FICCI

Handbook for

6th FICCI QUALITY SYSTEMS EXCELLENCE AWARDS FOR INDUSTRY

&

Conference on

Sustainable Industry Growth through Quality Systems

Achieving Excellence by Building Robust Supply Chain



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The Awards

FICCI Quality Systems Excellence Award is completing its sixth edition of journey with an expanded scope. Enhancing the scope from "Manufacturing Awards" to "Awards for Industry", the Award now covers sectors including Construction, Manufacturing, Mining and Power.

The Awards, institutionalized for excellence in quality systems in industry, assess the robustness of 'Quality Systems' in organizations unlike most other award that focus on product quality. Good quality systems lead to systematic improvement in organization performance. The Award is an initiative of FICCI Manufacturing Committee which works with an agenda of improving Industry's competitiveness that would enable the domestic industry to stand up to the new and emerging challenges of the global market. This is also aligned with the Hon'ble Prime Minister's vision of Make in India and Zero Defect, Zero Effect mission (ZED)

Materialising this ambition requires enabling policy environment and also the need to follow global best practices in the processes at firm level. Firms and companies that display high performance quality systems and stand through a rigorous three-tier evaluation process are felicitated with these awards. The Awards provide a benchmark for the Industry as the best practices of awardees are shared with other applicants and also with the wider industry. Hopefully, this would motivate and act as a catalyst to encourage the industry to adopt robust quality systems and thereby making them face global competition more successfully. Since its inception, Quality Council of India (QCI) has been the Knowledge Partner for the Awards. Mr Avik Mitra, Senior Advisor, QCI, has been assisting us in the process of awards along with Working Group on Quality, led by Mr. Shyam Bang Chairman – National Accreditation for Certification Bodies and Chairman of FICCI taskforce on Manufacturing Excellence. This Taskforce is co-chaired by Mr. Satendra Singh, Head of Strategy and Business Development, Supply Network & Engg, Global Operations, Nokia Solutions and Networks Pvt Ltd.

The awards are given in three categories as follows:

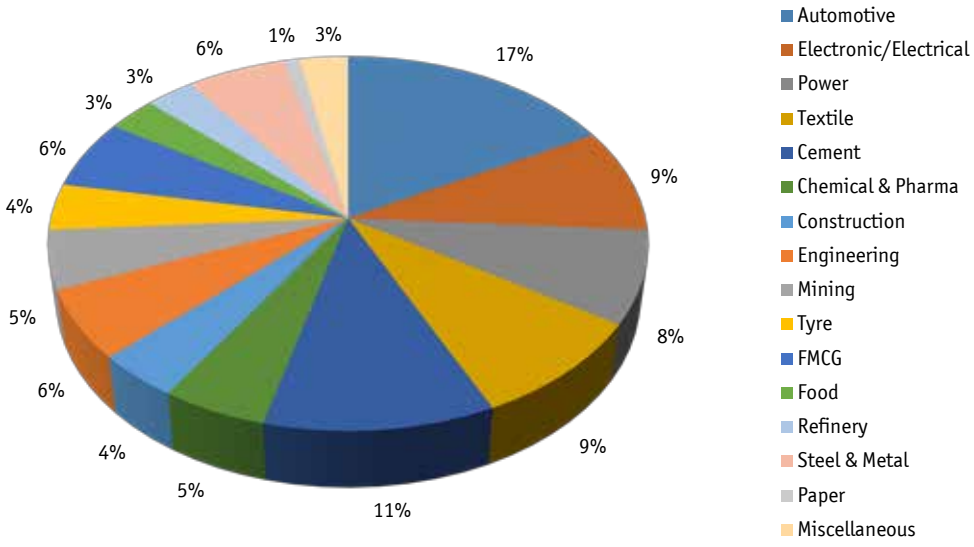
- Large size organization (organization having either turnover or investment excluding working capital is more than Rs 500 crore)
- Medium size organization (organization having either turnover or investment excluding working capital is between Rs 100 crore to Rs 500 crore. If any one of the parameter crosses the limit of Rs 500 crore then the organization goes into large size organization)
- Small size organization (organization having turnover & investment excluding working capital both less than Rs 100 crore)

Comparative picture of six editions of the Awards:

Parameters	Awards 2012	Awards 2013	Awards 2014	Awards 2015	Awards 2016	Awards 2017
Total Applications received	63	79	93	102	76	98
Total Applications in Large category	35	30	35	80	61	73
Total Applications in Medium category	18	38	38	11	10	11
Total Applications in Small category	10	11	20	11	5	14

In terms of sectoral composition, this year's Awards spanned across 16 sectors with automotive, electronic/electrical, power, textile and cement dominating half of the total applicants. We would strive to continue our efforts so that more and more companies from varied sectors participate in this benchmarking exercise incorporate good quality systems on shop-floors.

Sectoral Composition of Applicants: 6th Edition



Process for the Awards

The award process started in October 2017. As mentioned, FICCI Quality Systems Excellence Award process has 3 qualifying stages:

- Document Assessment of all applicant units
- On-site Audit for short listed units based on Document Assessment
- Jury to finalize the Awardees

Details of this process are as follows:

- Design and finalisation of questionnaire for the awards with the support of industry and QCI
- Circulation of Application amongst the industry
- Application forms received by FICCI
- Empanelment of auditors/assessors for the evaluation from the industry based on prescribed eligibility criteria formed by the Quality Working Group under FICCI Manufacturing Committee
- Applications evaluated by the assessors and marks allotted along with feedback for each application
- Presentation of document evaluation results to the FICCI Working Group on Quality
- On-site audit for shortlisted units
- Presentation of on-site audit results to FICCI Working Group on Quality
- Presentation of further shortlisted units to the Hon'ble Jury of the Awards
- Selection of Awardees by Hon'ble Jury
- Announcement of Awards in the Conference
- Feedback to be shared with the applicants

Last Two Edition's Winners

FICCI Quality Systems Excellence Awards for Industry 2016

Construction

- Larsen & Toubro Power Limited, Vadodara - Gujarat

Manufacturing

Large Size Category

- Platinum (First) Prize: Welspun Corp. Limited, Anjar – Gujarat
- Gold (Second) Prize: Godfrey Phillips India Limited (Unit: International Tobacco Company Limited), Ghaziabad - Uttar Pradesh
- Silver (Third) Prize: Gabriel India Limited, Dewas - Madhya Pradesh & Magneti Marelli Power train India Private Limited, Manesar- Haryana

Medium Size Category

- Platinum (First) Prize: Shantha Biotechnics Limited, Hyderabad - Telangana
- Gold (Second) Prize: Elin Appliances Private Limited, Solan - Himachal Pradesh

Small Size Category

- Platinum (First) Prize: Gauges Bourdon India Private Limited, Panvel - Maharashtra

Mining

- Platinum (First) Prize: Tata Steel - Noamundi Group of Mines, Jharkhand
- Gold (Second) Prize: V. V. Mineral Limited, Tuticorin-Tamil Nadu

Power

- Platinum (First) Prize: Haldia Energy Limited, Haldia - West Bengal
- Gold (Second) Prize: Maithon Power Limited, Dhanbad - Jharkhand

FICCI Quality Systems Excellence Awards for Manufacturing 2015

Large Size Category

- Platinum (First) Prize: Bharat Petroleum Corporation Limited - Mumbai Refinery (Maharashtra)
- Gold (Second) Prize: Gabriel India Limited, Dewas (Madhya Pradesh)
- Silver (Third) Prize: Jubilant Life Sciences Limited, Gajraula (Uttar Pradesh)

Medium Size Category

- Platinum (First) Prize: Mindarika Private Limited, Manesar (Haryana)
- Gold (Second) Prize: Vishay Components India Private Limited, Pune (Maharashtra)

Small Size Category

- Platinum (First) Prize: G P Tronics Limited, Kolkata (West Bengal)
- Gold (Second) Prize: Stork Rubber Products Private Limited, Gurgaon (Haryana)

Jury Profile



Mr. Ajay Shankar

Former Member Secretary

National Manufacturing Competitiveness Council

Ajay Shankar has had rich and varied experience in public service for over forty years.

He has served as Secretary, Department of Industrial Policy and Promotion in the Government of India where his key responsibilities included FDI policy, investment promotion and the IPR regime in the country. The plan for the ambitious Delhi-Mumbai Industrial Corridor Project was developed under his stewardship. He was the Chairman of the National Productivity Council and of the Quality Council of India. He initiated the setting up of Invest India to facilitate enhanced inflow of FDI. After superannuation, he served as the Member Secretary of the National Manufacturing Competitiveness Council (NMCC), an advisory body comprising leading Captains of Industry, key Secretaries of Government and eminent Academics.

He has been a member of the Committees set up by Government of India on: (i) Reform of Public Sector Enterprises, (ii) Restructuring of HAL and (iii) Electricity Distribution Reforms. He has recently served as the Chairman of (a) PPP Review Committee of the Railways and (b) Expert Committee for Replacing Multiple Prior Permissions with a Regulatory Mechanism for improving Ease of Doing Business.

He has served on the Boards of major public sector companies and is now non-executive Independent Director in a few companies. He has been a Public Policy Scholar at the Woodrow Wilson Center in Washington DC. He is a Distinguished Fellow at TERI, a Senior Fellow at the Delhi Policy Group (DPG) and a Senior Adviser at IRADe.



Smt. Surina Rajan

Director General
Bureau of Indian Standards

Long and varied experience ranging from grass root programme implementation to macro level policy work at provincial, national and international levels. Sectors covered include revenue and development administration, education, skill development, micro –financing, urban planning, labour laws, infrastructure (irrigation, power, roads) and defence manufacturing.

Advance skills in design and implementation of sectoral transformation plans, policy research, monitoring, evaluation and promoting public private partnerships

Governance experience and expected contribution

- 32 years of experience in various capacities in government including six years in United Nations (International Labour Organization.}
- As Additional Secretary, Defence Production, among other things; supervised the work related to military standards formulation, adoption; conformity assessments and the Quality Assurance set up.
- As Project Manager in ILO (2003-09) supported the work of standards related to Child Labour, Occupational Safety Health and Skill development.

With these experiences and as Head of BIS, she would endeavour to contribute to development and promotion of standards and further the agenda of ISO Council.

Career summary

- Additional/ Joint Secretary in Ministry of Defence, Government of India (10/14 to 9/17)- Administrative and policy support to defence production in public sector and regulation of the same in private sector.
- Principal Secretary, Education, in Government of Haryana, Chairman, Board of School Education and Chairman Haryana Minerals Limited(2010-2014)
- Principal Secretary, Labour in Haryana (2009-10)
- Project Manager, Indian Labour Organisation (ILO), Sub-Regional Office for South Asia, New Delhi (2003-2009)



Dr. Vandana Kumar

Joint Secretary
Department of Industrial Policy & Promotion

Dr. Vandana Kumar is Joint Secretary, Department of Industrial Policy & Promotion in Ministry of Commerce and Industry. During her twenty five years with the Government of India, she has handled diverse challenging assignments interalia including in defence establishments and programmes, Ministry of Textiles, Central Silk Board and Silk Mark Organization of India.

She is a Graduate from Delhi University and a Post-Graduate from Carnegie Mellon University. She was an affiliated doctoral fellow at the India Innovation Institute, University of Toronto and is a PhD from Gujarat University.

She has written several papers and articles on defence procurement, financial management and Frugal Innovation. She has authored a book entitled 'Scaling Frugal Innovations: Insights from India'.

Dr. Kumar is a firm believer of India's potential, the industriousness and entrepreneurial spirit of its people. She believes we need to just unshackle India, simplify processes and improve outcomes of public programmes to realise India's immense potential. She is an avid reader and enjoys making pencil sketches in her free time.



Mr. M M Singh

Executive Advisor
Maruti Suzuki India Limited (MSIL)

Mr. M M Singh is currently in the role of Executive Advisor in Maruti Suzuki India Limited (MSIL). In the current role, he is heading the Maruti Centre for Excellence (MACE) as the Director, which is handling the up gradation of vendor ecosystem of Maruti Suzuki India Ltd. This involves hand holding select vendors for implementing manufacturing excellence programs in the areas of Productivity, Quality, Delivery, etc. Also, Mr. Singh is leading the International Automobile Centre of Excellence (i-ACE), a Section-08 company, with social objects will engage in increasing awareness in the automobile industry; provide necessary education & training for development of the automobile sector and bridge the gap for the Indian Automobile Industry in developing human capital for the industry. All OEMs, Component suppliers and academic institutes of Gujarat are going to be benefitted through this center.

Mr. Singh held the position of Executive Director of Production for over a decade. He has built Maruti's unique and sustainable edge in low-cost, high quality and high volume manufacturing. Singh has led a team of over 15,000 people which manufacture every second car running on Indian roads, leading operations comprising of 114 departments and 8 divisions across vehicle and engine manufacturing, production engineering, supplier quality, projects & infrastructure, power plants, and materials & logistics etc.

Mr. Singh is associated with Maruti since inception in 1983. He is a Pioneer of "Low cost, High quality, High volume & Flexible manufacturing way" in India, with a focus on people involvement and empowerment. He introduced innovative ways for enhancing capacity and productivity by introducing flexi-lines for assembly to take care of demand volatility. He gave high trust on low cost in-house automations resulting in large productivity improvement at low cost.

He is adept at mentoring and building large teams. In 2005, he conceptualized an innovative program named as "Production Management System" or PMS. PMS is a system based program evolved with the involvement of people at all levels. PMS focuses on involvement, empowerment and integration of the human capital of the organization with linkage to focus areas and challenges prevailing from time to time.

Mr. Singh has brought a paradigm shift in auto logistics in India with the development of railway logistics. He has spearheaded various infrastructure projects such as, development of a world-class export car terminal at Mundra Port; development of railway wagons; regional stockyards and warehouses.

He is also active in several forums related to Manufacturing of CII & FICCI. He is currently the Co-Chairman, Regional Committee of SMEs and also Chairman – Hi-tech Manufacturing & Robotics Committee in CII. In FICCI he holds the Chairman Manufacturing Committee and Chairman – Industry 4.0 Committee positions.

Educational Background:

He graduated in B.E. (Electronics) from BIT Mesra. He had an initial stint of 5 years in TELCO (now Tata Motors) and TISCO as Design and Maintenance Engineer



Mr. Shyam Bang

Chairman
National Accreditation Board for Certification Bodies

Mr. Shyam Bang is a post graduate chemical engineer and has been associated with chemical and pharmaceutical industries in India and abroad for over four decades. He is recognized for his contribution in the field of manufacturing and supply chain management.

- He is member of the board of some companies.
- He is Chairman of National Accreditation Board for Certification Bodies.
- He is Chairman of FICCI task force for manufacturing excellence.
- He is past president of Indian Institute of Chemical Engineers.



Dr. Ravi P. Singh

Secretary General
Quality Council of India (QCI)

Dr. Ravi P. Singh is presently the Secretary General of Quality Council of India (QCI), an autonomous body of Ministry of Commerce & Industry, Government of India. QCI's mandate is to lead nationwide quality movement in India by involving all stakeholders for emphasis on adherence to quality standards in all spheres of activities primarily for promoting and protecting interests of the nation and its citizens.

Born and educated in Varanasi, Dr. Singh holds a Gold Medal at Masters in Physics from BHU, Varanasi. He has done his PhD and Post-doctoral fellowship in Physics from University of Western Ontario, Canada.

Dr. Singh is spearheading many important schemes & initiatives of the Government which includes Grievance Redressal of Public Services, Zero Defect Zero Effect (ZED) model for MSMEs, Swachh Sarvekshan under Swachh Bharat Mission, Assessment of Teacher Education Institutions etc. He is also monitoring and leading the accreditation of Hospitals, Laboratories, Skill Centres, ITIs, and Schools as well as Environmental organizations being done by various Boards under QCI.



Mr. Satendra Singh

Head of Strategy and Business Development, Supply Network & Engg, Global Operations, Nokia

Mr. Satendra Singh has a global role as head of strategy, quality and business development for global supply network and engineering at Nokia. He is a director in Nokia Networks India board and a member of global Supply Network and Engineering leadership team.

In his current role, he is responsible for global supply network strategy, global supply network architecture and capacity management, performance management, project management and global supply network quality. Nokia supply network consists of 30+ manufacturing sites and multiple distribution hubs globally. Prior to this role he led manufacturing operations for Nokia Networks in India.

He has 28 years of experience in general management, operations, supply chain management and quality management. He specializes in setting up new operations, building up efficient teams and delivering value to business. He has extremely rich general management experience as business head in multinational corporations.

He has started 2 world class technology manufacturing operations and has led introduction of new technology products into India. He has been instrumental in building India's largest telecom infrastructure manufacturing facility for Nokia Networks in Chennai. Nokia Networks Chennai has grown very rapidly to become a significant part of Nokia's global supply chain and has received several national awards.

He is co-chair of FICCI manufacturing excellence task force and is member of national councils on smart manufacturing, Electronics and consumer durables. He is an electronics engineer with masters in management and has completed advanced management from IIM, Bangalore.

List of Auditors/Assessors for the Awards

1. Mr. M. Balasubramanian, Head – Quality, B & F IC, Larsen & Toubro Limited
2. Mr. Javed Khan, Head – Performance Management & Analytics, Supply Networks & Engineering Global Operations, Nokia Solutions & Networks India Pvt. Limited
3. Mr. Anirban Ghosh, DGM- Quality, Cairn India Limited
4. Mr. Shailendra Singh, AGM- Operations (Head- Production), Godfrey Philips India
5. Mr. D. K Dewan, AGM, Maruti Centre for Excellence (India)
6. Mr. Pramod Tiwari, Senior Manager, Maruti Centre for Excellence (India)
7. Dr. S K Dixit, Senior Manager – QA, Jubilant Life Sciences Limited
8. Mr. Vinod Kumar, Sr. Manager-CQA, Engineers India Limited
9. Mr. Jagat Jyoti Das, Senior Manager- Operations, Godfrey Philips India
10. Mr. R.M Lakshmanan, Manager-CQA&HSSE, Engineers India Limited
11. Mr. Asim Chatterjee, Principal Geologist (Iron Ore -OMQ), Tata Steel Limited
12. Ms. Reema Bapardekar, Siemens Ltd.
13. Mr. Amit Kumar Tiwari, Manager - Operations Quality, Nokia Solutions & Networks India Pvt. Limited
14. Ms. Mohini Hanwate, Manager – QMS, Siemens Limited
15. Mr. Raghavendra Shenoy, Manager - Quality Management, L&T Power
16. Mr. Vinod Srinivasa, Manager- Quality Management, L&T Power

Winners for 6th Edition and their Best Practices Construction Sector

First Prize

Name of the Organization: Larsen & Toubro Construction

Location: LARSEN & TOUBRO AND RSP-ROURKELA PLANT

Product(s) Manufactured in the Unit: Crushing Equipment, Surface Miner, Sand Manufacturing, Machinery for Steel and Paper Industry and Castings for Wind Mill.

Best Quality Practices: MMH SBG has a well-established and maintained Quality Management System in-line with the policy and is taking appropriate steps to improve its effectiveness in accordance with the requirements of ISO 9001:2015. MMH SBG is currently certified with ISO 9001:2015, ISO 14001: 2015 and OHSAS 18001:2007.

As a Strategic Business Group (SBG), they are committed to continually enhance the quality of Products, Services and Processes in order to deliver higher value to customers. It is their prime focus to excel in operations through adoption of innovative, cost effective and safe work methods, by active engagement and committed ownership of all stake-holders.

Procedures are established, specifying the criteria and methods for effective operations, monitoring, and control; to achieve planned results as well as continual improvement of processes. To control the Quality of outsourced products and services detailed procedures have also been framed.

MMH SBG's Top Management has goals and values in-line with L&T corporate's vision. It is their constant endeavour to go beyond individual expertise for resolving complexities and, regularly upgrade capabilities in response to changes. Top management is actively engaged in ensuring that the quality policy and quality objectives are established and are compatible with the context and strategic direction of the organization, considering the relevant risks and opportunities.

The leadership fits in a matrix organizational structure and all are working under the direction of the Top Management, thus propelling the business direction and aligning the operations to the Vision, Policy and Objectives of the organization. Management Reviews are planned and conducted at various levels for effective monitoring of QMS functions, thereby addressing the capabilities, strengths, weakness, opportunities and risks.

Their quality policy is framed in the same line and provides a framework for establishing their quality objectives, which directly engages them to deliver higher value to their customers.

The quality objective focusses on excellence in operations including Project execution through adoption of innovative, cost effective and safe work methods, which is monitored periodically and updated as appropriate.

As per the norms of ISO 9001- 2015 the risk assessment is undertaken within the context of our organization goals. Risks and opportunities that need to be addressed are determined during the planning stage of all processes to achieve intended results. Risks in terms of probability and severity are calculated and potential treatment options are applied. Actions taken to address risk and opportunities are proportionate to the potential impact on the conformity of products and services.

Manufacturing Sector

WINNERS IN LARGE SIZE CATEGORY

First Prize

Name of the Organization: Hindustan Unilever Limited

Location: Dadra & Nagar Haveli

Product(s) Manufactured in the Unit: In three categories: Personal Care, Home Care and Tea

Best Quality Practices:

- Manufacturing Excellence:
  - Lead HUL Factory for Digital Disruptions, Analytics and Advanced technologies and Smart Robotics
- Energy, Truck, Online Loss Monitoring Systems
- Batch automation and SPC
- Automated Access Control System
- Collaborative Robots
  - Lead HUL factory in World Class Manufacturing
- Sustainability:
  - Only HUL factory to meet 90% hot water needs through solar energy
  - ~15 Million Litres Rain Water harvested over last 2 years – highest across HUL sites
- Technology Excellence:
  - Evolved as Global Sachet Excellence Centre – expertise in innovations & technologies
  - Only Unilever factory to have Tea Bag Lines with consumer-friendly 'knot-knot' [staple-pin free] technology
- CSR Milestones:
  - Pilot site to have "Corporate School on Wheels" – 300+ beneficiaries
  - Swachh Aadat – Swachh Bharat: 10% own employees act as Swachchta doot to promote "Swachh Bharat"
- Key Recognitions
  - GMEA - Overall Leaders Award
  - IMEA - Super Platinum Award
  - CII HR Excellence Award

"To Buy or Not To Buy?" – Quality, A Driver of Consumer Choice

At Hindustan Unilever Amli Factory, they drive a vision of "Uttam se Sarvotam: Better to Best" that can only be achieved by consistently delivering the best quality products each day.

Their Quality Vision is to consistently deliver great quality products that delight their consumers and help their brands grow profitably, competitively and sustainably. They seek to meet and exceed their consumers' and customers' expectations by "Infusing a Zero Defect Mindset".

The key drivers to achieve their quality vision:

- **Brilliant Basics** – Driven through robust change management (people and equipment), detailed incident investigation through Quality Emergency Work Order, clearly defined roles and responsibilities in a well-established quality structure, and strict adherence to their Global Quality Management System.
- **Leadership commitment to improvement** – A clear, long term strategic vision deployed across their supply chain and driven with passion. The site leadership conducts periodic audits, reviews and communications, tracks progress and mitigation to drive continuous improvement.
- **End to End Partnership**: The factory team is empowered to influence decisions across their value chain to deliver superior quality. E.g. - Involvement with Marketing, R&D, suppliers in product/equipment design from concept stage.
- **Quality Culture** – People are their assets and medium for improvement. Circle meetings drive continuous improvement activities through shopfloor employees. Circle vibrancy is measured through leading metrics per person e.g. suggestion / tags / OPL's /Kaizens / Poka-yoke etc. Spontaneous, individual and group reward and recognition help keep the employees motivated.
- **Quality Capability Building** – They follow World Class Manufacturing philosophy to achieve excellence through real-time in-depth analytics and cost-effective solutions. Use of advanced tools like high speed camera / PPA / DOE / Thermography / vibration analysis enable them to analyse and find countermeasures. The objective is to move from Quality Control to Quality Assurance using SPC.

This has helped them to consistently improve their quality performance measured through nil A,B,C incidents since 2014, 30% y-o-y defect reduction, and 8% y-o-y improvement in on-shelf quality and emerge as the best quality performing unit in HUL across all 3 categories along with the lead HUL factory contributing towards generation and replication of global best practices.

Quality drives business value and is a prime mover for their business growth. Quality is what they promise their consumers and what their consumers expect from them. Quality is the one thing that Influences Consumers Choice – To Buy or Not To Buy?".

Second Prize

Name of the Organization: GE Multi Modal Manufacturing Facility

Location: Pune

Product(s) Manufactured in the Unit: Wide range of high quality products from multiple business segments i.e. Renewable, Aviation, Transportation, Oil and Gas, BHGE, Power etc

Best Quality Practices:

GE Multi Modal Manufacturing Facility, Pune is a very unique facility where they manufacture products for various industry segments including Aviation, Power, Renewable Energy, Oil & Gas and Transportation under one roof. Their Quality Management System is certified to Aerospace Standard AS9100 Rev-D. They have strong process to comply with customer needs, regulatory requirements & industry standards while delivering products & services. They manufacture various products that are certified to CSA, UL, NIWE, ATEX, PED, RDSO, EN as well as manage processes certified to NADCAP, S-100, PED, ASME, AWS, ISO, EN etc.

Customer focus is their highest priority. They passionately drive customer satisfaction with their products & services, aiming at building long-term loyalty to achieve mutual success. They are proud to have engaged with esteemed customers such as Indian Railways, ONGC, Reliance, Tata Power, ECOREN, Mytrah Energy, PTC energy, Bharuka Power, KCT, Greenko energy, GE Transportation Erie, GE Jenbacher, GE Waukesha, GE Oil & Gas, GE Aviation, UNISON Dayton etc.

IoT & Industry 4.0 adoption: MMF Pune is one of the most advanced manufacturing sites in deployment of IoT in manufacturing. All critical machines are sensor enabled, connected to digital application for real time monitoring of OEE (Overall Equipment Efficiency), MTBF (Mean Time Between Failures) and MTTR (Mean Time to Recover). The manufacturing eco system is enabled by a digital thread that connects PLM with ERP & MES system. Manufacturing Operations are digitized through MES that ensures paperless lines. Their daily operating mechanism is digitized with real time visualization of key plant

metrics (safety, quality, delivery & machine downtime) that is transparent & visible to all employees. All gauge calibrations are monitored through MES and calibrations are done at NABL approved labs with national & international traceability. Calibration Certificates are stored on MES portal. Deployment of Blue Tooth enabled gauges and real time SPC (Statistical Process Capability) tool Q-DAS provide actionable insights on real time basis.

In MMF, Pune there is comprehensive continuous improvement program using Lean Six Sigma methodology. Employees are provided with Green Belt / RCA Leader / Internal Auditor Trainings that helps drive continuous improvement of products and services to solve problems for their customers with sustainable solutions. Potential risks & opportunities are identified through structured process and PFMEA that could affect product conformity & ability to enhance customer satisfaction.

The quality is inbuilt in manufacturing processes & augmented through rigorous Product, process and workstation audits. Critical processes at MMF include Welding (EBW, GTAW, GMAW, SMAW, Orbital TIG), Brazing: Induction, Vacuum, Flame, Resistance, Machining: 5 axis CNC (Turning/ Milling), EDM Drill, Plano Miller, Chemical Processing: Vacuum Pressure Impregnation, Chemical Cleaning, Heat Treatment: Vacuum, Inert Gas, Testing: Functional Tests, Burn In Tests, High Voltage Tests, Metallurgy Lab, Precision Measurement (CMM, Faro Arm, Equator, Laser Measurements), Non-Destructive Tests: Digital Radiography, Ultrasonic Tests, Fluorescent Particle Inspection, Magnetic Particle Inspection, Eddy Current Testing & Borescope.

In GE MMF, Pune they have High Performance Team's (HPT) on the shop floor. HPT is a cultural change initiative in their organisation in which front line employees are trained & groomed to work in Self-Managing Teams of about 8 to 12 each. There are over 30 HPT teams in the plant, each team has Star Caps for Quality, Lean, Delivery, Safety & maintenance. Quality Star caps spreads Quality awareness, Quality improvements and help facilitate root cause analysis.

Each employee contributes to customer satisfaction and pursue quality at the source by performing each job right every time with required competency, awareness & authority to stop any nonconforming product. Frequent trainings are conducted on topics including Six Sigma, Root Cause Analysis, GD & T, Calibration, NDT, Internal Auditor etc. Quality is the core of their business. Their actions today protect their legacy and enable their future!

Third Prize

Name of the Organization: Ultra-Tech Cement

Location: Rajasthan

Product(s) Manufactured in the Unit: OPC 43, OPC 53, PPC and Railway Sleeper Cement 53S

Best Quality Practices:

Aditya Cement started its quality journey in July 1997 by adopting quality management system as per ISO 9002:1994 standards & it was restructured by implementation of ISO 9001:2015 standard. Aditya Cement QC lab has obtained NABL (ISO/IEC 17025) accreditation on 10th Jan 2013 from department of science and technology, India, for Mechanical and Chemical testing of cements, which has further strengthened our quality system.

The quality is in built in the manufacturing process and procurement right from raw materials to finished product. They have well defined quality policy, quality manual, quality plans, work instructions, procedures and company specification, which are well distributed and established to categorically focus on the total customer satisfaction with an emphasis on continual improvement in the field of quality, productivity, cost reduction, technological innovation, supplier relation and employee satisfaction.

Quality objectives/individual objectives are derived from the Unit Key Focus Area/Strategic planning. Aditya Cement has been established with standard processes, proven international design and high tech quality testing equipment's. Latest PGNAA (On Line Analyzer Gamma Matrix) has been installed to monitor & control limestone pile quality. Aditya Cement has two XRF , one XRD for testing and controlling of incoming, in process and finished materials.

World class central control room (CCR) and PI (Plant Information) systems are installed to measure the quality level of key processes and sub-processes for producing defect free product and improved product consistency. To improve further, they are in process to digitize all CCR operation in collaboration with ABB. In order to institutionalize the global manufacturing culture, system of ABOE (WCM) has been embraced. The result of quality indicators is examined continuously and corrective actions are taken immediately through online monitoring system.

Aditya Cement is successfully using Alternate Fuel & Raw Materials (AFR). Benchmarking of the final products is being done on the basis of quality of cement in the cluster and target is given to plant by marketing for the products produced at AC.

The objectives are set and monitored for their achievements and review under the Quality Management system. Improvement parameters are set based on gap between present level and target set. Improvement projects are taken to achieve desire levels of quality parameters.

Identified persons are trained on QC tools, which are being used to identify root cause and potential abnormalities in process to prevent reoccurrence as well as elimination at the initial stage.

Critical Processes are identified by developing the impact matrix. SQC/SPC techniques are being utilized for measuring and monitoring the process control through on-line software like PI (Plant Information) and sharing the data through online QC data transfer system and the same is available in SAP , which is one of the tools/initiatives for execution of various improvement parameters like Kiln feed LSF consistency, Kiln output enhancement etc.

They study the “cost of quality” to identify and segregate “cost” of poor quality (CoPQ), and on the basis of this develop quality improvement projects to reduce CoPQ.

Aditya Cement leaders lead from front; every KFA member has owned one team for identification and implementation of QI projects. The quality tools are being applied in various quality related activities for process improvement and day-to-day activities. Process capability index is monitored for critical quality parameters like strength of cement, fineness etc. to maintain the quality of final products. The concept from “can do” to “can teach” is well established in the plant. After implementing all these system they have ‘Zero customer complaint’ and ‘zero customer return’ related to quality.

WINNERS IN MEDIUM SIZE CATEGORY

First Prize

Name of the Organization: Shriram Rayons

Location: Kota

Product(s) Manufactured in the Unit: Rayon Tire Yarn, Cord & Fabric

Best Quality Practices:

- Well documented Quality Manual, called Daily Work Management Manual (DWM). 2 Layer Quality Manual, Apex Quality Manual is DWM/QM that covers management functions & common procedures. Each department maintains a DWM in line with Apex DWM. Each departmental DWM has 17 Sections covering all requirements.
- Strong & Transparent Communication system, Process Performance & Trends are displayed at pertinent locations in the plant by respective departments.
- Organisation follows TQM practices e.g. 5S & Red Tagging. 5S audits are conducted periodically, evaluation is shared for necessary improvement. There are 32 TWM Teams which have worker's participation, meetings are held at shopfloor, minutes are recorded & displayed at pertinent locations.
- Yearly SWOT analysis is conducted by senior management & top management jointly. For resource fulfilment, Cash Availability plan (CA Plan) & Major Repair Job Plans are made annually.
- Well-designed MIS system, facilitating precise management reviews.
- Vendor Quality Evaluation methodology, considering Quality, Price, Delivery, Service & ISO Certifications.
- Monitoring of Process Capability (CpK) of RMs & sharing with vendors for improvement scopes
- Vendor Process Audits
- For Change management, 3M Change methodology is used, also, Vendors are sought to comply to 3M (Machine, Material & Method) Change requirement.
- Use of IS-2500 for RM sampling
- Advance Product Quality Plan (APQP) methodology in new product development
- Process Failure Mode Effect Analysis (FMEAs) in all production processes. For each production steps RPN is computed & periodically reviewed/updated.
- All business processes evaluated for risks involved & mitigation measures are implemented to reduce impact of identified risks.
- Measurement System Analysis (MSA) in QA testing.
- Translation of Customer Requirement into Quality Plan for each product.
- Customer & Product Specific Manufacturing Plans
- Use of SPC & 7-QC Tools, Run Charts, Control Charts & Process Capability (CpK) evaluation of Key Process Parameters
- Use of statistical tools e.g regression analysis, correlation studies & comparative methods to evaluate processes & product properties.
- Clearly defined "Warning Limits for Corrective Actions" (WLCA) & Segregation limits for non-conforming material
- Calibration Status is displayed on respective equipment stating date of calibration & next Due date. Calibration is supported by Drift Analysis.

- Autonomous Maintenance concepts are followed at 7 different machines in the plant, through the concept of Manager Model Machine.
- CLIT (Clean, Lubricate, Inspect & Tighten) Standards are implemented.
- Inspection Standards are maintained & displayed at pertinent locations.
- Identification & Traceability from Raw Materials to finished product. Batch Card/Manufacturing Card system is followed in Viscose/Spinning/Textile/Dipping.
- FIFO in Stores & Dispatch
- Extensive Export Container examination before stuffing, Self sealing using RFID seal.
- Skill Matrix Evaluation of all employees, this helps in identifying training needs, evaluation of effectiveness of trainings.
- Strong Customer Feedback System that includes proactive customer surveys & computation of Customer Satisfaction Index. Customers themselves also furnish Periodic Ratings.
- Robust Customer Complaint handling system, each complaint is handled using standard tools e.g. 8D report, Why – Why Analysis & Fish Bone Diagram. The Corrective actions are implemented & incorporated in respective DWMs.
- Real time chart recorders, SCADA system & electronic alarms at pertinent stages of manufacturing ensures robust process control.
- Department selects Two to Three key Quality Objectives. From objectives comes Performance Index, from this Index, weighted average Continuous Improvement Index (CII) is evaluated & monitored.
- Process & product Improvements through in-house R&D facilities. Knowledge capture & sharing through Intranet & technical Library.

Second Prize

Name of the Organization: XPRO India Ltd.

Location: West Bengal

Product(s) Manufactured in the Unit: Dielectric BOPP Films, Refrigerator Liners, Coextruded Sheets, and Release & Hygiene Films.

Best Quality Practices:

The Quality System at Xpro Barjora focusses on continual improvement and organizational development towards meeting Quality Objectives & Continual Improvement plans arising out of KRA of organizational goal & KPIs. The system emphasizes on the analysis and review capabilities of its people through proper training and documented procedures and extensive use of SQC & SPC at all levels.

With a clear focus on customer needs and cost effectiveness, systems for process and product quality control and end to end quality initiative are in place and reviewed at regular intervals with the help of on line process capability studies. Changes in 4M are verified for adequacy & compliance before implementation, validated and documented. System also focusses on involvement and development of suppliers and sub-suppliers towards meeting quality and cost goals.

Customer feedback (through visits, meetings, complaints processing, satisfaction survey), for analysis towards product & process development and subsequent review of Customer specifications and capability assessment and drawing up new specifications' agreement are an important part of the system. Awareness regarding Customer needs is emphasized throughout the organization. Customer satisfaction survey is conducted once in a year. Assessment of competitors' activities and product is carried out and benchmarking done. Applicable regulatory, legal & statutory requirements are met (e.g. RoHS, REACH compliance of product). Product life cycle is informed to customer for disposal.

Quality Risk Assessment is done keeping in view interest of all the stake holders (including neighbours). QbD is deployed in design/development of product and manufacturing process. CTP & CTQs are identified and standardized. Cpk for critical attributes enable checking of central tendency and variability. Design of experiments used wherever applicable. FMEA for

Process & Product, New Product & Raw material Validation & Product Audit are carried out. SQC & SPC used for determining trends of CTP & CTQs of product & process including incoming materials, internal failures and root cause analysis. (8D methodology, Why-why analysis, Gauge R&R, online Cpk study, Dynamic calibration, CAPA report, OEE, Defect analysis). HODs conduct daily meetings to ensure information & action plans are percolated down the level.

Product inspection & release are carried out through Quality Plan. Customer complaints and CAPA report is generated with target and responsibility. Unique identification of product, bar coded roll label and sound to-and-fro traceability system support quick product recall whenever necessary.

Plant and machinery are fully automated and display real time data and historical process variable data are auto-stored for verification & analysis. Condition based preventive maintenance is done and MTTR, MTBF, are determined for critical equipment. Repetitive failures are analysed and CAPA for repetitive failures is generated and actions taken and reviewed.

Employee training and skill development using skill matrix. Employee Suggestion Scheme, with recognition & reward, involves people at all levels for promotion & improvement in Quality through SGA, QC, Kaizen, Poka Yoke.

System certified by TUV Nord Germany for QMS and EMS in 2015 and since upgraded to IMS ISO 9001 & 140001: 2015 version.

WINNER IN SMALL SIZE CATEGORY

First Prize

Name of the Organization: Sahajanand Technologies

Location: Surat

Product(s) Manufactured in the Unit: Develops Total Technology Solutions for all processes of Diamond Manufacturing, such as Diamond Analysis and Planning, Diamond Cutting, Blocking and Safe Processes for diamond trading

Best Quality Practices:

Effective Implementation of Quality management system (ISO 9001:2015) across the STPL.

Work standardization at shop floor and implementation of Visual work instruction for each work station

Identification of the CTP and CTQ across the process and implementation of the GO, No-Go and plugin Gauge to reduce the part to part variation and measurement error in the process.

Error prevention through the Statistically verification and validation of the process by using the sampling plan as per the IS2500.

Implemented the first part approval system in part manufacturing work shop and maintaining the 05 to 10-micron accuracy in VMC and in turning process.

Stabilized IQA (Incoming quality assurance), PQC (process quality control), FQC (final quality control) and PDI (pre-dispatched inspection) system to prevent, detect and corrections of the error.

Adopted the PDCA problem solving approach to keep on the improvement projects:

Suggestion scheme has implemented they have an online suggestion portal which is open for every employee of the organization so that everyone can share their suggestion on online portal

Kaizen scheme is implemented across the STPL so that everyone can participate in continual improvement journey

Implemented structured Escalation system for rapid problem solving

Highly involved Performance management system to identify the Departments Goal and KPI and conducting the monthly performance review.

Robust system to handle the customer complaint using the 8D process to proper containment action, root cause analysis and identify the corrective action and prevent the recurrence and corrective actions implementation in concern area

6S (5s + safety) Implemented at shop floor for work place management and proper Visual management in all the section.

Using all the required PPE (apron, safety shoes, safety goggles, earbuds etc) at the shop floor.

Measuring the customer satisfaction by conducting the customer satisfaction survey based on define criteria and procedure based on Delivery & installation, Quality of Product, Value for money, Correspondence and after sales service support.

Their manufacturing Product and quality systems are awarded and recognized by:

- CII Industrial Innovation Award.
- Good Design Award, Japan.
- i-Mark Award, India.
- Innovators Award, United States.
- Global Quality Award, India.

Second Prize

Name of the Organization: Deutsch India Power

Location: Bangalore

Product(s) Manufactured in the Unit: Circular connectors (Aluminium, Nickel plated, screw locking, environmentally sealed, hermetically sealed, water tight, fiber optic, micro wave connectors). Rectangular connectors includes (Thermoplastic, hermetically sealed, environmentally sealed, composite, latching type of connectors). Splitter boxes (Controller area network, environmentally sealing, bayonet locking types)

Best Quality Practices:

OBJECTIVES

The objectives, from the Policy, are broken down by process and regularly reviewed to ensure continued progress.

The results of the process followed by the process owners or functions managers and are reported in Management Committees on a weekly and/or monthly basis.

In addition to the site goals set in the Policy Deployment, staff involvement is motivated by the achievement of annual goals identified by the manager and the person. Annually, an interview is set to review the individual results obtained and set goals for the coming year.

DASHBOARDS& REPORTING

A set of dashboards, comprising a series of indicators relating to cost reduction, on time deliveries, stock turn, customer satisfaction, sales, bookings, Complaints, NBOs is reported to the site management and the Executive Board, and presented during the Management Committee reviews.

These dashboards highlights are reported on a monthly basis to the Division level during ADM CONNECTORS Monthly calls and Weekly Calls.

STEERING

The processes steering and control are carried out by steering committees, meeting periodically: Management

Review

Each year, Management Reviews are held to analyze deployment plan and objectives. The main objective of the Executive Committee is to coordinate priorities and actions in the Division, consistent with Company policy and its results. The Management Reviews are run at least once a year by plant, and a yearly consolidation may be done at the Sub-vertical level. The Quality Department ensures that all aspects of the Management Review have been covered throughout the year.

ADM CONNECTORS Weekly Progress Review

The Weekly review is chaired by the ADM CONNECTORS General Manager and comprising representatives of the Executive Board. It permits to review the figures and business status in accordance with the strategy of the Company and requires a commitment of all planned actions.

Third Prize

Name of the Organization: Aum Dacro Coatings

Location: Gurgaon

Product(s) Manufactured in the Unit: Geomet 720, Geomet 500, Zincrokote & top coats like Plus 10 and others.

Best Quality Practices:

Organization has adopted International Standard, ISO - 9001:2008 which specifies the requirements for a quality management system in order to demonstrate its ability to consistently provide product that meets customer and applicable regulatory requirements.

Aim to enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and the assurance of conformity to customer and applicable regulatory requirements.

They have adopted a strict quality policy and are determined to implement them throughout the coating process. They believe that for the success of the organization it is the most important thing to emphasis more on quality system in order to provide best quality of coating to the customer to achieve higher customer satisfaction. Some activities of their quality system are to improve the quality of the coating on the product/part and to prevent non conformity.

CHANGE MANAGEMENT SYSTEM (4M – MAN, MACHINE METHOD , MATERIALS)

Change management is a systematic approach to dealing with the transition or transformation in the processes & technology. The purpose of change management is to implement strategies for controlling change. The strategy includes a structured procedure for requesting a change. Change management process takes into consideration how a change will impact process & product. To overcome the non-conformity, change management system is fully implemented throughout the organization and the organization structure for the same is made for the flow of communication & also to record the type of change. Quality head and 4M coordinator are key persons responsible for handling the change.

RED BIN ANALYSIS

AUM DACRO believes that the occurrence of any kind of non-conformity could be resolved by analysing the root cause of the problem, for the same we record each kind of non-conformity in the red bin register on daily basis & discuss in the meeting to prevent the problem, On Monthly basis pareto Analysis action taken on top PPM

IMPROVEMENT ACTIVITY

5S system is fully implemented in the organization.

Kaizen Drive: Kaizen drive is implemented to all among employees. Emphasis is to obtain Kaizen by motivating employees as rewarding them for each kaizen suggestion, also first day is celebration at the first working day of each month.

QUALITY CIRCLE: In Problem solving approach and involvement of shop floor associate and operator implemented quality circle drive .They have a dedicated quality circle team. They have also won Gold Award in CCQC 2017.

Mining Sector

First Prize

Name of the Organization: Joda East Iron Mine – Tata Steel Limited

Location: Odisha

Product(s) Manufactured in the Unit: Iron ore mine involving estimation of deposit quality, mine planning, mining, processing followed rigorously till dispatch of ore to its customer

Best Quality Practices:

The past two decades have seen the development of Tata Steel Limited's TQM activities undertaken from time to time to address the different phases of its business environment and its growing aspirations.

Post liberalization, when the steel industry was undergoing a significant change, Tata Steel focused on quality, business excellence initiatives, radical performance improvement through 'Total Operational Performance'. It was able to create a market-oriented organization by de-bottlenecking facilities, phasing out technologically obsolete plants, adding new facilities for manufacturing value-added products and augmenting its production capacity.

Tata Steel's new vision ('VISION 2007') was launched in May 2002. This focussed on becoming an EVA positive company and sustaining and improving EVA year on year, even during average steel price scenario. The conceptualization of ASPIRE (Aspirational Initiatives to Retain Excellence) was initiated in early 2002 and was formally launched on 2nd May 2003. ASPIRE was aimed at accelerating the speed of change required to achieve the Vision (of becoming EVA positive) and at the same time, adding value to the stakeholder's year after year despite the cyclicity in steel industry.

ASPIRE encompassed the entire supply chain; it had the potential to bring about a quantum leap in performance, yet provided all the liberty to tailor generic scientific concepts to specific environments. Since the initiation of ASPIRE in 2002, there was unprecedented improvement in shareholder value.

On 1st of Nov, 2006 Tata Steel re-dedicated itself to ASPIRE with the objective of emphasizing the role of improvement initiatives in Tata Steel's ever growing aspirations with focus on TQM, TOC & Technology. The ASPIRE T3 focused on motivating the employees in using TQM (Total Quality Management), TOC (Theory of Constraints) and Technology thus taking the company towards global excellence. This was the beginning of their pursuit of improvements using the TQM philosophy as the unifying framework. The TQM structure provided broad guidelines for managing business and adopted focused methodologies for specific application. It provided freedom to adopt the best technique suited for the operational requirement.

Further, in March 2010, Tata Steel embarked on another initiative known as "Kar Vijay Har Shikhar" which means - "Conquer every peak". This initiative was launched to accelerate operational transformation resulting in higher EBITDA and ensuring its sustainability through capability building measures. The improvement journey at TSL, guided by the TQM philosophy, has ensured effective & efficient way of conducting business as evidenced by the Deming Application Prize and Deming Grand Prize awards won by TSL in the years 2008 and 2012 respectively.

The Quality systems at Joda East Iron mine starts from estimating deposit quality, mine planning (long term scheduling and short term), mining, processing and is followed rigorously till dispatch of ore to its customer. Exploration result in the form of borehole data, following a thorough QA-QC check, forms the basis of mine planning and scheduling of ore from the mines. The deposit model prepared based on drill hole information forms the basis of excavation planning for long term and annual. Monthly break up of this plan is then formed to ensure customer desired quality parameters are achieved. This process also considers the long term need of customer from the finiteness of resource point of view and ensure that mining is done in scientific and sustainable manner. At suitable frequencies, the estimated ore grade is analysed with actual tonnage and grade achieved while mining. Deviation, if any, found during the reconciliation process is taken care of while planning for subsequent period.

The next important QA step involved is mine grade control which basically aims for delivering consistent run-off-mine to processing plants. In production stage QA mostly involves sampling and inspection, feedback to operating departments, process validation in fixed intervals and finally assurance of product quality at the dispatch end to the customer.

Power Sector

First Prize

Name of the Organization: Power Grid Corporation of India Limited

Location: Gurugram

Product(s) Manufactured in the Unit: Transmits about 50% of the total power generated in India on its transmission network.

Best Quality Practices:

Management of Quality in each process of the organization has always been utmost priority of its top management. An apt Quality Policy has been formulated which talks about philosophy of prevention rather than detection. It is this total quality management approach only which differentiates POWERGRID from its competitors and makes it a leader in all spheres of its operation.

Quality systems of POWERGRID are derived from its Vision, Mission and Objectives. Annual performance parameters/targets are agreed in MoU with Ministry of Power(GoI). Accordingly targets are set for each working department in the form of Internal MoU between each functional Executive Director and Corporate Planning department on behalf of CMD. These parameters are set as performance indicators of Individual executives and their performance is adjudged on these parameters.

Quality based systems and orientation are at the forefront of all the functions carried out by the organisation: -

- From project conceptualisation to project commissioning
- From procurement of products and services to sales of services
- From recruitment to superannuation
- From undertaking trainings to imparting trainings
- From shareholder returns to stakeholder value creation

These, in turn lead to delivery of quality services for the customers and for the nation. Each functional unit of the organisation is required to follow detailed procedures and policies defined in two documents, namely works and procurement policy and procedures Vol-I and Volume-II (available on POWERGRID intranet) detailing minute activities to be undertaken, roles responsibility and accountability. Process Managers/Owners are identified along with their roles and responsibility for every department & with written procedure, which is a dynamic document reviewed periodically by the top management of POWERGRID.

Facilities are being designed after thorough analysis by experienced professionals. Appropriate manpower is deployed in each vertical based on competencies mapped in Human Resource department. Newly recruited executives are also developed in respective fields to enhance their skills and take charge as part of succession planning so that consistency in quality services is maintained. Any new technology is fast adopted to stay competent and in the system. Training need assessment & skill development of employees is also undertaken as rigorous exercise.

A thorough understanding of the quality is accomplished by developing compatibility of the finished supply items required for building a complete transmission system. Detailed design review of each major/critical element of the transmission system is undertaken by their Engineering department based on submissions by OEMs through contractors. Technical specifications/designs are developed based on relevant Indian/International Standards. Type tests and special tests beyond IS/IEC requirements are also envisaged for some critical equipment to ensure compliance to design requirements. Technical specifications/Quality/Inspection of each project bring consistency in providing quality services.

Their Quality Assurance and Inspection department, which is spread throughout the Country and also involved in Foreign product assessment/inspections, plays a key role in operating QbD concept. All critical processes are identified, validated

and fully controlled.

They specify quality requirements in their technical specifications for project and vendors & sub-vendors are selected based on stipulated qualifying and technical requirements. The quality is maintained by way of implementation of agreed Manufacturer Quality Plan.

They also implement agreed field quality plans to ensure quality during installation and the testing & commissioning of goods & materials at the site. They have various inspection offices spread all over the country so as to ensure timely inspections. They have also implemented a web-based inspection management system for their total quality assurance & inspection process.

POWERGRID has developed and implemented systems and procedures aligned with integrated management system comprising ISO 9001: 2015, ISO 14001:2015 and OHSAS 18001:2007 apart from SA-8000: 2014, ISO 27001, ISO 50001:2011 & ISO 22000: 2005. Areas for improvement are identified as an outcome of internal and external audits of POWEREGRID.

There are various formats being developed as part of Transmission Line Construction and Operations & Maintenance activities which form very important part of the project execution and concerned employees are required to check the quality according the pre-defined standards and processes.

In POWERGRID, communication of Targets, Process Management, Performance Assessment and Actions is ensured to align the objectives of the organisation with the execution of projects. POWERGRID has invested significant resources in Enterprise Resource Planning (ERP) which acts as the effective information system and monitoring tool.

POWERGRID is having both external and internal benchmarking processes to achieve the next levels of performance as mentioned below:

a) External Benchmarking:

- POWERGRID has been in agreement with M/s UMS Group, USA since 2010 to share its operational performance and cost data and participate in the International Transmission Operation and Maintenance Study (ITOMS). In ITOMS, 32 leading global utilities are benchmarked against each other in various categories such as Transmission Lines, Transformer, Breaker, Protection, Switches, and Disconnectors etc. The study is carried out in view of performance level achieved, cost incurred in maintenance and manpower associated in maintenance of equipment. The study is carried out every two years (odd years) and results conference is organised at the end of each cycle (even years). In the conference, the results of each utility are discussed and best maintenance practices are shared between different utilities. Based, on ITOMS conferences, POWERGRID has incorporated various new technologies such as remote monitoring of substations through NTAMC, Use of Drones and Helicopters for aerial patrolling, use of online monitoring devices etc. Since its participation in ITOMS, POWERGRID has gradually improved its performance in both Line and Substation categories.
- Performance of critical equipment is reviewed w.r.t. international data published by CIGRE and POWERGRID is performing much better than average International performance.
- Targets set by GoI in the form of MoU with POWERGRID are also an external benchmark for us. POWERGRID has been consistently assessed under "Excellent" category by GoI.

b) Internal Benchmarking:

- Benchmarking of regions for project completion in the form of internal MoU with Regions is done. Performance of Regions is adjudged based on actual achievement of different defined parameters.

Contractors are not as such selected by POWERGRID. They need to have the minimum Qualifying Requirements(QR) specified for each contract. Once they are found to comply minimum QR, the capacity and capability of the supplier is assessed based on documents submitted/asked for from the suppliers. A visit to the supplier and its customers is also undertaken, based on system requirement to ensure and verify the QR, capacity and capability (technical and financial). Suppliers'/Contractors' performance is evaluated based on Engineering, Quality, operational parameters at regular intervals for assessing their qualification for future projects.

Each sub-supplier is selected through an elaborate process before considering them to supply items/products to POWERGRID. A thorough assessment & improvement cycle is undertaken before considering them for supply of sub-items/components to

POWERGRID. A standard check list is formulated and evaluation /grading of supplier is undertaken according to the score obtained by supplier. Detailed processes of manufacturing and testing facilities are audited before selection of a supplier/ sub-supplier. Process improvements are enforced based on best practices observed during regular process audits/inspections. Grading of vendors and reduction in inspection is undertaken based on equipment specific criteria. Time saved from reduced inspections is used for improving processes at supplier/sub-supplier works.

Regular surveillance audits are carried out at sub-supplier/supplier manufacturing works. In case any abnormality or non-conformity is observed, the manufacturer is kept on hold or their approval is withdrawn based on severity of the issue observed.

There are post bid discussions wherein Contractors are made aware of the detailed quality requirements of each project. Contractors are compulsorily required to supply all items/equipment from the approved list of POWERGRID suppliers. All necessary support and assistance to co-ordinate and expedite the progress of project is provided within the provisions of the contract. Regular monitoring is done to expedite the payments to the vendors without delays to ensure their smooth cash flow which actually helps in fast and quality delivery of the products/services. Further, POWERGRID takes care for providing all the statutory clearances viz. forest clearance, railway clearance, court cases, RoW and hindrances etc. from time to time to achieve timely completion of the project. CEO meet is regularly held with our project executing agencies to let them know their expectations on Quality systems and share past experiences.

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Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies.

FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.