	Micrometers, calipers, height gauge, Dial gauges, Thickness foils, Fillet gauges, Feeler Gauges, Snap Gauges, Measuring scales & Tapes, Internal Micrometers, V-Blocks, Engineer Square, Test sieves, limit gauges, Micrometer Head, Bevel Protractor, PPG,TPG, TRG, Taper TPG & TRG, Spirit Levels, Surface Plate, Profile projector, Straight edge, Fillet gauges, etc.,
Range	3N to 1000kN	A & D	Linear length : 0-1000mm, Angle : 0-360°, Dia: 0-400mm, Radius: 50mm
CMC	0.59%	0.57%	0.5μm – 80.1μm, 2.9 arc Sec, 0.8μm – 2.7μm, 2.8μm

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National Accreditation Board for Education and Training

NABET is operating with following Verticals:

- A) **Environment Division**
- B) **Formal Education Excellence Division (FEED)**
- C) **MSME Division**
- D) **Skill Division - Skill Certification**

A. Environment Division

Developments

- **Online Portal & APP Developed - Initial Assessment (IA) / Surveillance Assessment (SA)/ Re- Accreditation (RA) Assessment of EIA Scheme**

Online Training Module

- **Developed 6 modules of e-learning on topics of Air Quality & Air Pollution.** Soft launch done on 14.11.2017. Development of 5 modules for Water Pollution is under process
- **Organized Assessor Meet from 29 - 31st August 2017 at IISER Bhopal. 28 participants including Assessors, AC members, TC members and NABET Team along with IT provider attended the Meet.**

Performance of Environment Division since April 2017

- Status of assessment is as follows :

Sl. No.	Assessments	Number
1	Initial Accreditation	06
2	Surveillance Assessment	23
3	Re-Accreditation	27
4	Supplementary & Scope Exp.	69
Total Assessment		125

Accreditation Status under schemes:

Consolidated Accreditation Status			
No. of Applicants	No. of Accredited Organization	Applications Received (2017-18)	Accreditation Granted (2017-18)
371	180	09	06

B. Formal Education Excellence Division (FEED)

FEED Division is actively working for the accreditation of Schools, TEIs (Teachers Education Institutions) and Institutions in formal education. The accreditation process helps institutions to stabilize and streamline their practices in alignment with Quality Governance Standards established by NABET and to move from compliance to benchmarked maturity levels of school governance

The following are the main activities

- o E- Monitoring of Website (NCTE)
- o Assessment of Teachers Training Institutes
- o Accreditation of Schools

NCTE Project:

- a. *Accreditation & Ranking of all Teacher Education Institutes.*
 - i. *Developed Framework for Accreditation & Ranking*
 - ii. *Completed pilot for major processes*
 - iii. *Developed & launched "TeachR" portal*

Accreditation & Ranking of Teacher Education Institutes		Applications (2017-18)		
		6900		
E- Monitoring of Websites	Total Applications	Total TEI's Completed Process	Applications (2017-18)	TEI's Completed Process (2017-18)
	5413	3168	721	646

NDMC Project:

- a. *Developed & launched "MANVIK" portal*
- b. *Completed assessment of Learner's (studying in classes 5-8) for all 46 schools*
- c. *Completed classroom observations of teachers teaching classes 5-8 in all 46 schools.*
- d. *Started mentoring & monitoring of the teachers. Currently the mid-term evaluation is going on and final evaluation will be conducted in February 2018.*

Total Schools Covered	Total No. of Students Assessed	Total No. of Teachers Assessed
46	7630	428

SCHOOL ACCREDITATION:

NABET has produced a standard for Quality School Governance that provides framework for effective management and delivery of holistic education. It is intended to be applicable to all schools, regardless of type, size, board affiliation and nature of educational service provided.

New Applications received for school accreditation	10
Surveillance visit completed	12
Schools visited for initial accreditation	08
Accreditation completed	03

The process of moving to accreditation process through Certification Bodies is currently underway. 4 CBs have applied and the applications are under scrutiny. NABET shall begin conducting the accreditation of schools through CBs by mid 2018.

C. MSME Division

a) *Lean Manufacturing Competitiveness Scheme*

NABET, QCI is the National Monitoring and Implementation Unit (NMIU) for up-scaled version of Lean Manufacturing Competitiveness Scheme of MSME. Ministry of Micro, Small and Medium Enterprises has launched "Lean Manufacturing Competitiveness Scheme under National Manufacturing Competitiveness Program. The scheme aims at enabling MSME's for elimination of non-value added activities, resulting in a more "lean", competitive, agile, cost reduction, cycle time reduction, waste minimization, and be market responsive company through implementation of Lean Tools and Techniques.

Status of Scheme		
S.No.	Activities	Total
1	Clusters Formed	216
2	Awareness Programs Conducted	300
3	Consultant Selected (Bidding)	177
4	Tripartite Agreement	157
5	Audits (DSR, MBR2, MBR3, MBR 4 & MBR 5)	370

Performance of LEAN Vertical (2017-18) - LEAN								
	Bidding	Clusters	DSR	MBR 2	MBR 3	MBR 4	MBR 5	Total Audits
Total	24	14	18	16	17	13	16	80

Additional Activities of Vertical

- Review of Performance of LEAN Vertical by a Committee appointed by SG QCI.
- Upgradation of LEAN Portal
- Training of Assessors (3rd August 2017) – 20 Assessor's Trained during the program

b) *Industry Association (BMO Accreditation)*

The objective of this accreditation scheme is to establish a standard of organizational competency amongst the BMOs, at the same time enabling a mechanism for government, banks, large buyers, national and international agencies to partner with better performing BMOs.

Status of Scheme :

Accreditation Status (Total Accredited BMO's : 38)							
Total				Accredited BMOs in (Years)			
Total Applicants	Applications (Considered)	In - eligible Applications	Applications (2017-18)	2014-15	2015-16	2016-17	2017-18
85	43	42	9	4	1	29	4

- New BMO Portal Launched for application on 1st Sept 2017 as per revised Accreditation Standard V.2.
- BMO Accreditation Certificate (4 nos.) distributed during 12th National Quality Conclave held on 21st September 2017
- BMO Assessor Meet online through Video Conference (31st August 2017) – 11 Assessors

D. Skill Division-Skill Certification

To build up the structured system for skill certification in India NABET is operating a scheme of accreditation of Conformity Assessment Bodies as per ISO/IEC 17024: General requirements for Bodies operating certification of persons, which is a global standard.

- **NABET Staff (2 nos.) attended Training on ISO /IEC 17021 -1 Management System organized by PAC in Colombo, Sri Lanka (27th -29th September 2017)**
- **NABET Team Participated in Peer Evaluation of ANSI as observer at Washington, USA (25th - 29th September 2017). This was an exercise undertaken to strengthen the processes at NABET as there is a plan of applying for Mutual Recognition Arrangement status to Pacific Accreditation Cooperation in the second half of 2018. This activity was sponsored by PTB.**
- **NABET Team Participated in Annual IAF - ILAC Meeting Vancouver (20th - 30th October 2017)**
- **2 officers attended the ISO/IEC 17011:2017 Training and IAF MD20 Workshop in Taipei, hosted by TAF (Chinese Taipei) Date - 23-20 Nov 2017. This activity was sponsored by PTB.**

Applications in Process

Application Review	8
Stage-I(Document Assessment)	2
Stage-II (Central Office)	6
Stage-III (Test Centre)	1
Annual Surveillance-I	2

Total Applications Received (till date)	26
Accreditation Granted	3
Applications Closed	5
Application withdrawn by CAB	1

International Membership

NABET is a member of following International Forum

- o Pacific Accreditation Cooperation (PAC)
- o International Accreditation Forum (IAF)

Other projects—Sports and NGOs/ROs

- **In sports NABET has completed the pilot project of assessment of 18 STCs for Sports Authority of India.**
- **Additional Work for Assessment of 40 STC's and 18 SAG (special Area Games) have been allocated for Assessment by SAI to NABET.**
- **NABET has recently completed the assessment of 108 Registered Organizations (ROs) under National Trust, Ministry of Social Justice and Welfare.**

Launched Version 2 of BMO Standard on 20th July 2017 at Training Workshop of Accredited BMOs –Innovation and Internationalisation Strategy co-hosted with GIZ – (Left to Right) – Vice Chairman- AICTE; Development Commissioner, MoMSME (Formerly); Secretary, MoMSME ; Director, GIZ ; Director, NABET



BMO Promotion at ASSOCHAM Manufacturing Conference – 'Transform and Perform' for MSME, New Delhi – 22nd July 2017

IACC Economic Summit – Session on Education, New Delhi 14th Sep 2017





Accreditation of Business Membership Organizations

(Industry Associations/ Chambers/ Federations/ Clusters)



Benefits

[Umbrella Program]



Hall Mark of Quality,
Credibility and Capability



Effective Government Policy
Building



Economies of scale in
Production & Services



Competitive Credit Availability



Focus on Innovation &
Internationalization



Enhanced Market Linkages



Assistance for Quality of
Product & Services



Trust Building & Networking

Directives from Ministries on BMO Accreditation

DIPP, Ministry of Commerce & Industry

Ministry of Labour & Employment, Directorate General of Employment

Directorate General of Tax Payer Services, Ministry of Finance

Ministry of Chemicals & Fertilizers

Ministry of Mines

Department of Mining and Geology, Min. of Mines

Ministry of Textiles

Ministry of Housing

Ministry of AYUSH

Ministry of Science & Technology

Ministry of Tourism

Ministry of Electronics and Information Technology (MEITY)

Ministry of Shipping

Department of Telecommunications- Ministry of Communications

Ministry of External Affairs

Promotions by State Government:

✓ State Govt. of Rajasthan (Mines)



✓ State Govt. of Telangana



✓ State Govt. of Tamil Nadu



Details can be accessed at <http://nabet.qci.org.in/BMO/>.

For further details contact

National Accreditation Board for Education and Training
Quality Council of India (QCI)

Institute of Town Planners India, 6th Floor, 4 A, Ring Road I.P. Estate, New Delhi - 110 002, India

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QCI-D.L. Shah Quality Awards

An opportunity for organizations to showcase their best practices on quality excellence and share their success stories

About the Award

The QCI-D.L. Shah Quality Awards have been instituted with a view to promote awareness that performance improvement through quality initiatives is an important element for gaining a competitive edge. Each year the Award recognizes successful projects of an organization that have resulted in continuous improvement of products and/or services, better and effective operations as well as increased customers'/stakeholders' satisfaction.



Ms. Shruti Gupta
Executive Assistant, NBQP

There are 3 levels of the Award

Level 1 Platinum Award



Level 2 Gold Award



Level 3 Silver Award



Each level has its own distinct rigors and requirements for quality and performance and has minimum marks to be achieved.

Project Assessment Stages

Documentation Review by QCI | Project Presentation by applicant | Site Verification for Project implementation by QCI

Eligibility

This award is open to all types of organizations/sectors (Govt of India, Public Sector, Private Sectors, Finance, Manufacturing, Infrastructure, Healthcare, Education, NGOs etc.)

An organization submitting projects, must satisfy the following conditions:

- The organization should be registered in India.
- The organization has not been convicted by any Court for any irregularities.

Award Presentation

The Awards are presented during the National Quality Conclave of QCI.

Award Winning Projects of 11th Cycle

QCI-D.L. SHAH QUALITY AWARDS



PLATINUM AWARD

ORG NAME	PROJECT NAME
Max Smart Super Specialty Hospital	Chasing Zero Vap Quality Improvement Initiative To Prevent Ventilator Associated Pneumonia In Intensive Care Units
Structwel Designers And Consultants Pvt Ltd	Engineering Conservation Of Earthquake Affected Wagh Mandir A Stone Masonry Palace And Temple
Tata Consultancy Services Ltd	Tata Consultancy Services Telecom Network Design Cycle Time Reduction
Fortis Hospital Ludhiana	Catheter reprocessing system
Institute of Aerospace Medicine IAF Bengaluru	BEYOND ACADEMICS: 360° TRAINING OF POST GRADUATE RESIDENTS
Public Health Foundation Of India	Skill Building Initiatives For Primary Care Physicians In Chronic Conditions
Beml Limited	Ensuring Zero Defect In Metro Coachprod Bogie Manufacturing By Business Process Reengineering
Maxop Engineering Company Private Ltd	Process Optimization
Welspun - Bhuj	Case Study On Weld-ability Test

GOLD AWARD

ORG NAME	PROJECT NAME
Aarogyasri Healthcare Trust	Mobile App application
DS SPICECO PRIVATE LIMITED	CUSTOMER DRIVEN QUALITY IMPROVEMENT THROUGH LEAN MANUFACTURING APPROACH
Max Super Specialty Hospital Saket	Project Tripti Customer Satisfaction To Customer Delight
Bharti Foundation	Quality Audit Applied to Benchmark School Performance
NGA Human Resources	PARINATI - Redefining driving "Quality" in IT Service Management
ICICI Bank Ltd.	Equipment based monitoring / control & Centralised NOC for CICI Bank Towers
Santokba Durlabhji Memorial Hospital Cum Medical Research Institute	Prayatna
National Industries	Productivity Improvement Through Flow Manufacturing
Seed Testing Laboratory Parbhni	Positive Impact on Laboratory Performance after Seeking ISO/IEC 17025:2005 Accreditation – Seed Testing Laboratory Parbhani A Case Study
NTPC Vindhyachal	Apc Optimization Methodology During Cyclic Operation An Innovative Approach
ESCON TECH	Energy Efficiency Improvement Study in Chemical Industry through Energy Management
SAI International School	UNWIND
Bharat Aluminum Co. Ltd	Reduction in Specific Coal consumption from 746 Gramm/Kwh to 729 Gramm/Kwh by end of March-2017
Capgemini Technology Services India Limited	Capgemini Eoar Methodology In Action

SILVER AWARD

ORG NAME	PROJECT NAME
Fortis Escorts Hospital Jaipur	Integrating Patient care with Safety; Creating a perfect place to Heal- A holistic perspective
Ashok Leyland Limited	Elimination Of Chances Of Cabin Falling While Transferring From Paint Shop To Trim Line
Godrej Precision Engineering	Productivity Improvement through Process Innovations in The Canister for Agni-V
Lupin Limited	Yield Improvement of a bulk drug product
Wipro Enterprises Pvt. Ltd.- Haridwar	Increasing the productivity of CSP plant from 118 TPD to 192 TPD
Keysight Technologies	Transformation – ECO TAT improvement
Marathon Group	Aiming for defect free product with faster construction
Tata Motors Ltd	Enhance The Capabilities Of Suppliers Towards Sustainable Quality
Hdfc Standard Life Insurance Company Ltd	Customer Value Management
KAUVERY HOSPITAL	Five S Journey Of Kauvery
Wipro	Nan Reduction For Leading Us Based Healthcare Payer
District Women Hospital Ghaziabad	Reducing The Turn Around Time In Outpatient Department And Pharmacy Services Using Six Sigma Methodology
Fortis Hospitals Ltd.	Radio safe
Bharat Heavy Electricals Limited, Bhopal	Development Of Steel Fixture For Drilling Of Tube Plate And Support Plate Of Nuclear Condenser
Shree Krishna Hospital, Karamsad, Gujarat	A Working Model of a Closed Critical Care Unit at a Rural Teaching Hospital in India
Jk Fenner India Limited	Best Manufacturing Strategies And Practices

Glimpses of QCI-D.L. Shah Awards Distribution



GOLD - AAROGYASRI



SILVER - ASHOK LEYLAND



GOLD - BALCO



PLATINUM - BEML



GOLD - BHARTI



SILVER - BHEL



GOLD - CAPGEMINI



SILVER - DISTRICT WOMEN



GOLD - DS SPICECO



GOLD - ESCON



SILVER - FORTIS BANGALORE



SILVER - FORTIS ESCORT



PLATINUM - FORTIS LUDHIANA



SILVER - GODREJ PERCISION



SILVER - HDFC BANK



PLATINUM - IAM



GOLD - ICICI BANK



SILVER - JK FENNER



SILVER - KAUVERY HOSPITAL



SILVER - KEYSIGHT TECHNOLOGY



SILVER - LUPIN



SILVER - MARATHON GROUP



GOLD - MAX SAKET



PLATINUM - MAX SMART



PLATINUM - MAXOP



GOLD - NATIONAL INDUSTRIES



GOLD - NGA



GOLD - NTPC



PLATINUM - PHFI



GOLD - SAI INTERNATIONAL SCHOOL



GOLD - SANTOKBA



GOLD - SEED TESTING



SILVER - SHREE KRISHNA MEDICAL



PLATINUM - STRUCTWEL DESIGN



SILVER - TATA MOTORS



PLATINUM - TCS



PLATINUM - WELSPUN



SILVER - WIPRO ENTERPRISE



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- Calibration Systems



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Young Achievers Awards 2017



Several youths across the country are working as part of an organization, contributing to Nation building and improving quality of life by devising novel ideas and implementing them in challenging circumstances. QCI in partnership with Vision India Foundation, a policy research and training organization, instituted the Young Achievers Awards to identify and felicitate such change makers. The awards are an attempt by us to recognize their efforts and inspire several others through their stories.



1st

Education and Skill Development

Dibyajyoti Gogoi, a graduate in Local Governance and Public Policy from Assam, is working as SBI Youth for India Fellow at Merpur, a remote village in Rajasthan's Udaipur district. The village has a literacy rate of only 17.09% and heavily consume alcohol. Dibyajyoti has established a Youth Resource Centre for spreading awareness, involving youth in games and sports, remedial classes, computer classes, and stitching training for women.

Nitesh Bhardwaj, a Mass Communications graduate is working as SBI YFI Fellow in Dhadgaon Tribal Area in Nandurbar district of Maharashtra to create communication-based skills and education for social awareness and livelihood for tribal population. Nitesh has trained youth to make short videos, using their mobile phones, on the prevailing circumstances in their area, in their local language. They screen these movies using projectors in different villages to create social awareness. They are planning to make it a social start up.



2nd

Governance

Gaurav Kumar is a Haryana Chief Minister's Good Governance Associate. His pilot "Online Monitoring and Strengthening of Anganwadi Centres" helped in developing two model Anganwadi centres in every ICDS block and around 100 model Anganwadi centres with basic facilities, proper nutritional supplements, primary health and education, were set up.



Narasimha Donthineni, a student of IIM Rohtak and a graduate from CBIT Hyderabad, is fighting for the efficient functioning of Public Libraries in Hyderabad. He found that Greater Hyderabad Municipal Corporation (GHMC) had collected Rs.340 crores as Library Cess between 2006-2013, but remitted only Rs.38 crores. He filed a Public Interest



Litigation (PIL) against the GHMC and the State government for non-remittance of the Library Cess. He dreams of public libraries with digital facilities and study rooms.

3rd

Rural Development

Lakshmi Narasimharaolkkurthi is a Software Engineer, previously working with Computer Science Corporation before he quit his job to turn into a full-time farmer. He founded Yazali 'Najanmabhoomi' Village Development Society with the aim of uplifting Yazali village in the areas of agriculture, rural development, public sanitation, education, women empowerment, health care, rural rehabilitation, and creating livelihoods and an old age home. He is working towards bringing the old village atmosphere back by building interest in agriculture among students and youth.



Satwik Mishra, a graduate from Vellore Institute of Technology, is working as Swaniti Initiative's SPARC Associate to Member of Parliament (West Champaran, Bihar). He is working on establishing farmer's cooperatives that can benefit 3000-5000 farming families at West Champaran Constituency. He is getting 12 digital schools established in rural residential girl's schools of Champaran. He is also working with Pratham to improve learning/teaching standard of 9 government rural schools. He wants



to start an enterprise which can bridge the gap between people and governance, along with a chain of digital libraries.

4th

Technology and Financial Inclusion

Aparajith Raman dons many hats. Apart from handling backend operations and office administration at Dhrithi, he is a Banking Correspondent Agent for Bank of Baroda. As a Banking Correspondent, he impacted over 1000-people during demonetisation. He would volunteer at the Bank till early afternoon and would withdraw cash to be disbursed in slums and outside ATMs. He also helped 300 migrant workers open zero-balance accounts and safely transfer money to their villages. He played a vital role in a project that trained 200+ auto drivers and small scale traders on how to use PayTM and BHIM apps. He is also currently working towards scaling up Vriddhi, a for-profit social enterprise that provides financial inclusion services and last mile connectivity for a variety of government schemes.



Sharang Shah represents Haqdarshak, a streamlined solution for utilization of Government Schemes. Haqdarshak maintains a database of all government and private schemes available for citizen and local governments. They are charging on par with CSCs and having 85 employees, 500+ trained Haqdarshaks and have



reached 20,000 beneficiaries. They want to rollout their project through CSCs and also want to utilize social media like Google and Facebook to leverage existing Database.

5th

Water & Sanitation

Abhinav Yadav, an engineer from BITS Pilani is working with Quality Council of India where he has spearheaded the first on-ground assessment of Swachh Bharat Mission for 75 cities across India. He understood the nuances and collaborated with experts to formulate the assessment tool based on inputs, outcomes, and citizen perception parameters. He led a team of 25 associates in office and 200 ground staff for the assessment. He is now planning to leverage the model to SwachhSurvekshan Urban across 4041 cities and towns.



Priyank Hirani holds MS in Integrated Circuit Design from Imperial College London. Priyank has worked with Andhra Pradesh Government in making Kovvur a model sanitation town. Priyank has been working with UChicago's Institute for Molecular Engineering. He is designing and implementing an innovative approach to monitor river water quality to enable data-driven decision making through real-time data visualizations.



Defending the Indian Coasts India-Israel Joint Cooperation



Dr. Dhrubajyoti Bhattacharjee
Research Fellow, Indian Council of World Affairs



Rahul Giri
Scholar, Delhi School of Economics, University of Delhi

India has been long known for its maritime strength and post-independence has always stressed on strengthening its maritime security, identifying the pivotal role of the coast guards and Indian Navy. The total length of the Indian coastline can be divided into two parts: mainland which is approximately 5422.6 kms and island territories which is approximately 2094 kms (which includes Andaman and Nicobar Islands and Lakshwadeep Islands): 7516.6 kms remains to be the total coastline of India.

Along with the large geographical landmass it represents, along with India's Exclusive Economic Zone, India sits centrally at the crossroads of trans-Indian Ocean routes. Most cargo ships that sail between East Asia, America, Europe and Africa pass through Indian territorial waters. Especially, after the 2008 Mumbai terrorist attacks, multiple steps have been taken and many initiatives adapted to strengthen the coastlines. By adapting two phases and with the estimated expenditure of around Rs. 2000 cr, a Coastal Security Scheme (CSS) was augmented with plans to build more coastal police stations (CPSs) and surveillance infrastructure which would be completed by 2020. Within the frameworks of the National Command Control Communication Intelligence (NC3I) programme to help counter potential infiltration from terrorists and pirates, eight coastal radars has been set up.

In the process of protecting its coastlines, the government has been taking initiatives to bring in the latest technology for strategically enhance its surveillance capabilities and ability to counter activities that remains detrimental to national security. In the growing India and Israel cooperation, coastal protection and surveillance has slowly started gaining prominence. Along with other defence cooperation, India and Israel has jointly developed

the modified Barak 8 surface-to-air missiles (SAMs) which can neutralize airborne threat including aircraft, helicopters, anti-ship missiles, and UAVs as well as ballistic missiles, cruise missiles and combat jets. A \$630mn contract was signed in between the two countries in May 2017. This will facilitate to supply air and defense missile systems for four ships of the Indian navy, which will be deployed to defend the Indian coastlines. The project will be jointly carried out by Bharat Electronics Ltd and Israel Aerospace Industries as part of India's "Make in India" policy.¹

Controp Precision Technologies Ltd, an Israeli company, has been playing a major role in developing systems that can perfectly perform the protection of the coastlines throughout the world. It is already assisting the Indian defence forces by providing hundreds of FTA Optronics Sensor Systems, a day/night optronic sensor system, for providing day/night anti-aircraft protection by means of the advanced automatic air tracking system, along with thermal imaging cameras. CONTROP has also supplied

dozens of FOX thermal imaging cameras to a large Public Sector Undertaking (PSU) systems' integrator in India, as part of the new Naval Fire Control Systems Programs. These FOX thermal imaging cameras, which include CONTROP's proprietary Continuous Zoom Lens, have been interfaced with a Weapon Station and with Fire Control Radar.²

Controp has signed a cooperation agreement with system integration company Defsys Solutions Pvt. Ltd. of New Delhi, for the production and marketing of Controp's devices in India in March 2016 under the "Make in India" initiative. Dror Sharon, president and CEO of Controp stated "Controp has been active in India for more than 10 years... There is a significant need in India for our extremely popular intruder detection systems and camera payloads, which their unique technology characteristics make them good value for money solutions. We see the Indian market as strategic and with huge potential. [We] are very much ready to transfer knowledge and production to local industry". He further stated: "The company has very advanced manufacturing facilities that will allow us to produce our products in India and thus meet the 'Make in India' policy promoted by the Indian government."³



1 Israel Aerospace Industries gets \$630 million Indian navy contract, *Reuters*, May 21, 2017, <http://www.reuters.com/article/us-aerospace-israel-india/israel-aerospace-industries-gets-630-million-indian-navy-contract-idUSKCN18H06T> (accessed on October 27, 2017)

2 "CONTROP to Supply Optronics Sensor Systems to the Indian Army", *Israel Defence*, March 22, 2016, <http://www.israeldefense.co.il/en/content/controp-supply-optronic-sensor-systems-indian-army> (accessed on October 27, 2017)

3 Hod Hasharon, "Defsys to Manufacture Controp Products in India", *Photonics*, March 22, 2016, <https://www.photonics.com/Article>



Not only through technology, Israel and India have adapted people-to-people dialogue in the process of strengthening each other's security infrastructure. In March 2017, the Centre for Human Security Studies (CHSS), in association with the Andhra Pradesh police, organised a workshop which was attended by delegates from Israel along with six other nations and strategic and academic think tanks from India. The sole topic of discussion was the security of the Andhra Pradesh coastline, which is at the forefront of the state government's agenda under the set of maritime security policies called Mission 974.

There are areas where Israel and the companies that have developed in the protection of coastlines, can assist India in this initiative. Mentioned below are some of the systems developed by Israeli companies, which might be useful for the Indian Coast Guards and Security Forces, in the future.

The Katana unmanned surface vessel has been used for missions including protection of exclusive economic zones, including – harbour security, patrol of shallow coastal and territorial waters, surface and electronic warfare and offshore platform protection (plus oil rigs, pipelines, and more). Katana includes autonomous navigation, collision avoidance, advanced control system and is equipped with various payloads (including electro-optical), communication systems, radio (Line of Site, LOS, or NLOS), radar and optional weapon systems.

The SPIDER LR Long Range remains very-long range observation system (V-LOROS), which incorporates a 1,400mm IR camera with continuous optical zoom lens, a daytime 1,000mm camera and a laser range finder (LRF). The SPIDER LR is part of a family of EO/IR intruder detection systems and was designed to provide extended performance capabilities for very long range applications. In addition to observation capabilities, the system provides panoramic scanning and automatic intruder detection. The SPIDER is a long range observation system (LOROS), and has also been deployed for mobile area surveillance and 24/7 force

protection overseas. In addition, the SPIDER is used worldwide for automatic intruder detection in other important applications including security of borders, coastlines, seaports and harbours, airports, critical infrastructures and more.

Along with the SPIDER observation system, there is the CEDAR Compact Electro-Optical Intruder Detection System, which is a highly sophisticated electro-optical Day/Night Panoramic Intruder Detection System, which automatically detects intruders while scanning a desired wide area or section. The scan sector may be selected in both azimuth and elevation axes, whereby the wide dynamic range is provided by an accurate motorized Pan and Tilt Unit. The CEDAR System operates in a panoramic Scan Mode for multiple intruder detection as a primary mode of operation, and may be switched to full Observation Mode for detected target recognition and identification. A state-of-the-art continuous optical zoom for both the CCD and the FLIR cameras provides a powerful tool for target recognition and identification while in Observation Mode.

The SPIDER and CEDAR systems are proven for securing coastlines from intruders by detecting swimmers, small boats and more. The systems provide a virtual fence over the water as they automatically detect intruders from the sea before they reach the defined boundary. The recognition, identification and tracking of intruders from the sea are keys to protection and directing of security forces to the exact location.⁴

With the strengthening of relations, multiple avenues of cooperation have opened up, which significantly stress on initiatives taken by people of both the countries. Catering to mutual geo-political sensitivities, India and Israel can work together in strengthening regional and multilateral forums, building peace, and stability in each other's regions and beyond. ■

aspx?AID=58481 (accessed on October 27, 2017)

4 Bharat Verma, "Homeland Security", Indian Defence Review, vol. 24, January March 2009, p. 103

How Does Accreditation Contribute to Improved and Higher Quality in Higher Education?



Jyoti Bansal
Assistant Director, Quality Assurance,
O.P. Jindal Global University

In a society full of diversity, ideologies and opinions, higher education means different things to different people. The pluralism of views is quite inevitable and some would opine it should be like that only. However, as we intend to discuss and learn more about quality in higher education, we should ask ourselves, what is higher in higher education?

Accreditation could be considered as one of the measures to showcase the commitment of an institution to quality and accountability. It has been a voluntary process through which the organization is able to measure the quality of its services and performance against nationally or internationally recognized standards. It is a dynamic process that identifies best practices and promotes high quality performance measures.

Institutions voluntarily undergo a rigorous and periodic review that evaluates their operations and services against contemporary standards developed by experts and stakeholders in the specific sector arena. The organization performs a self-evaluation which is followed by a thorough review by on-site surveyors, who themselves have extensive experience in the ambulatory and/or in-similar environments.

In many countries of the world, however, what previously had been voluntary is now becoming mandatory – either by government regulation or by third party payer requirements (government run or private programs).

On day of JANUARY 19, 2013 (PAUSA 29, 1934) under PART III-SECTION 4 i.e. “' Miscellaneous Notifica-tions including Notifications, Orders, Advertisements and Notices issued by Statutory Bodies” of UGC Act 1956 published by THE GAZETTE OF INDIA made Mandatory Assessment & Accreditation for each Higher Educational Institution to get accredited by the Accreditation Agency after passing out of two batches or six years, whichever is earlier, in accordance with the norms and methodology prescribed by such agency or the Commission, as the case may be. In India, it is done by National Assessment and Accreditation Council with its headquarters based at Bangalore.

What is Accreditation?

Accreditation is a link between self-evaluation and external quality evaluation. It is “the most commonly used external mechanism for standards-based quality improvement in any organization.”

But accreditation is much more than merely putting in place a quality assurance program. Comprehensive accreditation includes a review of the entire governance and administration of an organization to ensure it is structured to deliver high quality services.

Within the organization seeking accreditation, there must be a system in place to assure qualified service providers and support personnel: that they adequately meet the needs of the stakeholders; and that they have been granted privileges to work within the organization. This system must not only ensure such personnel is painstakingly selected, their education and experience thoroughly verified, but also that their performance is regularly evaluated by superiors and/or peers.

Bearing in mind that universities and colleges exist to provide education & knowledge to the students, an organization seeking accreditation must have policies and procedures in place to assure student’s rights and include student’s responsibilities. Comprehensive accreditation must ensure, by on-site observation that programs offered are in place to provide learning in order to make them adapt to the global competitive world outside the campus; whether the outcomes defined by the program achieved at the end or not.

Many of the higher education International Accreditations like IACBE, EPAS, AACSB etc. are based on the outcome-based education and their achievements. They measure if that the





Institutions operates in accordance with recognized standards or not. Standards should be developed by an accrediting organization that is nationally recognized in at least one country and whose standards are transferable to other countries. Ideally, the standards are revised and updated regularly to stay on top of changing practices and technology. They must also be consistent with local laws and regulations governing Education sector.

Does this guarantee that quality services are being delivered?

Regrettably, no. But being surveyed by experienced and well trained surveyors, independent of the surveyed organization, who will evaluate the organization for compliance with rigorous, recognized accreditation standards, should ensure that the infrastructure, Teaching & Learning outcomes, Qualified Faculty members and support services are in place; that there are policies and procedures to guide and to monitor services.

There must also be an active quality assurance program which includes performance improvement studies and incorporates benchmarking. The accreditation survey is essentially a snapshot in time of what is continually taking place; the organization, should not merely try to satisfy a one-time exposure.

Preparation is a continual process whereby the organization is looking to ensure that their operations meet accreditation requirements on an ongoing basis, and remaining in compliance with standards of that are changing regularly.

The Institution should look at this as “management

development” and use the preparation, along with the on-site interaction with the surveyors, to improve practices based on the standards or higher guidelines. Accreditation is time sensitive and often requires interim submission of materials or additional on-site visits to assure the organization is current.

Accreditation does incur a cost to the organization, which varies based on the size and complexity of the organization and the number of accreditation surveyors needed on-site. The point to remember however, students assume that when they enter a college, safety and education is a priority and Accreditation results and provides that confidence of quality culture and safety amongst the stakeholders within the organization.

Careful oversight by the governing body of the organization, being accredited in establishing and regularly reviewing policies, leads to delivery of reliability and consistency. Also essential in the credentialing of Faculty members, staff and management is that it includes verification of education, special training and experience. But this is not a static activity. Periodic assessing of performance through peer review and/or performance appraisals must be done regularly.

Government regulatory agencies may acknowledge independent accreditation “as a tool of public accountability.” Confirmation that your Institution has demonstrated to an independent survey team that you have all infrastructure, systems and personnel in place to meet recognized standards and deliver and high quality service is the bottom line. Do it for yourself and your staff – and your stakeholders will benefit. ■



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Sameer Bhati
(Head of Research and Development)



Since the evolution of humanity, health and medical issues have been the subject of special focus. This is the reason why we have so many medicine principles and systems at present. As we progress on technical front, our scientific aptitude starts to help this self-interest core issue i.e. medical diagnostics by starting to add more diagnostic and radiological probes.

At present, radiology has become so important that without it no medical treatment begins. These advancements provide our doctors a powerful probe to treat us in a very effecting way. So in radiology, films have become the main tool for all the doctors in fighting against most diseases. Millions of X-ray films are

used every day and every hour across the globe. On one hand these films have made our lives comfortable by recording our medical problems but on the other it has become a big foe for our environment and eco system.

There are many kinds of chemicals that are either acidic or basic in nature involved in these films development for final finishing stage, which are becoming highly dangerous for humans and environment. India, where population is very huge and entire healthcare system works under a huge pressure, if there is any carelessness in handling these films, a catastrophic effect would be an outcome.

To keep all these issues aside, **Digital Imaging and Communications in Medicine (DICOM)** standard came into existence more than 15 years ago, for handling, storing, printing, and transmitting information in **medical imaging**. It includes a file format definition and a network **communications** protocol. It is an application layer network protocol for the transmis-



sion of medical images, waveforms and accompanying information. DICOM was originally developed by the National Electrical Manufacturers Association (NEMA) and the American College of Radiology for Computerized Axial Tomography (CAT) and Magnetic Resonance Imaging (MRI) scan images. It is now controlled by the DICOM Standard Committee and supports a wide range of medical images across the fields of radiology, cardiology, pathology and dentistry. DICOM uses TCP/IP as the lower-layer transport protocol. These standards really help advanced medical imaging applications to change the face of clinical medicine and has made best standards of medical imaging for doctors and patients.

By following these standards and eco-friendly concept, many well-known companies like Fuji, Sony, Ricoh etc. came out with a solution of printing these medical images over a simple plain paper with specially designed printers where the risk of any human error and mishandling is nearly zero. Medical images from different modalities e.g. X-ray, CT, MRI, Ultrasound etc can be directly printed on plain paper.

In modern times, record keeping is the biggest challenge and then transporting it without losing any valuable information from it is the next challenge, but this technique has made record keeping simple. In our existing document management systems we can keep these records very easily for further use. But due to lack of awareness most of the Indian healthcare establishments are still using the same old technologies.

We are using this modern era-eco-friendly concept in our organization from last one year and have realized many tangible and intangible benefits.

Country like ours, where medical facilities are very less in comparison to the population, losing out maximum time in developing, handling and then managing the medical images is just like sheer wastage precious time. So, as per my experience of implementing this concept in my organization, I can say that this is the best way to boost the development cycle of our nation.

Tangible Benefits	Intangible Benefits
<ul style="list-style-type: none"> • Cost reduction by more than 50% • Profitability increased by 20% and expectation of its increment every year • No. of head counts for particular task reduced • Quality and resolution of images got better • The cost of handling, record keeping and maintenance went down • Direct and indirect expenses reduced • Business grew from dormant stage and customer- to- customer referral system 	<ul style="list-style-type: none"> • Customer's satisfaction level increased • A new addition in value chain • Employee productivity, moral and confidence level enhanced • Customer retention increased • Better care of environment • Better compliances and standards following possible • Reputation of the organization enhanced • Brand value of our services & products getting improved • Easily understandable by doctors and patients • Short and effective responsive time

Quality Assurance in the Training Industry



Dr. Ramani Johnson

Senior Auditor, Security Licencing Enforcement Directorate,
NSW Police

The critical issue in delivering training and assessment programs is quality assurance. Any training organisation or an accredited course provider must ensure that delivery of training and assessment services to clients are quality assured. In order to provide this quality assured training and assessment services to clients, the course provider must be “audit ready” and work in a compliance mode.

At any given time, the course provider must ensure compliance with the industry requirements, government regulations and legislations across the operations of the organisation in delivering training programs to clients.

For the purpose of quality assurance across the training and assessment operations of the organisation, the course provider must establish a system that allows on-going monitoring and evaluation of the training programs.

The evaluation of training programs process can be determined by the organisation depending upon the duration of the training programs. The organisation may determine the stage of the training program when the evaluation process can be conducted – for example, prior to conducting a training program, mid-way through the training program and at the end of the training program.

The process of conducting evaluation of a training program includes:

- Collecting feedback from stakeholders including clients, training and assessing professionals, industry experts and employers
- Validating the training and assessment resources with industry and technical experts
- Networking with industry and technical experts to understand the best practice of the industry and
- Recording and resolving complaints, appeals and grievances from stakeholders.

The data collected through the above methods must be analysed to understand the common strand of information. The information that stemmed out of the analysis must be utilized for continual improvement of the training and assessment services provided to clients.

This process will ensure quality assurance in the training and assessment process in the Training Industry.

Therefore, the critical feature of a quality assurance process is collecting feedback, analysing the gathered data and processing the information stemmed out of the analysis process.

The follow up of this quality assurance process is monitoring of:

- Training and assessment programs
- Evaluating the training and assessment process, and
- Ensuring the continuous improvement items is appropriately actioned.

The above processes must be systematically implemented by the training organisation/course provider to ensure on-going quality assurance which is critical in the delivery of training and assessment programs to clients.

The on-going quality assurance in the training programs ensure that the training organisations are “audit ready” and meet the regulatory and legislative requirements.

The Training Industry must ensure that all training organisations/training providers network with each other, understand the industry requirements, needs and requirement of employers of the relevant industry. This will lead the entire training industry to understand the best practices of the industry. These best practices must be a shared knowledge within the training industry to ensure there is consistency across the industry.

In conclusion, the Training Industry can ensure quality assurance which is the critical issue in the training and assessment of clients by:

- Establishing a systematic monitoring and evaluation methods
- Ensuring continuous improvements are actioned systematically
- On-going quality assurance is sustained to ensure consistency across the Training Industry ■



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Sustainable Development Goal-4 Quality Education towards Improving Quality of Our 125 Crore Citizens



Dr. Divya Singhal

Associate Professor, Goa Institute of Management, Goa

Sustainable Development Goals, known as SDGs, are an intergovernmental set of aspiration goals which will shape next 15 years of policies, process and programs. There are 17 goals and 169 targets. If we want to achieve these targets, it is important that we as a collective body work towards achieving inclusive and quality education for all. Out of these 17 goals, SDG 4 is related to "Ensure inclusive and quality education for all and promote lifelong learning". There are certain targets related to this particular goal. One such target is "By 2030, ensure that all learners acquire the knowledge and skills needed

to promote sustainable development through education for sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, appreciation of cultural diversity and culture's contribution to sustainable development".

Another target related to SDG 4 is to "Build and upgrade education facilities that are child disability, gender sensitivity, provide safe, nonviolent, inclusive and effective learning environments for all".

The present article talks about (i) importance of education, and (ii) incorporating above-mentioned targets in our current education system towards improving quality of our 125 crore citizens.

Education, in the present day context is perhaps the single most important means for individuals to improve personal patronages, build capability levels, overcome constraints and in the process, enlarge their available set of opportunities and choices for a sustained improvement in overall well-being. Education is not only a means to enhance human capital and productivity, but it is equally important for enabling the process of attainment, acclimatization and communication



of knowledge, all of which enhance a person's quality of life.

It is said that Education is a catalyst for Human Development. Education can be seen to be valuable to a person in at least five distinct ways proposed by Amartya Sen and Jean Dreze in their book.

- i. Intrinsic importance:** Being educated is a valuable achievement in itself, and the opportunity to have educated people can be of direct importance to a person's effective freedom.
- ii. Instrumental personal roles:** A person's education can help him or her to do many things. For instance, it is important for getting a job and more generally for making use of economic opportunities.
- iii. Instrumental social roles:** Greater literacy and education can facilitate public discussion on social needs and encourage informed collective



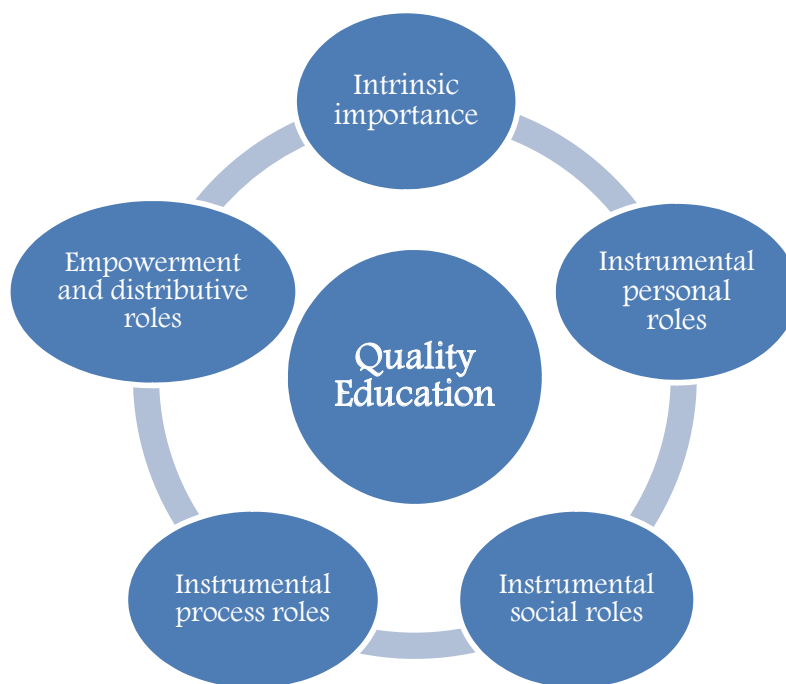
demands; these, in turn, can help expand the facilities that the public enjoys and contribute to the better utilization of the available services. It is proven that educated people are always apt to make reasonable choices within a well-designed human development strategy.

iv. Instrumental process roles: The education process itself can result in many benefits. For example, the incidence of child labour is intimately connected with non-schooling of children and the expansion of schooling can reduce the distressing phenomenon of child labour, which is so prevalent in India. Similarly, more number of educated girls can bring gender parity down.

v. Empowerment and distributive roles: Greater literacy and education enhances people's ability to think broadly and resist oppression. For example, the use of economic opportunity by one person can in many situations open up further opportunities for others. Through various interconnections, education can be a variable in great strategic importance in the process of development.

Educated people are likely to be more productive and hence better off. They are also likely to contribute more to a country's economic growth. At the same time, education reinforces the socio-economic dynamics of a society towards reducing inequalities and providing equal opportunities for its people. Education is, therefore, the best social investment, given the synergies and the positive externalities that it generates for people for their well-being. It is also a priority for countries seeking to develop and sustain their level and pace of development. Therefore, achieving 17 goals and 169 targets simply would not be possible without strong educated citizens.

Many scholars have suggested that education is one of the most powerful and proven vehicles for sustainable development. The SDG 4 related with education ensures that all girls and boys complete free primary and secondary



schooling by 2030. It also aims to provide equal access to affordable vocational training and to eliminate gender and wealth disparities with the aim of achieving universal access to a quality higher education.

UNESCO Report of the International Symposium and Round Table (1990) indicates that education aims at the promotion of the goals of universal peace, harmony, equity and fraternity. In the current academic environment; corporate responsibility, sustainability, diversity, gender sensitivity have entered but are not embedded in the mainstream of education.

Some scholars have argued that the campuses serves as a microcosm of the society at large and hence the issues, problems and tensions being played out elsewhere in the society are often reflected in the campuses. In a pluralistic society and multicultural nation like India, diversity issues are therefore directly related to larger social issues. Diversity allows people to become more empathetic and sensitive. Researchers at Greater Good Science Center of the University of California, Berkeley define empathy as "the ability to sense other people's emotions, coupled with the ability to imagine what someone else might be

thinking or feeling." Some other scholars define empathy as the critical 21st century skill which is important to bring justice and gender equality.

Some universities and colleges, professional institutes have started initiatives in this regard. However, it is important to understand that entire education delivery system goes through a transformation to enhance quality of life. We need more courses to sensitize our students on gender, environment, sustainability and other relevant issues. We need to have integrated courses in these areas and start working towards relevant research to bring more productive, healthier, creative and ultimately richer human beings in all dimensions of the word. We need to encourage our daughters to attain higher levels of education and need to train our sons to be more empathetic. We need to bring changes in our mindset and move beyond our egos. If we want to improve quality of 125 crore citizens of this nation, we need a transformative education system which is directed to the overall development of human beings and promote understanding tolerance and empathy. Only then we can work towards building a harmonious and sustainable society where our citizens can enjoy the improved quality. ■

“Training and Education” an integral part of accreditation process

“Quality Never Sleeps”



Dr Saantwana Vernekar
Founder and Chief Trainer: QTEAM

The quality of Human Resource in Medical services is an asset to any organization and as a result Training and Education for developments has become an issue that has to be faced by every upcoming and existing organization.

The amount, and quality of training carried out varies enormously from organization to organization due to factors such as the degree of external change, for instance, new services or new processes, the adaptability of existing workforce and importantly the extent to which the organization supports the idea of internal career development. Most organizations meet their needs for training in an adhoc and haphazard way while others set about identifying their training needs, then design training activities in a rational manner and finally assess the results of training.

Training through various options viz. physically, socially, intellectually and mentally are very essential in facilitating not only the level of productivity but also the development of personnel in any organization. However, knowledge is the ability, the skill, the understanding, the information, which every individual requires in order to be able to function effectively and perform efficiently. There were two variable: Training & Education (Independent) and Employees' performance and productivity (Dependant).

Training and Education basically deals with the acquisition of understanding, know-how, techniques and practices. In fact, training and education is one of the imperatives of human resource management as it can improve performance at

individual and organizational levels. As the process of 'increasing one's capacity to take action, organizations are now increasingly becoming particular with organizational learning and therefore collective development. Closing the skills gap is now a critical area of human resource development for organizations to continuously penetrate the market. Skills gap basically threatens the productivity and competitiveness both in organizational and operational levels. This requires that human resource management professionals should start the cultivation of the workforce from the recruitment period.

With the Accreditation and Certification mandates and Budding training institutes for specific topics approximately 7.2% of the employers have started training to their employees. Employees' enhancement comes through Training & Education from internal sources as well as External Training Agencies.

Benefits for employees and employers

1. Training and Education brings positive attitude in employees
2. With training and Education job knowledge increase in employees.
3. Training and Education teach the technique of performing a job to employees
4. Training and Education enhance the skills of job of employees
5. Most of the employees consider training and Education vital for their job
6. Training and Development brings positive attitude and high morale in employees helping the employer with motivated strong workforce

7. With training and development job knowledge increase in employees thereby reducing the costs due to errors
8. It teaches the technique of performing a job to employees thereby helping the employers to achieve enhanced perfection
9. It enhances the skills of job of employees thereby minimising risks of accidents/ incidents.
10. Most of the employees consider training and education vital for job and seek organisations which help them develop their knowledge and expertise
11. Skilled employees performance and productivity is more than the unskilled employees
12. Performance and productivity increase due to the ability of the employee's studies have shown an increase in customer satisfaction by 100% with skilled and trained staff.
13. Performance and productivity increase due to the enhanced competency of the employees
14. Studies in SHCOs and HCOs have shown a whopping increase in knowledge upto 200% creating an eye-opener for the management to promote such activities.
15. Training on different aspects with regards to implementation of procedures was witnessed to be much more faster (by 89%) post training

All Accreditation and Certification bodies have primarily insisted on Training and Education/ Development through their Standards. Quality *per se* speaks of the knowledge and competency of the employees in the organisation which would assure patient safety, which is the primary goal for all the Accreditation bodies.

In India there are very few Training Organisations with training experts for Hospitals and HCOs. The need for expertise and training modules developed by Q-TEAM, which pioneers in such specialised services under one roof has been recognised and appreciated by the peers creating a new dimension to knowledge and skill development. ■



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- ISO 27001- Information Security Management Systems, PCI DSS Certification, IT Audits, VA,PT & ASV Scans
- ISO/TS 16949 Technical Specification for Automotive Supply Chain



Quality has become an essential part of management and evaluation of healthcare. The continual improvement of the service quality in healthcare units has become a primary consideration to ensure patient satisfaction across the world. Healthcare sectors emphasizes mostly on Quality Improvement and Patient Satisfaction. So, to come up with the problem related to the Infection Control Practices, National Accreditation Board for Hospitals and Healthcare Providers (NABH) guidebook has provided one of the chapters of Hospital Infection Control (HIC) to improve the quality related problems in the Infection Control practices. There are 9 Standards and 54 Objective elements in HIC. These standards of NABH (HIC) help not only to overcome the situation related to nosocomial infection but also in analysis and survey in healthcare sectors (refer NABH 4th edition, 2016).

of the patients. Most of the patients' death is due to the Nosocomial Infections only. These infections are a global safety concern for the patients as well as Healthcare Professionals. It is also seen that in most of the cases chances of susceptibility is more i.e. patients are more prone to HIAs. There are so many factors which stimulate the infections among hospitalized patients such as immune-compromised Patients. New and advanced medical procedures and Invasive techniques encourage the route of Infection, crowded Population in hospitals, where poor sanitation and Infection Control Practices may facilitate transmission.

The increasing risk of HIAs is not only for the patients but also for the Healthcare workers. So, it is very essential to have adequate knowledge about the Infection Control Practices among Healthcare Workers and for visitors also. Compliance on the part of the Healthcare workers, including Doctors, Standard Precaution and Hand Hygiene has been recognized as an effective means to prevent and Control HIAs. HAI is an infection occurring in a patient in a hospital or other healthcare facility where the infection was not present or incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge, and also occupational infections among staff. Although it is difficult to assess the exact route of HIAs, ample evidence exists to indicate the magnitude of HAI and related problems.

HAI not only prolongs the hospital stay of patients but also increases bed occupancy and therefore puts extra burden on already strained hospital resources. The major mode of transmission of these HIAs is by pathogens transferred from one patient to another through healthcare workers (HCWs) who do not follow standard precautions. It is well

known that the risk of transmission of the microorganisms and the pathogens when providing medical care and the incidence of the Hospital Acquired Infections can be kept low through appropriate standardized preventive procedures. Due to the negligence of the Healthcare workers to stick to the standardized aseptic procedures, they are more prone to the infections. In order to overcome this problem it is important to implement the practice prevention control strategies with demonstrated value consistently. The adherence to the guidelines for disinfection and NABH standards of HIC is an essential ingredient for activities aimed at preventing the Infections.

Gap Analysis: Gap analysis is a component of the preparatory phase of NABH accreditation. It is a tool that helps an organization to compare its actual performance with its potential performance. At its core are two questions “where are we?” and “where do we want to be?” The goal of gap analysis is to identify the gap between the optimized allocation, integration of the inputs, and the current level of allocation.

This helps provide the company with insight into areas which could be improved. The gap analysis process involves determining, documenting and approving the variance between business requirements and current capabilities. Once the general expectation of performance in the industry is understood, it is possible to compare that expectation with the organization's current level of performance. This comparison becomes the gap analysis. Such analysis can be performed at the strategic or operational level of an organization.

This study helps identify various gaps in infection control programme in the hospital and enables the infection control staff to take necessary actions towards improvement and implementation as per the hospital infection control NABH standards. ■



TB & MDR-TB: A Global Challenge in the New Millennium



Dr. Shivaji K Jadhav
Head of Lab Operations
Mapmygenome India Limited

Tuberculosis or TB, as it is commonly called, is a contagious infection that usually attacks the lungs. It can also spread to other parts of the body, like brain and spine. A type of bacteria called *Mycobacterium tuberculosis* causes it. The bacteria that causes TB spread from one person to another through tiny droplets released into the air via cough and sneeze.

Multidrug-resistant TB (MDR-TB) is a form of TB caused by organisms that are resistant to at least two most effective anti-TB drugs; Isoniazid and Rifampicin. The reason TB remains a major killer is the increase in drug-resistant strains of the bacterium. Since the first antibiotics were used to fight tuberculosis more than 60 years ago, some TB germs have developed the ability to survive, and that ability gets passed on to their descendants. Drug-resistant strains of tuberculosis emerge when an antibiotic fails to kill all of the bacteria it targets. The surviving bacterium becomes resistant to that particular drug and frequently other antibiotics as well. In 2015 an estimated 1.4 million people who were HIV negative died because of TB. In addition there were 0.4 million deaths resulting from TB Disease among people who were HIV positive. So there were a total of 1.8 million TB related deaths as per World Health Organization (WHO) reports.

Global actions on reducing TB is falling far short of

expectations, says a new report published by WHO. Besides highlighting considerable inequalities among countries in giving TB-affected people the access to cost-effective diagnosis and treatment interventions, the 'WHO 2016 Global TB report' also calls for strong political commitment and increased funding.

TB/ MDR-TB Diagnostics

Smear microscopy and mycobacterial culture involves the examination of sputum under a microscope to identify mycobacterium, and mycobacterial culture. Observation Detecting mycobacterial growth during a six-week incubation period are the most widely used TB diagnostic tests today. Drug Susceptibility Testing (DST) is often performed using solid or liquid culture and provides information on which TB drugs the bacterium is susceptible to, necessary for detecting drug-resistant TB and for getting patients on appropriate and effective treatment regimens. Newer molecular assays have shortened the time to drug susceptibility testing results, yet a true point of care diagnostic remains elusive.

GeneXpert/Xpert MTB/RIF

It is a molecular diagnostic test that can detect TB and resistance to one of the key first-line TB drugs, rifampicin, in just two hours. Rifampicin resistance is commonly considered a surrogate marker of multi-drug resistant TB. The main disadvantage is that it screens only *rpoB* gene for RIF Mutations and not any other gene like *katG* for INH Resistance which is also a biomarker for MDR Resistance.

Genotype MTBDR and INNO-LiPA Rif TB

Two other molecular tests that can detect TB and resistance to rifampicin are **Genotype MTBDR**, and **INNO-LiPA Rif TB**. INNO-LiPA Rif TB can also detect resistance to isoniazid, another key first-line TB drug. These tests are called "line probe assays" because they detect mutations in the TB bacterium's DNA using a coloring agent that highlights gene mutations associated with drug resistance.





MGIT: (Mycobacteria Growth Indicator Tube) system use liquid culture to test if TB bacteria will grow in the presence of various TB drugs. If TB grows, then the TB bacterium is resistant to the drug being tested. MGIT results take several days, but are available much quicker than conventional solid culture.

TST: Other commonly used TB diagnostic tests include symptom screening, Tuberculin Skin Test (TST), and chest X-ray. TSTs cannot distinguish between active and latent TB and can be falsely positive in people vaccinated with Bacille Calmette-Guérin (BCG). They require refrigeration and a TB protein derivative to be injected under the skin.

IGRA: Other TB tests that cannot differentiate between latent and active TB are interferon gamma release assays (IGRAs) such as QuantiFERON-TB Gold and Immucor TB Platinum. IGRAs and other serological tests are blood based and measure a person's immune response to TB bacteria. White blood cells infected with TB will release interferon-gamma when mixed with protein derivatives of TB.

Spoligotyping: A very simple, inexpensive and effective tool for Tuberculosis/ Mycobacterium research as it is a useful PCR-Based method to simultaneously detect Mycobacterium Tuberculosis Complex Bacteria. The Spoligotyping uses Reversed Line Blotting (RLB), offers an alternative for typical Southern blotting when rapid results are required. The method is particularly useful to simultaneously detect and type *M. tuberculosis* complex bacteria in clinical samples. Mapmygenome India Limited laboratory is certified by "CE" for the manufacturing and Marketing Spoligotyping kits

PCR Gold standard Method for MDR-TB Screening

Mapmygenome currently performing MDR Screening based on PCR Amplification of *rpoB* and *KatG* gene sequence based analysis of mutation patterns. Most RIF-resistant strains carried mutations in RRDR of *rpoB* gene. The most INH prevalent mutation found to occur in *katG* gene is AGC to ACC at codon 315 or Ser315Thr (S315T) substitution. Currently, the molecular tests only test rifampicin *rpoB* (gene encodes the β subunit of bacterial RNA polymerase (95% mutation frequency at specific codons) resistance test is available from GeneXpert. The *rpoB* MDR-RIF may not be sufficient to consider as MDR resistant based on literature as RIF resistant strains also resistant for INH. It is also observed that the *katG* gene accounts for 70% of mutation, frequency also contributes for drug resistance as it is also important and reliable marker for MDR Resistance.

Hence, Multidrug-resistant tuberculosis poses a formidable challenge to TB control due to its complex diagnostic and treatment challenges. It has also become critically important to rapidly identify various other genes responsible for MDR for therapeutic and epidemiological reasons. It is important to screen *rpoB*, *katG* and other high frequent mutation occurring genes for confirming MDR Resistance. Further, studies about these mutations may be helpful in the development of diagnostic tools for the detection of MTB in a high TB endemic area like India. ■





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Vishal Gupta
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Tendering is not just a process of an organization; it is considered as a system comprising multiple agencies like investors, customers, prospective and non-prospective bidders, statutory agencies and a common man. Tendering system is a system that creates a relationship between two entities (organizations, societies, states, countries, continents) and thereby tends to change the dynamics of the quality of life of all entities. **Efficient tendering system shall lead to successful relationship management.**

The tendering system like any other system has some inputs, processes, characteristics, indicators, stakeholders

and output. An effective tendering system selects a competent contractor within the designated time frame who has complete clarity about tendered work.

The various parameters that improve the efficiency of the tendering system are as under:

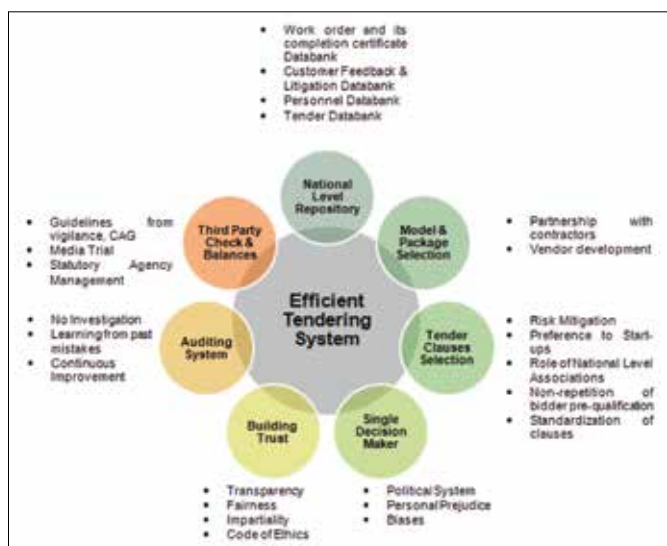
1. **Model & Package Selection:** For the success of tender, it should be compatible to the project model. The project model has to have number of packages according to which the contractors need to be selected. The success of project model and the tendering system are dependent on each other. Few different project models wherein the tendering system has its own role to play are as under:
 - a. Intrinsic model; wherein the customers, designers, executors and user are present within the same organization.
 - b. Consultant Centred Model; involving consultants wherein the customer hires an agency (consultant) for designing or for providing assistance to it in managing the execution agency. The customer implements the project taking on day-to-day guidance from the consultant.

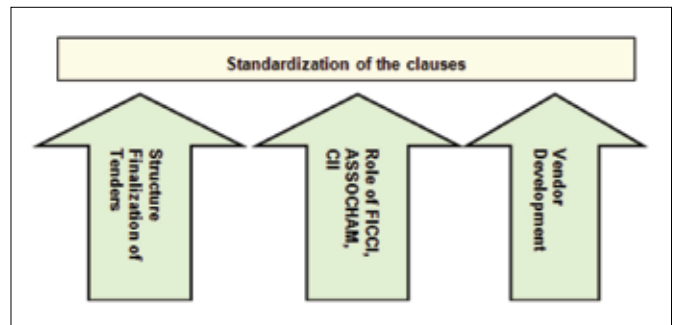
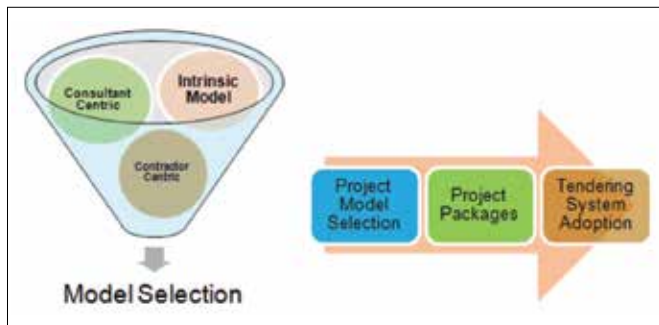
- c. Contractor Centred Model; empowering contractors wherein the customer hires an agency which does all designing, execution and management. It is also known as Engineering, Procurement, Construction, Management (EPCM) model.

2. **Tender Clauses Selection:** There are mainly two types of clauses – pre-contract management and post contract management. The pre-contract management clauses mainly deals with the tendering system and becomes redundant after the signing of contract.

Action point: Standardization of system clauses based on the model & packages

- i. Selection of clauses based on products, services, industry, location – presently, it has been observed that the structure of the contracts has not been standardised in some organizations, which must be adhered to, to have effective tendering system output.
- ii. Role of industry associations and national level corporate organiza-





tions in standardization of clauses – FICCI, ASSCHOM, CII, etc. can play an important role in standardization of clauses for the contracts.

iii. Empanelment of agencies based on products, industry, services, locations

a. Most organization do not have vendor development cell which is a must if there is repetitive procurement of numerous items.

3. Single Decision Maker: The success of the tendering system and the project as a whole depends upon the delegation of powers. The decision maker should be a single entity who may be supported by committees of subject matter experts in taking decisions.

a. The major task of the decision maker is to remove any uncertainty or complexity in the project.
b. It may formally involve a bidder-like agency in preparation of the tender.
c. There should be documented delegation of powers in the organization according to which the decision maker can work and

take approvals.

d. The decision maker should be free of personal prejudices and biases.
e. The decision maker shall restrain from entertaining any political or religious organization interference in the tendering system

4. Building Trust: It is important to have trust among all stakeholders in the tendering system otherwise negativity captures the process and the system gets failed. Trust can be built by –

a. Showing integrity towards the organization and not to individuals
b. Creation of high ethics, moral responsibility and respect for all
c. Maintaining transparency, fairness and impartiality during the tendering process
d. Dealing with emotions of different stakeholders including prospective bidders.

5. Auditing System: The auditing system of the tendering agency helps identify lapses that have occurred in the system and the improvement that is required

to be made in future. The purpose of auditing is not to investigate but to improve through a learning process for all the agencies.

6. Third Party Checks & Balances:

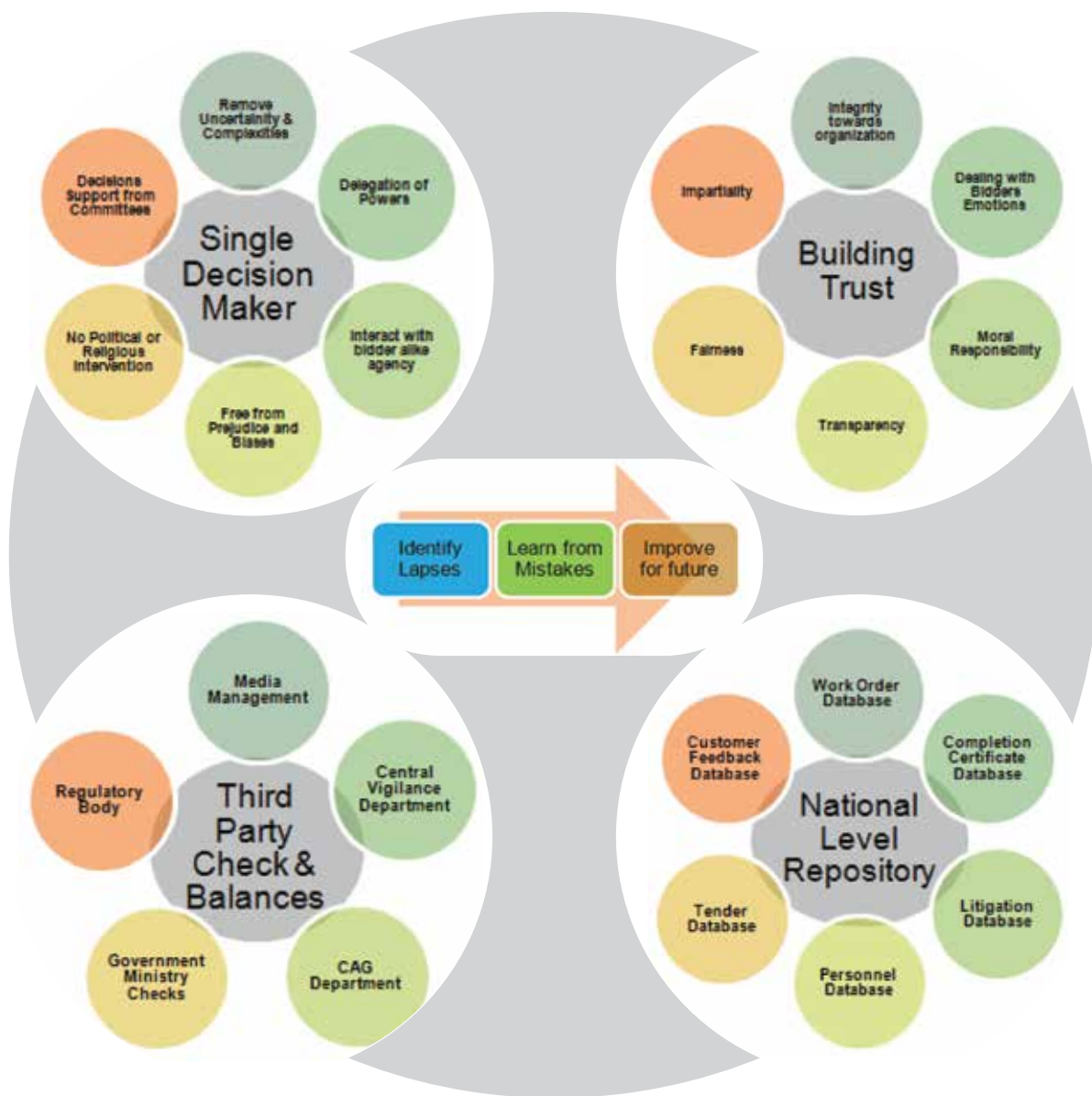
There are independent third party agencies which may keep a vigilant check over the tendering system like central / state Vigilance department, CAG, print / visual media etc. Indirectly, checks and balances are also maintained as a result of

a. Media management from issues / lapses becoming public
b. Statutory Agency Management like environment ministry, forest department

7. National Level Repository: It is important to have a national level repository of documents which can maintain details of contracts and their copies, personnel details, customers' feedback data, tenders details, etc. ***It would help in content management.*** While submitting the bids by the bidders, they do not need to attach the documents physically but provide links thereby saving huge loss of environment, cost

Pre-Tender Clauses	Tender Process Clauses	Tender Closure Clauses
<ul style="list-style-type: none"> Market Survey & Expression of Interest Bidder Pre-qualification Preference to small scale industries or start-ups Tender Cost estimation 	<ul style="list-style-type: none"> Instructions to Bidders Minimal interaction of bidders to prevent cartelization Bidder Query Resolution Process Time Management Bidder cost Management Response to tender Trust Management Clauses 	<ul style="list-style-type: none"> Evaluation Criteria for bidders Bid Evaluation Negotiation Tender Cancellation

Project Management Clauses	Risk Management Clauses	Additional Clauses
<ul style="list-style-type: none"> Scope Time Quality Cost Progress Safety Environment Communication Integration Performance Work Specification Resources Contract Management Funds Management 	<ul style="list-style-type: none"> Limitation of Liquidated damages Indemnification Escalation Scope, time, Cost Change Compensation Incentive Taxation change 	<ul style="list-style-type: none"> Dispute Management Arbitration Force Majeure Insolvency Contract Abandonment Other Contingency Measures



and time. Hence, repository can

- Improve traceability of authentic documents
- Maintain organization's data at the national level for storage of its past records related to work orders and its completion
- Maintain financial data of organization like balance sheets, profit / loss statements, net worth
- Past litigation details
- Data of agencies that has been blacklisted or kept on holidays
- Assist in selection of bidders based on their past performance assessment on various parameters like time, quality, production, etc.

Advantages- Various advantages arising out of efficient Tendering system are:

- Standardization of tenders based on model chosen
- Tender preparation time would reduce
- Bid preparation cost would reduce substantially
- Reduction in timeframe for preparation of bids and their evaluation
- Reduce rework by carrying out the pre-qualification of agencies
- Quality of bid document would improve
- Protect environment by reduced documentation
- Selection of competent agencies for carrying out the task

- Documents for Customer feedback & tendency to go for litigation are easily traceable
- Improved quality of work during its execution
- Drastically reduce the monetary corruption which is said to be rampant in India
- Reduced chance of cheating in tendering, thereby, improve the quality of behaviour of the organization and its individuals

Hence, there is a need to revamp the tendering system to provide quality of life to human beings. ■

Evolving with Time-Quality Management System



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International Organization for Standardization (ISO) 14001 has recently celebrated its 19th anniversary and this year the ISO 9000 series will be celebrating its 29th. These anniversaries are noteworthy because these standards are now implemented in at least 197 countries. The forerunners of the Management Systems Philosophy have transformed the way we look at business today.

When ISO 9001 first came into existence, it was rated as an achievement an organization could aspire to reach

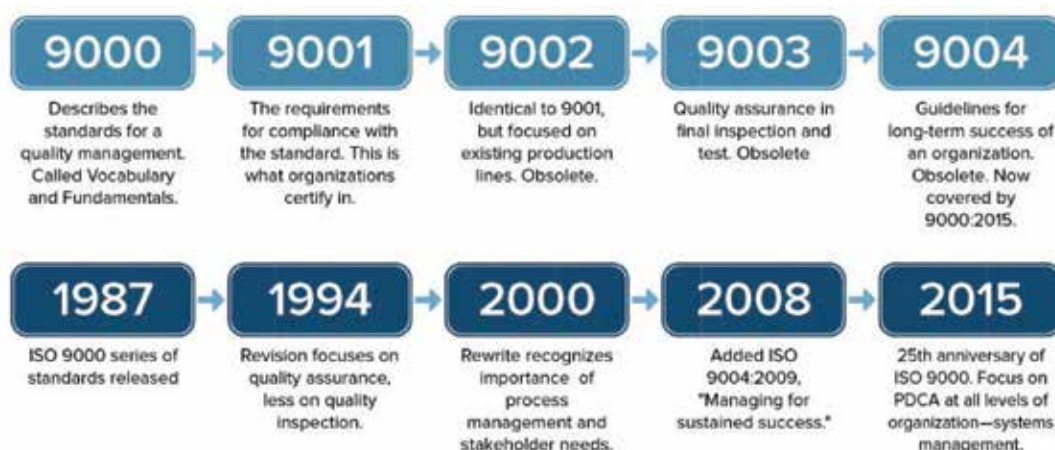
in its quest for quality. With more than 1 million certificates issued globally, today, it is the first step of the ladder to excellence. Yet, even today, all emerging models of governing organizations are firmly entrenched in the familiar roots of the objectives-based, process driven and continuously improving management systems.

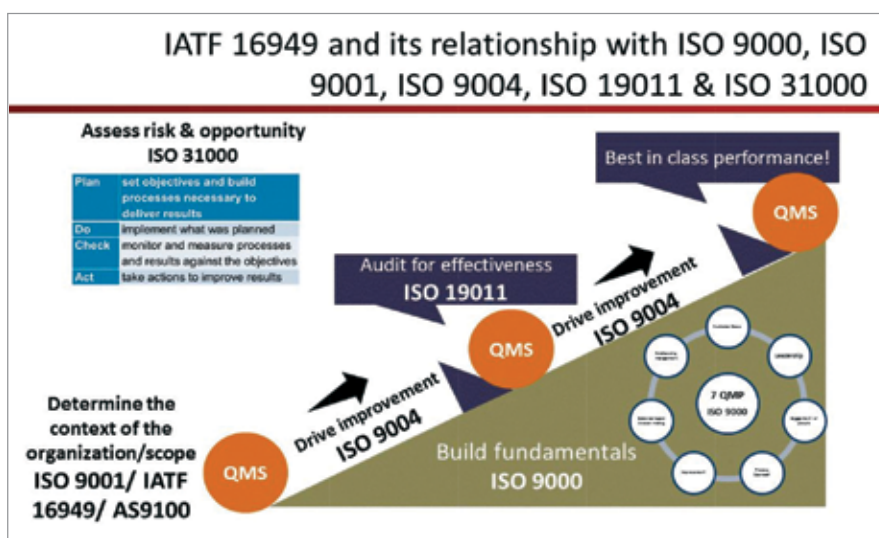
In the past twenty five years, management system standards have grown horizontally as well as vertically to cater to specific sector needs to standardize the certification-accreditation pyramid. In yet another dimension, several complementary standards have been developed as building blocks to the reference standards.

Sectoral expansion first took place with the publication of QS 9000, now ISO TS /IATF 16949. We now have a series of Management System Standards such as ISO 20000 for Information Technology (IT), ISO 27001 for Information Security (IS), ISO 22000 for Food Safety, ISO 28000 for Supply Chain Security. Outside the ISO umbrella, International Standards on Occupational Health and Safety Advisory Services

(OHSAS), Social Accountability (SA 8000) are very popular. The Bureau of Indian Standards (BIS) in a pioneering effort has recently published the first Standard for Quality Management Systems in Public Service delivery (IS 15700:2005). The British Standards Institute is also in the process of publishing a standard on similar lines. The Quality Council of India (QCI) has published a standard for hospital accreditation. Countries and regions continue to use ISO 9001 as a base to publish specific utility based standards and Good – Practices documents and successfully implementing them.

In vertical expansion of Management System Standards, a series of Conformity Assessment Standards have been published by the Conformity Assessment Committee (CASCO) of ISO. Significant among these are ISO 17025 for laboratories, ISO 17021 (replacing Guide 62 and Guide 66) for Management System Certification Bodies, ISO/Guide 65 for Product Certification Bodies, ISO 17020 for Inspection Bodies. All these Standards prescribe the eligibility requirements for the operation of these bodies and





also require them to declare their competence areas for external evaluation. The Conformity Assessment bodies require accreditation to be credible. Thus Accreditation Bodies have been set up by several countries.

The subjects of Quality Standards depict areas where the main emphasis lies, such as in avoidance of all means of conflict of interest (the greatest bane in the certification business), trust (credibility), customer complaints handling, transparency and the adoption of basic management system principles. Evidently these are of paramount importance to protect the soundness of the certification / accreditation systems.

The merit of these standards is slowly getting realized by regulatory as

well as market sectors. In each country, two regimes operate in controlling the quality and safety of goods and services. The Regulatory regime operates from standpoint of health, safety, environment and the sectors mostly covered are food, electrical appliances, toys, gas appliances, safety equipment, electronics, IT and telecom. The Voluntary regime relates to insistence on ISO 9000/ISO 14000- generally by organized buyers e.g. retail chains. The recent thinking is to make available alternative schemes to industry such as 'Self declaration' in place of third party intervention as incentive for good performance, leading to reduced regulatory checking. For instance a High level committee has been set up by the Planning Commission to consider as an

option, third party certification for industry to demonstrate regulatory compliance in fields of Environment /Occupational Health and Safety /Social Accountability to national/international standards with the provision of tier 2 certification focusing only on areas of regulatory compliance.

Another area to focus is the Service Sector which is adopting the Quality Management Systems in a big way. However, some difficulty is being faced in adopting the standards for the manufacturing sector. The ISO has published ISO 9001:2015 – a workbook for service organizations designed to make it easier for service providers to achieve the benefits, such as increased efficiency and effectiveness of implementing ISO 9001:2015. ■

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Quality Council of India announces 1st cycle QCI: D.L. Shah Quality Champion Award 2017



The QCI-DL Shah Quality Champion Awards are being introduced with a view to promote awareness that performance improvement through out-of-the-box ideas and quality initiatives is an important element for gaining a competitive edge. The objective is to recognize outstanding contributions by individuals who have been instrumental in continuous improvement of process, products, services, better and effective operations leading to increased customers'/stakeholders' satisfaction. The awards application process involves submission of individual achievements in the form of case studies, supported with requisite evidences. There is no application fee and three awards will be given to the top three nominees.

Awards will be given to outstanding individuals from any Private sector, PSU, Government Department, Education, Industrial/manufacturing or service including healthcare sector etc. which can confidently demonstrate their achievements through authentic data and results, excellence in business through innovations, excellent quality of products/processes, lean transformations, multi-skilling's, processes and systems, IT interventions, automation, SS, Kaizen, TPS, TPM, TQM, etc.

The scheme will be announced shortly ([see http://qcin.org/nbqp/dsa/2016/](http://qcin.org/nbqp/dsa/2016/)).

Online Application will be opening soon

For any queries mail @ priyanka.nbqp@qcin.org/shruti.nbqp@qcin.org
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