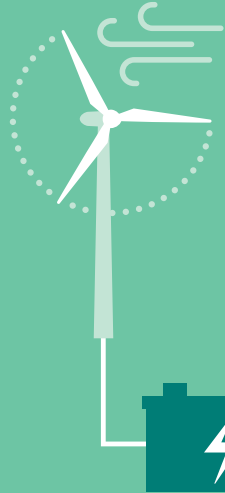
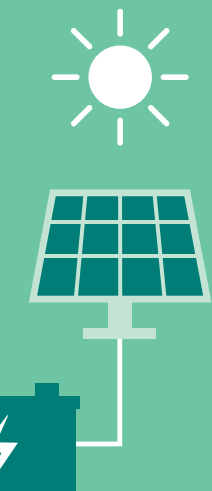
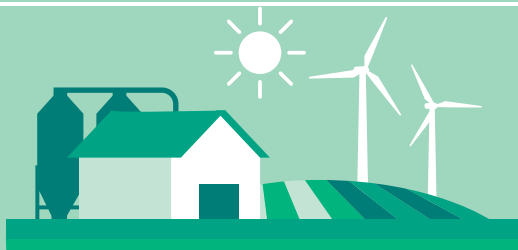


PROJECT *by* PROJECT





JUST THE FACTS

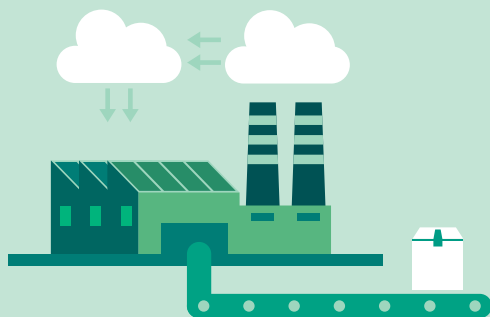
Just as quality revolutionized the manufacturing and healthcare industries over the past 50 years, the same disciplined approach must be embraced by organizations and countries around the world to create the synergetic changes required to address climate and environmental issues.

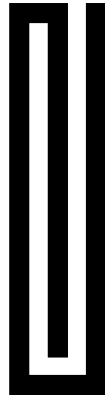
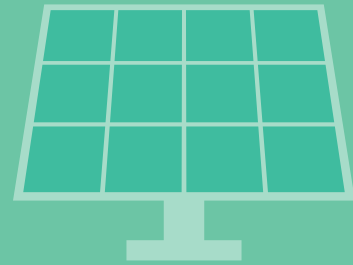
As quality pioneers have noted, improvement happens project by project.

To encourage the use of quality methods in efforts to save the planet, several partnerships with quality organizations throughout the world have formed to promote projects aimed at environmental issues and other aspects of sustainability. These projects are evaluated for recognition and their stories are shared to inform and inspire others.



Avoiding climate calamities and saving planet Earth with quality—
one project at a time by John R. Dew





In a 2020 issue of ASQ's *Journal for Quality and Participation*, Belgian quality consultant Willy Vandenbrande provided a comprehensive overview describing how the quality discipline can make a significant and game-changing contribution to enhancing the sustainability of our planet.¹ Applying quality methods to the challenges of sustainability provides yet another important milestone in the progression of the quality discipline in serving the needs of humanity.

In the 1960s and 1970s, the quality discipline made significant contributions to the development of vital new technologies that improved the world's standard of living in fields such as aerospace, telecommunications, electronics, power generation, biomedical sciences and manufacturing. Quality assurance and quality control methods were designed into new technologies that made it possible to support growing populations, build new cities and even land men on the moon.

By the 1980s, the world was recognizing the power of quality methods to improve work processes by reducing variation, waste and rework, and providing new products and services that delighted customers and met expectations they did not even know they had. Terms such as "process improvement," "continuous quality improvement" and "process simplification" became widely used throughout American industry and service organizations.

ASQ and other organizations hosted conferences in the 1980s that featured thousands of presentations by quality practitioners eager to share how they had applied quality methods to improve everything from autos to zippers. Competition in the United States emerged between those who were disciples of W. Edwards Deming, those who embraced Philip Crosby's approach, and those who learned from quality gurus such as Armand Feigenbaum and Joseph M. Juran. Americans were discovering the contributions of Japanese quality experts such as Kaoru Ishikawa, Genichi Taguchi, Masaaki Imai and many others.

From this rich mix of enthusiastic engagement, new perspectives emerged that subsequently have become accepted as commonplace, such as the assembly of quality improvement approaches into a method known as Six Sigma, the creation of a comprehensive framework for achieving performance excellence throughout an organization known as the Baldrige criteria and a holistic approach to quality embraced in many parts of the world known as total quality management.


Traditional bedrock practices in the quality field—such as the creation of standards and the use of audits and inspections—also have continued to thrive and make advances in support of even greater achievements in quality that have improved the human condition around the world.

2022 Recognitions

Thirteen organizations were recognized in the 2022 Quality and Sustainability Award process for sustainability projects using quality methods. Top recognition went to the Xiangshui County Power Supply Branch in China, Ashok Leyland Ltd. in India, Colquimica Adhesives in Portugal and SRF Ltd. in India.

- **Xiangshui Power Supply's** project focused on developing an efficient power inspection system that enhances the inspection of transmission using a plan-do-check-act cycle, quality function deployment and process flowcharting. The new approach uses unmanned aerial vehicles and greatly reduces the speed of transmission line inspection and avoidance of loss of electricity due to power faults.
- **Ashok Leyland Ltd.** applied Six Sigma and design of experiments (DoE) methods to reduce water use, CO₂ emissions, hazardous waste, material and fuel consumption by improving the painting process in its auto facility in India.
- **Colquimica Adhesives** organized a "lean green value stream map" project to reduce the amount of glue being sent to a landfill by 54% (a reduction of 35 tons in one quarter). The team used lean Six Sigma methods to structure its analysis.
- **SRF**, a multi-business chemical company in India that has twice won the Deming Prize, organized a project team to focus on improving its polymerization film production for laminate packaging. The team used failure mode and effects analysis to establish a new recycling process and reduce its facility's carbon footprint.
- Other companies that received recognition in the 2022 award cycle included:
- **State Grid Corp.** in China for its project on improving the removal of watt-hour meters to reduce pollution.
- **Tata Steel** in India for its project to enhance scrap steel recycling.
- **The Department of Education and Training** in Son La Province, Vietnam, for its work on continuous improvement of its quality system in education.
- **State Grid Corp.** in China for its project to adjust the power grid mode of operation in advance of lightning storms to reduce power outages.
- **Mahindra & Mahindra Ltd.** in Pune, India, for its project to install rooftop solar collectors.
- **Beijing Capital International Airport Aviation Security Ltd.** for its use of total quality management and root cause analysis methods to improve processes related to passenger identification, documents and baggage identification.
- **Mahindra & Mahindra Ltd.** for its use of DoEs in developing new cast iron materials and reducing CO₂ emissions in tractor production.
- **Bosch Ltd.** in Rajasthan, India, for a lean project to eliminate a lapping process, resulting in reduced generation of hazardous waste.
- **Amway Ltd.** (China) in Guangzhou, China, for conducting a project to significantly reduce the plastic and paper used in packaging materials such as bottles and cartons.

➕ For more details on the recipients, visit <http://iaqaward.com/iaq-quality-sustainability-award-2022>.



The deadline for submissions for the 2023 award cycle is June 30.

National Partners

The International Academy for Quality (IAQ) Planet Earth Think Tank members recognized that a process for recognizing and encouraging what could become tens of thousands of projects using quality methods to save the planet could get out of hand quickly.

So, the Think Tank members established partnerships with quality organizations in countries that will promote projects and evaluate these projects. Each country sends only its top projects on to IAQ for the final evaluation.

In 2021, the partners were the Indian Society for Quality and the Chinese Association for Quality. Each country promoted the competition and conducted its own first-round examination of numerous applications, forwarding the best to IAQ for review by a neutral group of evaluators.

The partners for the third round of recognition in 2022 have expanded to also include the Vietnamese Quality Association and the Israeli Institute for Quality, Innovation & Excellence.

Collectively, the quality practitioners in these four countries are leading the world's effort to focus quality methods on a project-by-project level to address local issues of environmental sustainability.

The IAQ evaluators for the 2021 recognition cycle were from Argentina, Belgium, China, India and the United States.

—J.R.D.

As quality methods proliferated throughout manufacturing, it became possible to streamline workflows and develop new capabilities for just-in-time delivery of components in what has developed as the supply chain discipline. Likewise, the expansion of quality methods has established new levels of reliability and safety in products, and thousands of new innovations in products and services.

When the medical community was confronted in the late 1990s with evidence of serious deficiencies in the quality of practice that resulted in adverse and sentinel events, practitioners turned to the quality field's body of knowledge to eliminate errors throughout the medical field. Quality control and quality improvement methods have been applied to the healthcare field in ways that have improved patient safety and helped contain health-care costs.

There is no doubt that during the past 50 years, the quality discipline has had a major impact on improving human lives in hundreds of thousands of applications. The quality discipline has taken on many of the aspects of a movement, thanks to the commitment and dedication of thousands of practitioners around the world.

New global challenges

The United Nations has established 17 Sustainable Development Goals that recognize and begin to address systemic challenges for humanity.² This includes the

concern now shared by most climate scientists that our planet is confronted with the challenge of rising temperatures that could result in disruption of the climate around the world. The potential associated problems include changing weather patterns that result in drought, excessive heat, rising sea levels, melting permafrost and increased hurricanes.

These changes have the potential of disrupting food supplies, submerging coastal communities, creating water shortages and stimulating conflicts over resources.

While there have been national accords and agreements on establishing goals for reducing greenhouse gasses and reducing dependence on fossil fuels, the overall scope of the climate challenge can appear quite daunting. The challenges and problems are numerous and encompass the globe. How will we, as a species, address these issues?

ASQ AND ESG

Establishing and promoting the role of quality in environmental, social and governance (ESG) thought leadership and content development is firmly planted in ASQ's 2023-24 strategic plan. For more details on this plan that will guide the ASQ's organizational decisions, resource allocations and priorities for the next two years, visit asq.org/about-asq.



The answer is quality.

In the same manner that tens of thousands of quality initiatives revolutionized the manufacturing industry, as well as healthcare, during the past 50 years, the same disciplined approach must be embraced by organizations and countries around the world to create the synergetic changes required to address climate issues. Likewise, in the same manner that quality standards help drive systematic quality improvement, quality professionals are actively engaged in developing environmental, health and safety standards that will support sustainability goals.³

Project by project

Juran was famous for his observation that improvement happens project by project.⁴ Juran and Ishikawa taught the world how to form quality circles within work groups that would focus unceasingly on analyzing and improving work processes to reduce variation and eliminate rework and waste. Even more importantly, Juran taught us how to establish cross-functional teams to address larger quality problems that require improving a process that crosses organizational boundaries or is part of a system.

With the leadership of N. Ramanathan of India, Vandendran of Belgium, and quality practitioners such as Lars Sorqvist of Sweden and Sunil Sinha of the United Arab Emirates in the International Academy for Quality's (IAQ) Planet Earth Think Tank, it's been acknowledged that a return to the widespread use of project-by-project efforts will be a vital component in avoiding climate calamities and saving the planet.⁵

Projects can use quality methods to reduce waste streams, improve efficiency in the use of materials and energy, target opportunities for introducing new technologies and many other applications. The beauty of this approach is that many organizations already have invested in learning and applying quality methods, so they are well positioned to expand the use of quality methods into environmental

issues and other aspects of sustainability as defined by the United Nations.

To promote this view and the progress that is already being made, IAQ organized a Quality and Sustainability Award recognition program in 2020.^{6,7} A second round of competition in 2021 attracted a significant increase in applications and organizations that have received commendations and award-winning recognition. See the sidebars "National Partners" and "2022 Recognitions" (p. 27) for background on how the program works and details about recent recipients.

Only scratching the surface

As commendable as these projects are, the reality is that we are only starting to scratch the surface in terms of the potential benefits of applying quality methods to Earth concerns in all 17 of the United Nations sustainability categories. Quality professionals can find stimulating suggestions for how to think about applying quality methods to sustainability challenges offered by authors such as David Saunders in QP.⁸ ASQ's Energy and Environmental Division also has a committee on applying quality to sustainability challenges chaired by Lowellyn James.

While governments might pursue various environmental and climate goals through top-down programs, the bottom-up approach using quality improvement methods may hold the key to saving the planet. Governments may establish goals and educate the public about the validity of the concerns related to environmental sustainability, and governments may enact tax incentives and research grants to incentivize efforts. It will take hundreds of thousands of actions at the grass roots level, however, to really make a difference.

As we have witnessed over the previous decades, the project-by-project approach using quality methods, which provide a cross-disciplinary wealth of tools and knowledge, is a proven strategy for changing the world. Quality methods enable us to realize the concept that we must think globally and act locally. **QP**

EDITOR'S NOTE

The references listed in this article can be found on the article's webpage at qualityprogress.com.



John R. Dew teaches in the doctoral program in global leadership at Troy University in Alabama. He earned his doctorate in education from the University of Tennessee in Knoxville. Dew is an ASQ fellow, International Academy for Quality (IAQ) member, past chair of ASQ's Energy & Environmental Division, past chair of ASQ's Education Division and a member of the IAQ Planet Earth Think Tank.