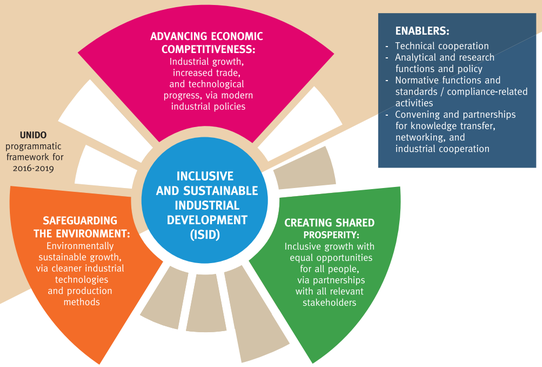
GOALS AND STANDARDS

In September 2015, world leaders adopted an ambitious set of goals to end poverty, protect the planet, and ensure prosperity for all as part of a new sustainable development agenda. The resulting 17 Sustainable Development Goals (SDGs) for 2030, along with their 169 associated targets, represent significant global challenges for both developed and developing economies. Voluntary International Standards can contribute not only to high-level policy initiatives, but also by providing solutions that will be needed in order to achieve many of the SDGs.

Voluntary International Standards do not seek to drive public policy or regulations, but they can provide valuable support to effective policy deployment by helping to share the knowledge of the world's experts in any given field with interested parties the world over. They can be referenced in legislation or regulations, and used to support other kinds of public policy decisions or actions (such as in public procurement, incentive systems, or awareness campaigns). They provide a harmonized, stable and globally recognized framework for the dissemination and use of technologies, and encompass best practices and agreements that encourage more equitable development and promote the overall growth of Society.

Central to the viability and achievement of the 17 Sustainable Development Goals from UNIDO's perspective is Goal Number 9 – "To build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation", and in this context international standardization has always played an important role. In more recent years, however, International Standards have evolved to address more extensively other key components of the sustainable development agenda, including not only economic considerations, but also the environmental and social dimensions in the so-called "Triple Bottom Line" approach. This has been done by incorporating sustainability-related issues into traditional core standards (for example by including life-cycle considerations into product standards) and by developing specific standards that relate to sustainability issues. This approach aligns well with UNIDO's programmatic framework for 2016 – 2019 for Inclusive and Sustainable Industrial Development, and means that international standardization can support the achievement of just about all the Sustainable Development Goals.



HOW INTERNATIONAL STANDARDS ARE DEVELOPED

The three best-known global standardization entities are IEC (the International Electrotechnical Commission), ISO (the International Organization for Standardization), and ITU (the International Telecommunication Union), which under the banner of the WSC (World Standards Cooperation) work together to advance and strengthen the voluntary consensus-based international standards system.

According to ISO/IEC Guide 2 "A standard is document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context" with a note to explain that "Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits."

International Standards are voluntary in their application, though they can also be used as a basis for regulatory requirements and assessments of conformity. Participation in the standards development activities is usually conducted via the representation of relevant stakeholders by National Standards Bodies, National Committees, or other groups of each participating country. The ever-increasing use of remote (internet-based) meeting arrangements and electronic commenting and balloting processes provides developing countries with opportunities to shape the way standards are developed.

There are, of course, other organizations around the world that play an important role in the sustainable development agenda by developing Voluntary Sustainability Standards (sometimes referred to as "private standards"), usually applicable to specific sectors or topics. Examples include organizations under the umbrella of the GFSI (Global Food Safety Initiative) and the GSCP (Global Social Compliance Programme), FSC (Forestry Stewardship Council), MSC (the Marine Stewardship Council), SAI (Social Accountability International), Fairtrade International and many more. Further information can be found in the UNIDO Brochure "Meeting Standards, Winning Markets – Trade Standards Compliance 2015".

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO, via its Department of Trade, Investment and Innovation, has extensive experience in assisting countries to strengthen their competitiveness in global markets through capacity-building in quality, environmental sustainability, and social accountability requirements in accordance with international management system standards and private sector requirements. In particular, the Standards and Trade Facilitation Division seeks to build up the national and regional quality infrastructure needed to provide internationally recognized quality assurance services, including for the development of standards and technical regulations, the establishment of product testing facilities and calibration laboratories, the creation of quality management systems, management system certification, inspection and accreditation mechanisms. It provides services to strengthen national capacities to establish the legal and institutional frameworks for standards and conformity assessment. Specifically, the Division provides policy guidance and institutional capacity-building interventions related to standards, metrology, testing, inspection, certification and accreditation, which are needed to participate effectively in the multilateral trading system. The demonstration of conformity enables exporters to reduce the cost of compliance and facilitate access to global markets. Assistance is also provided to strengthen consumer authorities and consumer associations in developing countries.

WSC WORLD STANDARDS COOPERATION

The WSC is a high-level collaboration between the IEC, ISO and ITU. Under this banner, the three organizations preserve their common interests in strengthening and advancing the voluntary consensus-based International Standards system.

When appropriate, the three organizations collaborate to ensure that International Standards fit together seamlessly and complement each other. Joint committees ensure that International Standards combine all relevant knowledge of experts working in related areas.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC is an independent, non-governmental international organization that brings together 169 countries representing 98% of the world population and 96% of energy generation. The IEC publishes more than 9000 consensus-based International Standards that cover all devices and systems that generate or use electricity and contain electronics; covering aspects that are directly relevant to 12 of the 17 SDGs. The IEC also manages four Conformity Assessment Systems that help verify the safety and efficiency of electric and electronic systems and devices. IEC members are National Committees (one per country) which are sometimes linked to the National Standards Body. Each must be fully representative of all national interests in the field of electrotechnical standardization and conformity assessment.

The IEC Affiliate Country Programme offers developing countries around the world a unique form of participation without the financial burden of actual membership.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO is an independent, non-governmental international organization with a membership of 162 national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market relevant International Standards that support innovation and provide solutions to global challenges. ISO has published more than 21000 International Standards and related documents, covering almost every economic sector, from technology, to food safety, to agriculture and healthcare. Its portfolio of standards includes topics relevant to products and processes, test methods, management systems, conformity assessment topics and others, all of which can make significant contributions to the achievement of many of the 2030 Sustainable Development Goals.

INTERNATIONAL TELECOMMUNICATION UNION

ITU is the United Nations specialized agency for information and communication technologies – ICTs. It allocates global radio spectrum and satellite orbits, develops the technical standards that ensure networks and technologies seamlessly interconnect, and strives to improve access to ICTs to underserved communities worldwide.

Founded on the principle of international cooperation between governments (Member States) and the private sector (Sector Members, Associates and Academia), ITU is the premier global forum through which parties work towards consensus on a wide range of issues affecting the future direction of the ICT industry. It is based on public-private partnership with a current membership of 193 countries and over 800 private-sector entities and academic institutions. ITU membership represents a cross-section of the global ICT sector, from the world's largest manufacturers and telecoms carriers to small, innovative players working with new and emerging technologies, along with leading R&D institutions and academia.

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Vienna International Centre · P.O. Box 300 · 1400 Vienna · Austria
Tel.:(+43-1)26026-0 · unido@unido.org
www.unido.org

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THE ROLE OF STANDARDS IN THE CONTEXT OF THE 2030 SUSTAINABLE DEVELOPMENT GOALS

THE ROLE OF INTERNATIONAL STANDARDS IN THE 2030 DEVELOPMENT AGENDA

MANAGEMENT SYSTEMS

The ISO 9001 standard for Quality Management Systems, first published in 1987, has been one of the key drivers for advancing economic competitiveness over the last 30 years, and will no doubt continue to contribute to the achievement of SDG9 (To build resilient infrastructure, promote sustainable industrialization and foster innovation). ISO 9001 also paved the way for the development of a number of sustainability-related management system standards that impact many of the other SDGs. These include ISO 14001 (Environmental Management), ISO 50001 (Energy Management), as well as the future ISO 45001 (Health and Safety Management), ISO 37001 (Anti-Bribery Management) and ISO 50501 (Innovation Management). Other important management system standards that can help achieve many of the SDGs include those related to Water Efficiency, Water Utilities Crisis Management, Road Traffic Safety, Food Safety, Local Government, Electoral Processes, Education, Sustainable Development of Communities and many more. The overall intent of management system standards is to provide a method to achieve defined policies and objectives.

CLIMATE ACTION

13 CLIMATE ACTION

In addition to ISO 14001 for Environmental Management, ISO has published a range of standards in the 14000 series that have a direct relevance to climate change. These include standards for the quantification and reporting of greenhouse gas emissions and removals, requirements for greenhouse gas validation and verification bodies, requirements and guidelines for quantification and communication of carbon footprints, and others. ITU has also developed a set of standards in the ITU-T L.1500 series which underpin how ICTs can help cities and countries respond and adapt to the effects of of climate change. These standards delve into the complexity of climate change and provide a framework and guidelines for countries to integrate ICTs into their national strategies for climate change adaptation and to upgrade existing ICT infrastructures.

SUSTAINABLE CITIES AND COMMUNITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

An estimated 70 per cent of the world's population will live in cities by 2050, so sustainable urbanization has become a key policy point for administrations across the world - cities today account for over 70 per cent of global greenhouse gas (GHG) emissions and 60-80 per cent of global energy consumption. Once again, all three participants in the World Standards Cooperation have important contributions to make to help achieve the relevant SDGs.

- ISO 18091 provides quality management requirements and guidelines for local governments aimed at achieving sustainable development at the local level, including the deployment of, and interaction with, national and regional policies. It includes a diagnostic tool that addresses good governance, as well as sustainable economic, environmental and social development. The ISO 37100 series of standards address sustainable development in communities, including management system requirements, indicators for city services and quality of life and performance metrics for smart community infrastructures

- Whilst the IEC does not have a single suite of International Standards aimed at Smart Cities, it provides many of the standards needed to safely connect and automate the city infrastructure that generates or uses electricity and contains electronics. Hundreds of IEC International Standards come into play to tailor the integration of energy generation, buildings, transportation, lighting, healthcare, safety/security and a multitude of city and financial services to the needs of each individual city. The IEC Systems Evaluation Group on Smart Cities is preparing a reference architecture and standardization roadmap in cooperation with many different organizations, including ISO and ITU.

- Information and Communications Technology (ICT) has a crucial role to play in the development of Smart Cities by increasing environmental efficiency across industry sectors and enabling such innovations as intelligent transport systems (ITS) and "Smart" water, energy and waste management. The ITU Study Group on the Internet of Things (IoT), including smart cities and communities, develops international standards and acts as an international platform for smart-city stakeholders (municipalities, academic and research institutes, governments and ICT organizations among others) to exchange knowledge in the interests of identifying the standardized frameworks needed to support the integration of ICT services in smart cities. ITU-T L. 1440 gives guidance for environmental impact assessment of ICTs at city level, and a series of ITU's international standards provides requirements and guidelines for key performance indicators (KPIs) to measure and monitor smart and sustainable city transitions. More recently, ITU and UNECE (United Nations Economic Commission for Europe) are developing a new Recommendation on KPIs for smart sustainable cities to assess the achievement of sustainable development goals, expected to be approved by the end of 2016.

SOCIAL RESPONSIBILITY

One of the essential characteristics of social responsibility is the willingness of an organization to incorporate social and environmental considerations throughout its activities and to be accountable for the associated impacts on society and the environment. ISO 26000 is a guidance document intended to assist organizations to incorporate social responsibility into the way they do business, and organizations following this standard are expected to behave in both a transparent and ethical way, as well as complying with applicable law and international norms of behavior.

EXAMPLES OF INTERNATIONAL STANDARDS THAT CAN SUPPORT SPECIFIC SDGs

RESPONSIBLE CONSUMPTION AND PRODUCTION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

In addition to the greater focus on life cycle considerations given in the 2015 edition of ISO 14001, other standards in the ISO 14000 series include requirements and guidelines for life cycle assessments, guidelines for incorporating eco-design, and integrating environmental aspects into product design and development. A new ISO standard on sustainable procurement (ISO 20400) is under development. In the Information and Communication Technology (ICT) arena, ITU has developed a standard on green public procurement for ICT goods and services to help drive sustainable procurement practices within the ICT sector that are useful, understandable, equitable, and economically and environmentally viable for all suppliers.

An estimated 41.8 Million tons of electronic and electrical equipment was discarded in 2014, only one-fifth of which is recycled. A number of IEC and ITU standards, including those on the interoperability of external power supplies for mobile terminals and other hand-held ICT devices, and DC power supplies for notebook computers, open the way to a significant and very real reduction of e-waste, and some of these standards have already been adopted by regulators in Europe and elsewhere. The ITU has also developed a series of standards dedicated to reducing the e-waste burden and creating a circular economy, as well standards that provide information on recycling procedures for rare metals in ICT goods.

CLEAN WATER AND SANITATION

6 CLEAN WATER AND SANITATION

Few challenges are more global than water. Rivers and lakes cross national boundaries while oceans are shared resources. Droughts, floods and climate change cut across continents. ISO standards for water provide global tools to help manage our shared water resources.

Standards for infrastructure components such as for pipes and valves increase the efficiency of water distribution services and reduce leakages, preventing unnecessary water losses. Water quality standards can be used to help provide safe water to millions. ISO standards for the safe and efficient use of wastewater for irrigation can ease the strain on water resources, particularly important when agriculture accounts for about 70% of the world's freshwater consumption.

Other ISO standards provide guidelines for the assessment, improvement and management of service activities for drinking water and wastewater systems, and the recently published ISO 14046 for water footprints helps to promote efficient measurement and management of this scarce resource.

CONFORMITY ASSESSMENT

Standards that define criteria for determining the conformity of products, processes and systems have long made a significant contribution to the economic component of sustainable development, and will no doubt continue to play a role in facilitating the achievement of SDG9. However, there is increasing awareness that conformity assessment standards have an important role to play for most of the other SDGs, to help determine the extent to which all relevant actors in the sustainability arena are achieving their stated goals and targets.

ISO's Conformity Assessment Committee (ISO/CASCO) publishes a series of standards (in collaboration with the IEC) known as the "CASCO Toolbox". These are aimed at ensuring consistent, reliable results from testing laboratories, (ISO/IEC 17025), Inspection Agencies (ISO/IEC 17020), Management System, Product and Personnel Certification Bodies (ISO/IEC 17021, 17065, and 17024 respectively) as well as for accreditation bodies (ISO/IEC 17011) and others.

The objective is to harmonize and streamline conformity assessment processes, to give confidence in results wherever the assessments are carried out. In the electrotechnical sector this can be done through the IEC's global Conformity Assessment Systems.

GOOD HEALTH AND WELLBEING

3 GOOD HEALTH AND WELL-BEING

Nearly 3 billion people in the developing world cook over open fires or rudimentary stoves using solid fuels including wood, dung, coal, and crop residues. This releases particulate matter, carbon monoxide, and other toxic pollutants, leading to over 4 million premature deaths annually. This issue also impacts the environment – open fires and traditional cookstoves release greenhouse gases and black carbon, and put pressure on local resources such as forests and habitat. In addition, households can spend up to 5 hours per day gathering fuel or up to 40% of their household income. ISO Technical Committee 285, Clean cookstoves and clean cooking solutions, develops International Standards to address these issues.

AFFORDABLE AND CLEAN ENERGY

7 AFFORDABLE AND CLEAN ENERGY

Energy, and especially electricity, is one of the golden threads that impact most of the 17 Sustainable Development Goals (SDGs) and indeed the development of every nation and economy. All three major international standards bodies are active in this area, and can contribute to the achievement of the SDGs:

- The IEC provides the technical foundation for energy research and technologies, and its work enables all forms of power generation including on-grid and off-grid use of good quality renewable solar, wind, marine and hydro energy generation. IEC International standards provide the basis for rural electrification, microgrids, low voltage direct current (LVDC) applications and safer, more reliable, more efficient devices, bringing sustainable electricity and light to all cities and economies. In particular, the LVDC applications will include the use of renewable power generation and local storage, and will cater for installations not connected to large-scale grids. The IEC is also becoming a "one-stop shop" for the large number of Smart Grid projects that are being launched around the world. In industry, the use of IEC standards for intelligent automation and control systems, variable-speed motors or electrically powered valves, switches and controllers can also contribute to improving energy efficiency by ensuring that energy is consumed only when and where necessary.

- In terms of energy management and energy efficiency, ITU-T L.1420 assists organizations to assess the energy consumption and greenhouse gas (GHG) emissions related to their operations. ITU has also developed a number of standards on monitoring and assessing energy efficiency, including metrics, measurement and informative values for telecommunication networks and equipment; infrastructure in data and telecom centres; minimum data set and communication interface requirements for data centre energy management, as well as architecture and methodologies for evaluating the performance of power feeding systems and their environmental impact

- In addition to the ISO 50001 Energy Management System standard, ISO has published many energy-related standards on topics including, for example, measuring energy performance using energy baselines and energy performance indicators; energy efficiency assessment and energy data management for buildings; design of energy saving family homes, and on emerging technologies such as solar power, biofuels and others.