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SUPPLY CHAIN
SUSTAINABILITY STRUGGLES

08

QUALITY'S RECURRING ROLE
ADDRESSING SUSTAINABILITY ISSUES

22

ISO 14030 SETS GREEN
FINANCE STANDARDS

48



STEP UP TO THE CHALLENGE

FOUR ROLES
FOR QUALITY
PROFESSIONALS
IN COMBATING
CLIMATE CHANGE

J A N
2 0 2 2



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COVER STORY



12 || Step Up to the Challenge

How quality professionals, equipped with quality tools, can combat the effects of climate change on the economy, environment and human health.

by David M. Saunders

FEATURES

22 || Sustained Effort

The time is now for more organizations to expand their use of quality methods to enhance sustainability efforts and address environmental issues.

by John R. Dew

28 || The Service Game

Ideas and approaches for designing services for 21st century economies that complement traditional quality tools.

by Ricardo Fierro

36 || Successful Takeoff

Ten things to remember when planning a transformation journey and advice on overcoming obstacles your organization may encounter along the way.

by Ashok kumar Rajaraman



DIGITAL EDITION

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Step Up, Step In

Quality central
to sustainability
efforts

The thick of the holiday shopping season is an ideal time to reflect on the topic of sustainability. This year especially,

supply chain snafus and delivery delays underscored how human behaviors, business practices and expectations can affect the environment and, ultimately, contribute to climate change.

Organizational priority aimed at sustainability initiatives continues to build, and quality professionals will play a pivotal role in leading change within their organizations. “Step Up to the Challenge,” p. 12, explains how quality professionals are positioned perfectly to employ their quality toolsets in charting their organizations’ sustainability courses.

As the world’s leading corporations put increasing emphasis on slowing climate change, new doors will open for quality professionals to apply their skills and make a difference—definitely a win-win! Don’t miss the sidebar, “Standards and Sustainability,” p. 18, which highlights the International Organization for Standardization standards that enable governments and other organizations to work toward sustainability.

“Sustained Effort,” p. 22, details further connections between quality and sustainability. In fact, quality and sustainability are “two sides of the same coin,” the author writes. Read about how quality tools are

perfectly suited for helping organizations meet sustainability goals, and learn a little of the history behind the connections.

In the Progress Report article, “A Second Chance,” p. 8, find out how customer expectations are adjusting in favor of sustainable products and practices, and how some global supply chains are changing to incorporate more environmentally friendly practices.

Are sustainability goals among your New Year’s resolutions this year? Email me at ssanders@asq.org or visit the myASQ QP discussion board at my.asq.org/discuss/viewcategory/206 to engage with others in our community.

Improved efficiency is a key aspect of sustainability, and lean and Six Sigma can help us get there. Brush up on your skills and knowledge, and visit me on the exhibit floor at the ASQ Lean and Six Sigma Conference Feb. 27–March 1 in Phoenix. ASQ’s first planned in-person conference since 2020 promises to provide a dynamic—and safe—learning and networking experience. Visit asq.org/conferences/six-sigma to learn more. **QP**



Seiche Sanders
Editor in Chief
and Publisher

JUST THE FACTS

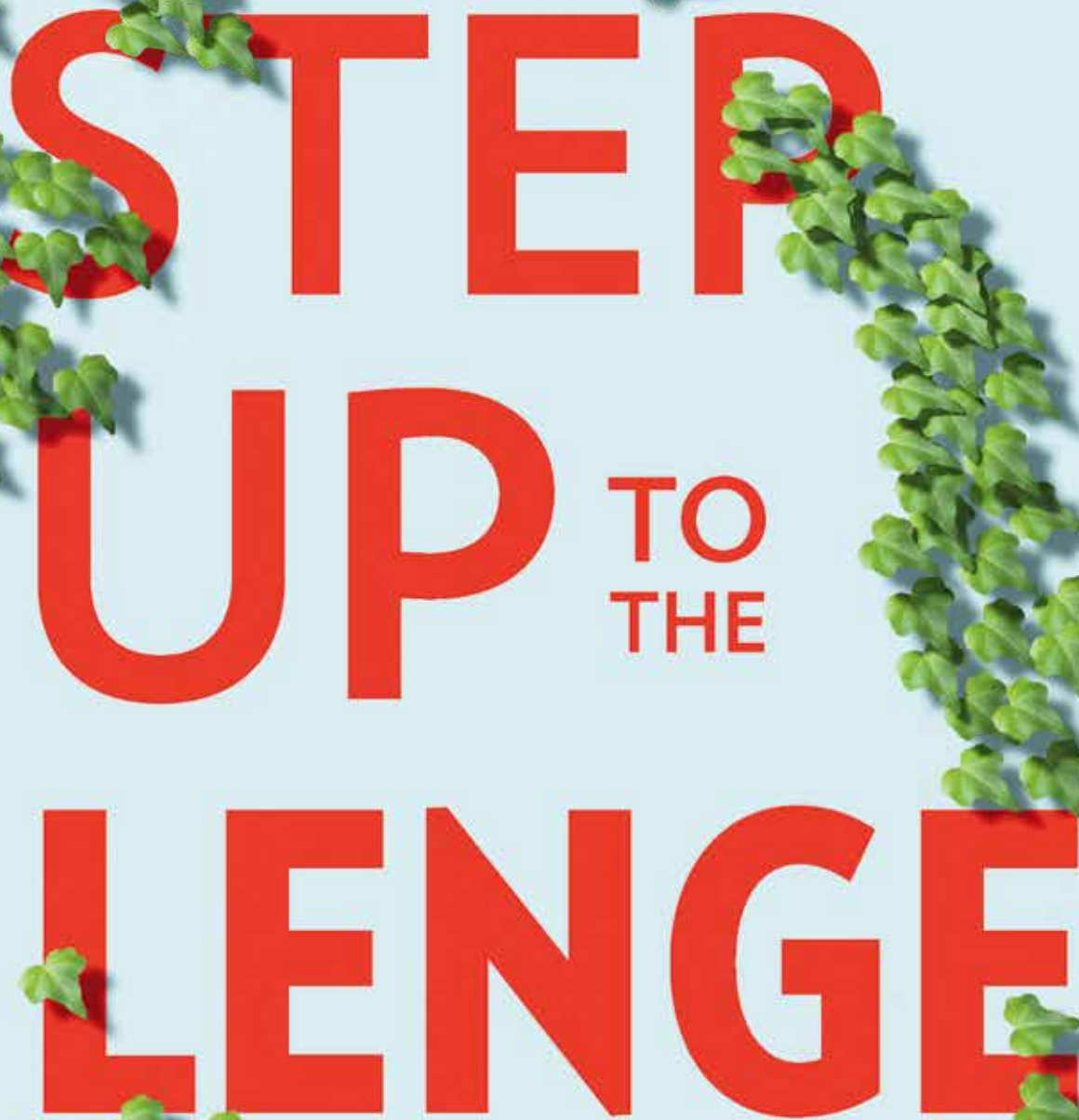
Communities, governments and businesses are working diligently to reduce the risks of climate change and their impact on the economy, environment and human health. But what can quality professionals do to help?

The author explores how quality professionals and quality tools can help mitigate the effects of climate change. The roles they can play fall into four categories: adaptation, mitigation, reporting and opportunity.

**Four roles for
quality professionals
in combating
climate change**
by David M. Saunders



CHALLENGE



STEP UP TO THE CHALLENGE



arry Fink, the world's largest asset manager with almost \$7 trillion under management, wrote in his 2021 letter to CEOs that every management team and board must consider how climate change will affect their company's stock.¹

Quality professionals have long watched executives make decisions in the hopes of gaining favor with investors. Until recently, these decisions were focused on the quarterly bottom line. But now, a credible financial voice is warning that investors will ask, "What, if anything, is your company doing about climate change?"

Senior managers who worry about the physical impact of climate change will set up taskforces, workgroups, improvement teams, dashboards and all sorts of new initiatives. But what role will quality professionals play? Will they be team members, team leaders, facilitators or technical advisors? Or will they be outside in a monitoring and inspection role?

Regardless of the role, activities will fall into four categories: adaptation, mitigation, reporting and opportunity. These four words appear repeatedly in climate change podcasts, webinars, seminars and books. This article attempts to show the vital role quality professionals can play within these four categories.

When you hear 'adaptation,' think 'FMEA'

According to the United Nations' climate change website, adaptation includes adjustments in business practices in anticipation of, or as a result of, climate change.² Adaptation answers the question, "What do we do to cope with

floods, droughts, wildfires and other adverse climate events?" As organizations adapt to climate hazards, quality professionals can use failure mode and effects analysis (FMEA) to identify failure modes and develop countermeasures.

When discussing failure modes, the U.S. Climate Resilience Toolkit uses words such as "exposed," "sensitive," "adaptive capacity" and "vulnerability."³ It presents an asset vulnerability flowchart, which can be applied as follows: Consider a warehouse located in the outskirts of Miami. What is the probability that it will be exposed to sea level rise? How sensitive is the facility to saltwater damage? What is the potential impact? How much adaptive capacity does the facility have? For instance, can a flood wall be built? Can sensitive equipment be moved? Can insurance be purchased? This analysis determines vulnerability (see Figure 1).

Quality professionals are well versed in using flowcharts and decision matrixes. The warehouse adaptation team will welcome quality professionals who can help them think through the failure modes at each warehouse location.

The U.S. Climate Resilience Toolkit also provides an Excel spreadsheet to quantify the vulnerability of each asset in terms of probability of occurrence and magnitude of consequence.⁴ For the risk of sea level rise, the assessment matrix in Figure 2 (p. 16) shows the Miami facility in the red zone, while the Las Vegas facility is in yellow. Even though Las Vegas is at an elevation of 2,000 feet, it is vulnerable to sea level rise because it depends on the Port of San Diego for resupply.⁵ Because quality professionals already know how to deploy a decision matrix, they can make a formidable contribution to adaptation efforts.

Some adaptation projects are what quality professionals call low-hanging fruit. Excessive heat is a climate threat, especially for outdoor workers. A simple adaptation project

Quality professionals, by temperament and training, will be highly valued because they can read and understand the technical standards required to report GHG emissions.

PREPARE TO FIGHT

Here are some ways to prepare to fight climate change:

1. Start reading now; it's not too late. Keep a research log of websites, articles and organizations. There is a plethora of information available.
2. Find a climate change buddy. It helps to have a colleague to discuss issues with because climate change ideas can be daunting and complex.
3. Consider becoming a certified climate change professional. Go to www.climateofficers.com for more information.
4. See Sidebar Table 1 for websites to research.

—D.M.S.

SIDEBAR TABLE 1

Websites to research

Rewiring America: Download free "Handbook for Winning the Climate Fight"	www.rewiringamerica.org
The Climate Reality Project: Sign up for free leadership training and access to Al Gore's extensive slide deck.	https://realityhub.climateRealityProject.org/home
Global Carbon Project: Sign up for free newsletter on mitigation.	www.globalcarbonproject.org
Greentech Media: Sign up for free newsletter on renewable energy business news.	www.greentechmedia.com
World Business Council for Sustainable Development: "WBCSD is a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world."	www.wbcsd.org
BlackRock Investment Management: 2021 Letter to CEOs.	www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter

FIGURE 1

Asset vulnerability flowchart



is to follow Occupational Safety and Health Administration warnings for excessive heat (see Figure 3, p. 17).⁶

When you hear 'mitigation,' think 'prevention'

Adaptation involves coping with climate change; mitigation involves preventing climate change. But it's not just substituting the word "prevention" for "mitigation." To be in the business of fighting climate change, quality professionals must learn more than a few new terms. After they learn the lingo, however, they can make a valued contribution.

Worldwide, when discussing emissions from burning fossil fuels (the root cause of climate change), references to scope one, scope two and scope three appear repeatedly. Basically, scope one includes emissions from company-owned equipment; scope two includes emissions from the electrical grid and scope three includes indirect emissions (from products sold to customers).⁷

Scopes one, two and three are shown in Figure 4 (p. 20), which was prepared by the New Zealand Business Council for

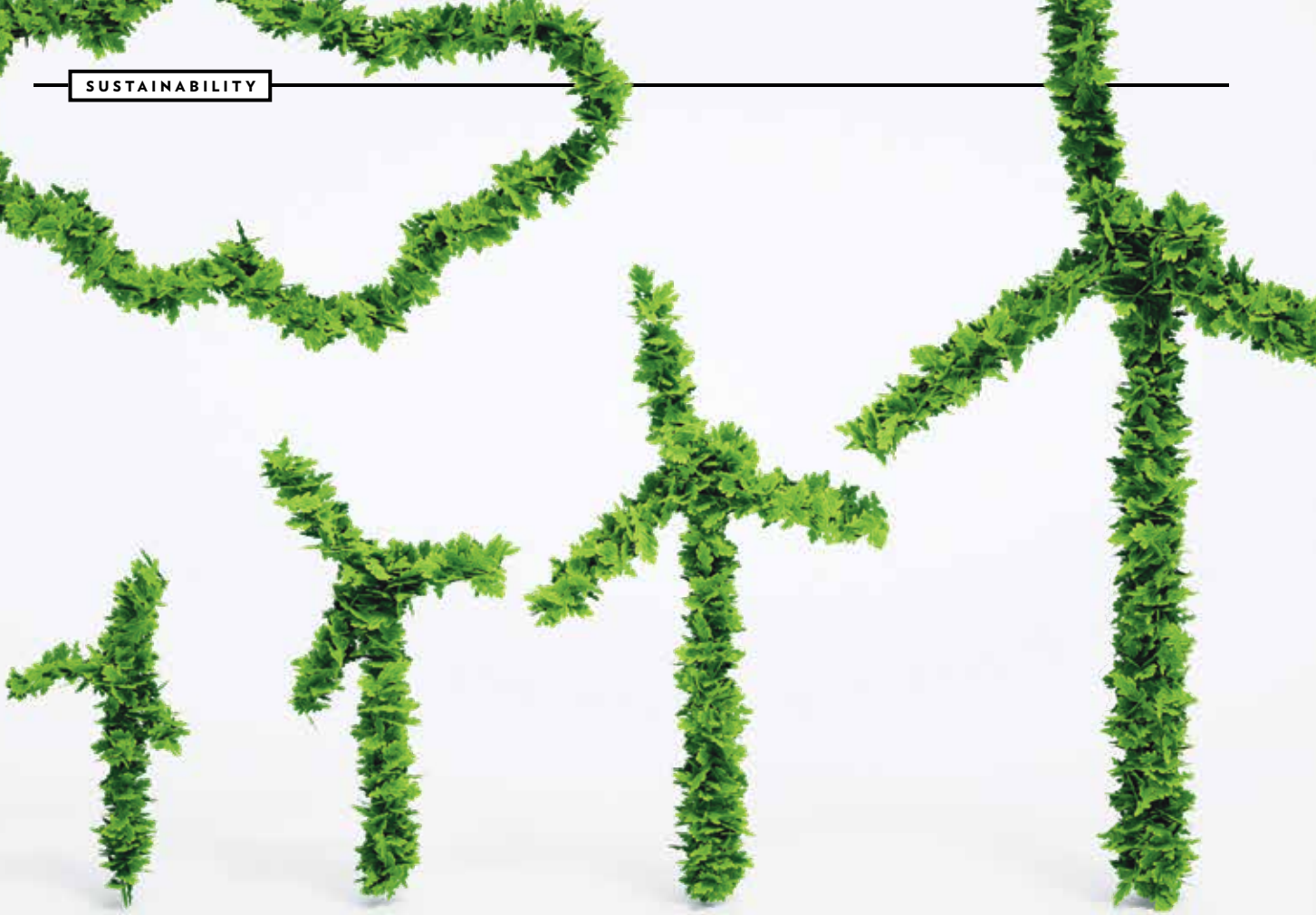
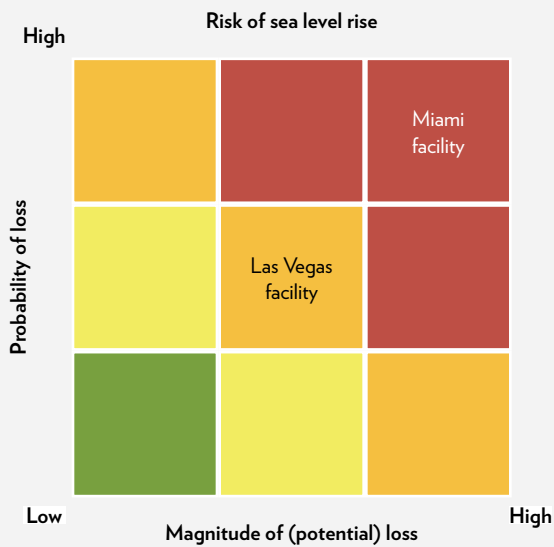


FIGURE 2

Assessment matrix



LEARN MORE

For years, ASQ has played a fundamental support role to U.S. Technical Advisory Groups (TAG) and subcommittees responsible for developing and revising International Organization for Standardization (ISO) standards in several fields. In particular, ASQ assembles groups of experts from a variety of industries to represent a balanced cross section of stakeholders in this work. For more on ASQ's involvement, as well as a thorough collection of material about quality standards, visit ASQ's Standards 101 resource page asq.org/quality-resources/standards-101.

FIGURE 3

Excessive heat warning

Heat illness can be prevented!



✓ **Water**



✓ **Shade and Rest**



✓ **Training**



✓ **Emergency Plan**



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power—know how to evaluate vendor performance. In addition, when it comes to gathering emissions data, quality professionals are well suited to do the math.

Many corporations want to tout their mitigation efforts. The retail chain Target, for example, has a goal “to source 100% of our electricity from renewable sources by 2030.” The organization proudly advertises the installation of solar panels on the roofs of 500 retail operations⁹ (see Figure 5, p. 20).

Imagine, for example, the team at a consumer-oriented retail company, such as Target, evaluating solar suppliers. One can easily see several roles for quality professionals in writing specifications, evaluating vendors and ensuring vendor performance.

Incidentally, the effort to achieve 100% renewable energy often involves purchasing renewable energy certificates (REC). RECs are issued when one megawatt-hour of electricity is generated and delivered to the electricity grid from a renewable energy resource (which can be anywhere). Quality professionals can readily become organization experts to ensure that the RECs are certified, verified and properly retired.¹⁰

When you hear ‘reporting,’ think ‘QMS’

According to Greenhouse Gas (GHG) Protocol—which supplies the world’s most widely used GHG accounting standards—a quality management system (QMS) provides a systematic process for preventing and correcting errors, and identifies areas in which investments likely will lead to the greatest improvement. GHG Protocol strongly recommends that the system for reporting GHG emissions should be modeled after the QMS. It further discusses data quality, data management and data use. Once again, quality professionals will be relied on to play an important role as more and more organizations report their GHG emissions.^{11,12}

The 1997 meeting of the United Nations Framework Convention on

Sustainable Development. The diagram, developed in 2002, still is used worldwide today to illustrate greenhouse gas (GHG) emissions.⁸

As organizations identify their sources and quantities of emissions, the next step in mitigation is to establish

measures and start projects to reduce emissions. Most projects involve reducing fossil fuel dependence and increasing energy efficiency. Here again, quality professionals—though they may not be experts on solar, wind or fourth-generation nuclear

Standards and Sustainability

TAG involvement in sustainability efforts by Susan L.K. Briggs,
Chair, U.S. TAG on Environmental Management

Organizations of all types and sizes are seeking ways to protect the environment from the effects of pollution and climate change, and improve the lives of workers and neighbors in their surrounding communities, while also prospering economically. They recognize that their socially responsible decisions and activities have positive repercussions on society and the environment, and thus can contribute to a sustainable future.

Sustainability often is thought of as primarily an environmental concept including issues such as pollution prevention, climate change mitigation, natural resource conservation and biodiversity protection. But the environment is just one of three pillars of sustainability. The other two pillars include social issues, such as education, human rights and labor practices, and economic issues, such as fair competition, income creation and technology innovation. These three pillars are interdependent, and a balance among them is considered essential.

Sustainability refers to the state of the global system in which the needs of the present are met without compromising the ability of future generations to meet their own needs.¹ It is the goal of sustainable development. From this perspective, sustainability is a characteristic of the planet as a whole, not of any particular activity or organization, whereas sustainable development addresses the activities, products and services of particular organizations and their ability to engage in such development in a manner that contributes to sustainability.²

The United Nations' "2030 Agenda for Sustainable Development" outlines 17 interlinked sustainable development goals with supporting actions to achieve a sustainable future (see Online Figure 1, which can be found on this article's webpage at qualityprogress.com). They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education,

reduce inequality and spur economic growth—all while tackling climate change and working to preserve our oceans and forests.³

The International Organization for Standardization (ISO) has developed international standards and other technical documents that can be used effectively by organizations seeking to contribute to sustainable development goals. There are more than 22,000 ISO standards that can help governments, industry, communities and consumers address economic, environmental and societal issues.⁴ Some of the key ISO sustainability-related standards include:

- *ISO 14001—Environmental management systems* defines a framework for managing an organization's environmental responsibilities in a systematic manner that contributes to the environmental pillar of sustainability.
- *ISO 14080—Framework and principles for methodologies on climate actions* contains guidelines for developing methodologies and actions to address climate change, including adaptation to its impacts and greenhouse gas mitigation in support of sustainability.
- *ISO 19600—Compliance management system* provides guidelines for an effective and responsive compliance management system based on the principles of good governance, proportionality, transparency and sustainability.
- *ISO 26000—Guidance on social responsibility* provides guidance on how an organization can contribute to the full spectrum of sustainable development through socially responsible behavior.
- *ISO 37101—Sustainable development in communities* helps communities become more resilient, smart and sustainable by implementing strategies, programs, projects, plans and services.
- *ISO 45001—Occupational health and safety management systems (OH&S)* defines a framework for providing safe and healthy workplaces by preventing work-related injuries and ill health, and improving its OH&S performance.

Under the governance of the American National Standard Institute, the U.S. member body to ISO, technical advisory groups (TAGs) develop and promote U.S. consensus positions related to the contents of ISO standards developed by ISO committees. Organizations can join a TAG to learn about the emerging requirements and guidelines on these sustainable development topics, provide input and best practices to inform the U.S. consensus positions, and, if interested, negotiate and influence the standards developed at the international forums.

The achievement of sustainability is now recognized as one of the most important considerations of governmental bodies at all levels, industry, communities and individuals. Join a TAG by contacting standards@asq.org.

EDITOR'S NOTE

References listed in this sidebar can be found on this article's webpage at qualityprogress.com

—S.L.K.B.

 COMING SOON



Be on the lookout for more sustainability-related content in a future issue of QP. Authors Lowellyne James, Mary Jane Poku and Mina Boulos present insights from the 2021 sustainability/corporate social responsibility survey.

Performed by the ASQ Energy & Environmental Division's Sustainability Committee, the survey provides insights into perceptions, current initiatives and contributions of quality, safety and environmental practitioners and management professionals in facilitating sustainable outcomes for organizations and society. Respondents provided insights into the current state of applying quality management to achieve sustainable development.

Scan the QR code for an interactive dashboard of the 2021 survey results.

Climate Change was held in Kyoto, Japan.¹³ It was a critical turning point in recognizing the danger of climate change because seven GHGs were targeted for reduction: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and nitrogen trifluoride. This became known as the Kyoto Protocol.¹⁴ In a few years, reporting on these gases will be commonplace. Quality professionals can play a role in tracking and reporting these GHG emissions.

In addition to reporting GHG emissions, organizations will be required to report climate change risks. The U.S. Securities and Exchange Commission Guidance on Climate Change Disclosure for Publicly-traded Companies is a useful tool for evaluating disclosure obligations concerning climate change. For example, if an organization determines that its physical plants and facilities are exposed to extreme weather risks and it is making significant business decisions about relocating or insurance, the organization should provide disclosure.¹⁵ Quality professionals can play a valued role in tracking and reporting these risks.

Specifications for reporting GHG emissions and removals also are covered in ISO 14064:2018.¹⁶ This is another area in which quality professionals can contribute.

Quality professionals, by temperament and training, will be highly valued because they can read and understand the technical standards required to report GHG emissions. Many organizations will look to quality professionals to step up to the climate change challenge.

When you hear 'opportunity,' think 'new product development'

Many organizations will prosper by fighting climate change, and many new products will be developed. Quality tools such as creative thinking, voice of the customer, prototype testing and design of experiments will be in high demand.

Target, for example, is installing electric vehicle charging stations so customers can shop while charging their cars (see Figure 6, p. 21).

Another example: A company that warehouses paper documents for large pension funds realized that its Northern California facility was at risk because

of the potential of nearby wildfires. It created a new high-speed scanning service to convert paper documents into electronic files, thereby increasing revenue and decreasing risk.¹⁷

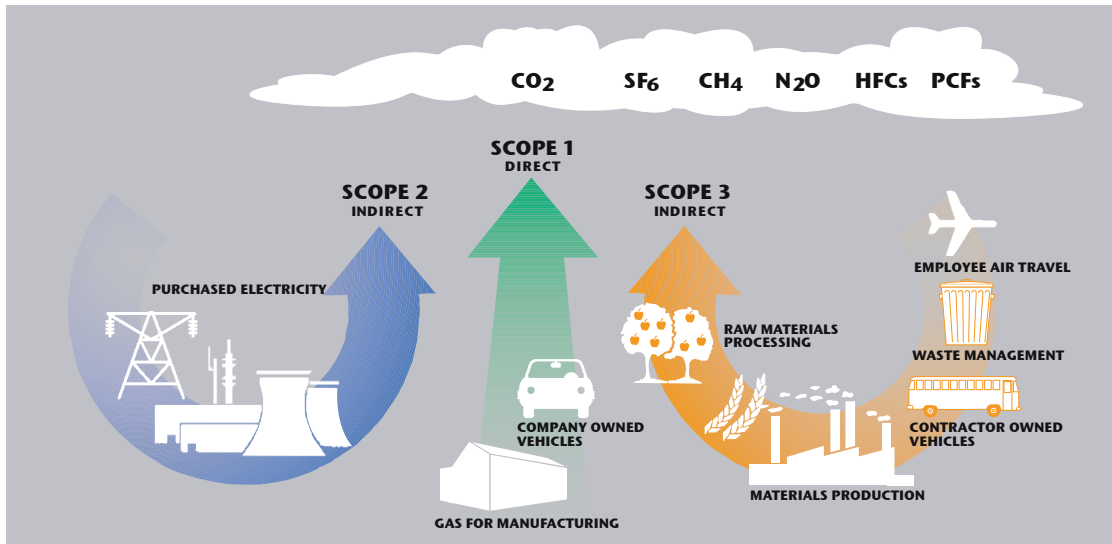
Opportunities for new products abound even in lesser developed countries. An often-cited example describes a couple in Bangladesh that raised chickens. Their hatchery frequently flooded. Wet chickens easily catch infections, causing their farm to fail. The farmers raised the height of the chicken coop, but not high enough. Thankfully, with financial help from an international charity, the couple switched to raising ducks, thereby developing a thriving business. When asked the reason for their success, the wife simply replied, "Ducks can swim!"¹⁸

Do what's right

The U.S. Global Change Research Program, which is the voice of 13 federal agencies, wrote: "Communities, governments, and businesses are working to reduce risks from and costs associated with climate change by taking action to lower greenhouse gas emissions and implement adaptation strategies.

FIGURE 4

Scopes 1, 2 and 3



SOURCE: Climate Change Guide, New Zealand Business Council for Sustainable Development, 2002, p. 10, <https://tinyurl.com/pzdbyrhm>.

FIGURE 5

Target reaches 500 solar installations



SOURCE: "Here Comes the Sun: Target Reaches 500 Solar Installations," Target, Nov. 17, 2019, <https://tinyurl.com/4w4zb4p5>.

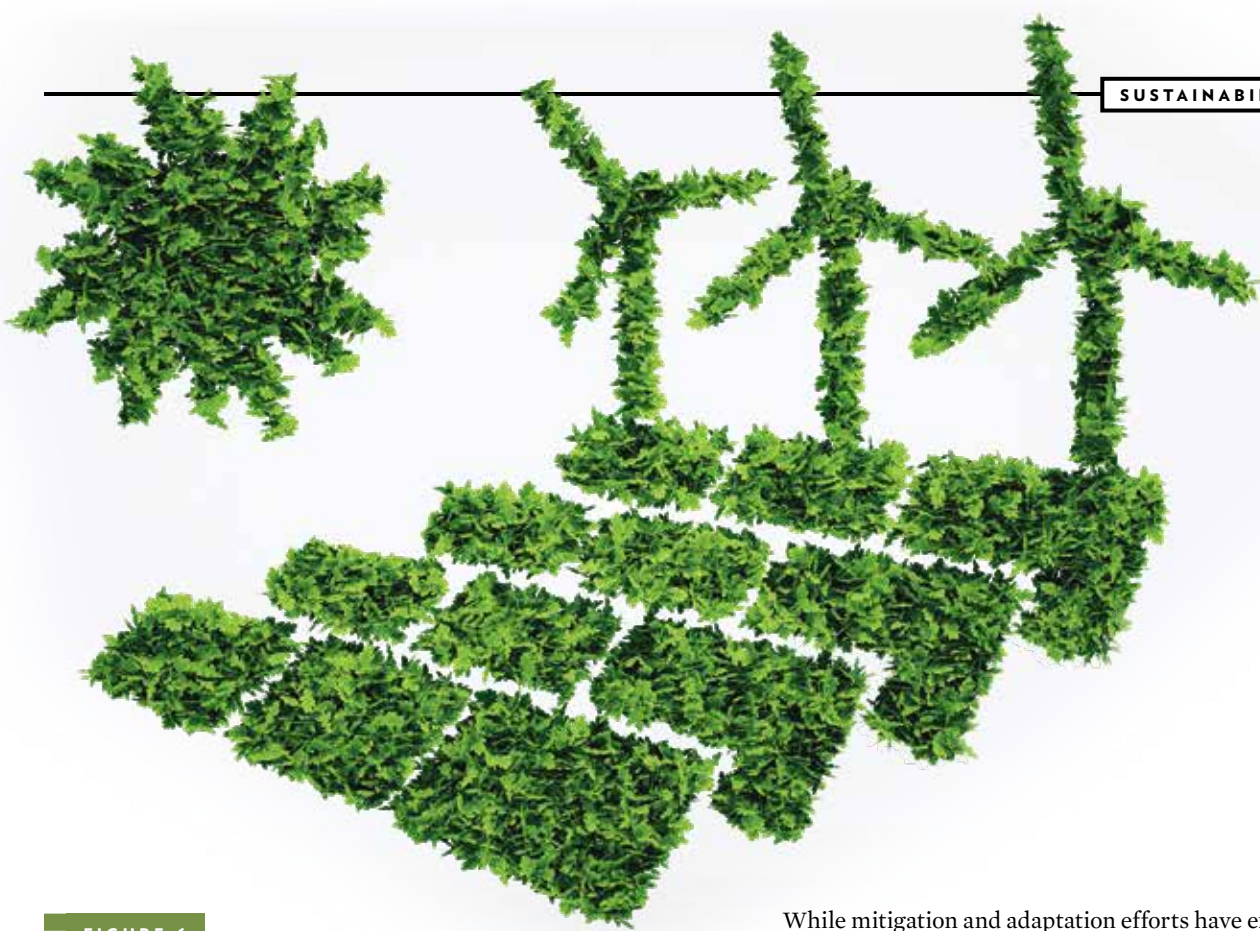


FIGURE 6

Charging stations available to customers while shopping



While mitigation and adaptation efforts have expanded substantially ... they do not yet approach the scale considered necessary to avoid substantial damages to the economy, environment, and human health over the coming decades.”¹⁹

Although fighting climate change can be controversial, the business community is investing billions of dollars to lower risk. Quality professionals who join the fight early may be subject to ridicule and derision by climate skeptics. Yet, educating yourself on the topic can be a good career move and a valuable contribution to society. See the sidebar, “Prepare to Fight,” p. 15, for ways to combat climate change. **QP**

EDITOR'S NOTE

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



David M. Saunders spent 38 years as a quality professional with ARBOR/ResCare. Now retired, he volunteers with the Chesapeake Climate Action Network in Maryland. He is a graduate of Hobart College in Geneva, NY, and received a master's degree from Pratt Institute in Brooklyn, NY. A member of ASQ, Saunders is an Association of Climate Change Officers-certified climate change professional and co-author of *Four Days With Dr. Deming* (Pearson, 1995).

SOURCE: “These New Solar and Wind Projects Are Big Strides Towards Target's Renewable Energy Goals,” Target, March 4, 2021, <https://corporate.target.com/article/2021/03/renewable-projects>.