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A photograph of a camel standing in a desert landscape. The camel is the central focus, standing on sandy ground with its head tilted upwards. The background consists of rocky, brown hills under a clear blue sky with some light clouds. The camel has a light brown coat and a dark hump.

Water
matters



ISO Focus+

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A young green plant with three leaves is growing in a dark pot. The plant is being watered by a showerhead, with water spraying down on it. The background is blurred, showing other pots and plants.

Act now

Tackling global water challenges

When water is plentiful, it's taken for granted. When there's a shortage, it's our number one priority. There no in-between when it comes to water. Perhaps it's related to our physiological need for water – given that we can last only a few days without it. And as our population grows and our climate changes, access to water becomes even more stressed.

Today, more than 900 million people worldwide do not have access to clean drinking water and 1.5 million children under the age of five die each year as a result of water and sanitation-related diseases. It's also estimated that water, sanitation

and good hygiene could prevent at least 9% of global disease burden and 6% of all deaths. The stakes are high, and some of the most affected countries have the slimmest means and resources to address their water challenges.

In 2010, ISO Council recognized the importance of these issues and asked, "Can ISO do more to address major global water challenges?" This prompted a question to all ISO members about what they are already doing in their countries to tackle these problems and how they use the work from other international organizations in this area.

“Addressing global water challenges is a top priority for ISO.”

An ISO Task Force was set up to examine the findings. It recommended improving ISO's communication on water issues*, looking at new subject areas, and holding an ISO workshop on the theme of water. This workshop was held in Kobe, Japan, on 25/26 July 2012 and addressed technologies and services for water treatment and sanitation; the sustainability of water and communities; and managing water-related assets, risks and crises. The forum, which drew some 150 participants, was held in conjunction with the Sewage Works Exhibition in Kobe – one of the world's largest events on the subject. It developed more than 100 ideas that were captured in 14 broad categories. The top five areas were:

- 1. Addressing system water loss and water leakage** – including water-saving techniques; economic and efficiency aspects of water loss management; technical standards addressing pressure management, water hammer and other loss issues.
- 2. Standards for the re-use of water** – including criteria for the re-use of treated wastewater (for irrigation as well as other applications); water recycling; guidance on public engagement and public acceptance issues; water re-use equipment and material standards.
- 3. Standards on sludge use and generation** – such as guidelines on wastewater generation of sludge; public information and awareness issues; biogas, bioplastic and mineral production standards for sludge.
- 4. Storm-water management standards** – addressing areas such as early warning systems; countermeasures; urban planning; hazard maps and health risk management.
- 5. Water-related asset management** – including preventive maintenance; asset renewal and expansion; public and

*See: “ISO and Water” and the Water section on ISO.org

private operator considerations; technical asset management; decision tools; technical maintenance procedures; rehabilitation issues; performance indicators; pipe surveying and measurement methodologies.

Since the workshop, a number of ISO members have mobilized nationally to address some of these topics, and some have even proposed new items in the ISO work programme. The workshop results were then developed further by experts as part of a Technical Management Board (TMB) Implementation Task Force on Water. This group proposed some changes to current committee arrangements and developed eight key ideas for implementation. You'll find these great ideas, commented by the two Co-Conveners, Christophe Bonnin and Ryuji Uematsu, in this *ISO Focus+* issue.

What's the bottom line? Water matters and ISO is responding with high levels of expert interest and national enthusiasm. There are many contentious details to be sorted out on the actual standards – this is the stuff of ISO's development work. But there's no disagreement that addressing global water challenges is a top priority for ISO's Strategy 2011-2015 and beyond. ■

Kevin McKinley, ISO Deputy Secretary-General





ISO 20121 wins big at Eurovision song contest

As lights glittered and pop music took over the stage in Malmö, Sweden, for the 2013 instalment of the Eurovision Song Contest, sustainability was on centre stage thanks to the guidance of ISO 20121 for sustainable events.

Susanna Winblad, project manager in the City of Malmö, was responsible for making

the contest a sustainable, safe and welcoming festival.

The popular event brings together European countries in a friendly musical competition. The 2013 edition in Malmö saw 100 000 visitors from all over the world attending more than 26 musical performances over its two-week run.

Large events like the Eurovision Song Contest leave their mark on the environment, which in turn affects people's lives. "Sustainability and ethical aspects are important for food and beverages as well as for transport, waste and energy," explains Susanna Winblad. To make the event a positive experience for everyone, she turned to ISO 20121 for guidance.

Susanna and her colleagues hoped visitors of the Eurovision Song Contest would "go green", in line with Malmö's sustainability vision. Organizers set up "Europe's Green Room", where Eurovision visitors were encouraged to drink the high-quality tap water and use public transportation to and from the arena and around the city. People were also encouraged to minimize their waste and to discover the supply of ecological and locally sourced products in Malmö. Every little helps!

Susanna hopes that this year's Eurovision has set a positive example for both residents and visitors of Malmö by inspiring a more sustainable lifestyle for all. ■

2013 winner of first "container" award

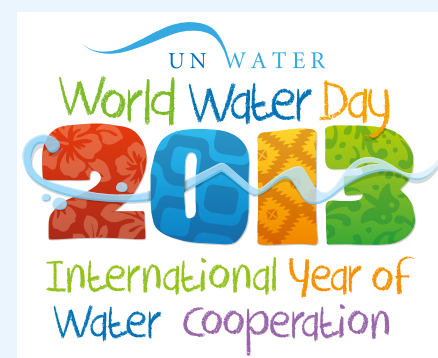
The 2013 winner of the inaugural Bureau International des Containers (BIC) Award went to the former Chair of ISO technical committee ISO/TC 104, *Freight containers*, Michael Bohlman of the USA.

Presenting the award was BIC Chairman Michel Hennemann who stated, "Many of us at the BIC have had the pleasure of working with Michael over the years and so we have been well placed both to witness and to benefit from his excellent stewardship of ISO/TC 104, as well as his leadership in other organizations. We are very pleased to be able to honour Michael for his many decades of important contribution."

A retired Captain of the US Coast Guard Reserves, Mr. Bohlman is President of the consulting firm Knows Maritime, Chair of the Baltic and International Maritime Council's (BIMCO) Maritime Security Committee and a member of BIMCO's Executive Committee and Board of Directors. For more than 40 years, Mr. Bohlman has been actively involved in the work of ISO/TC 104 and recently stepped down from his leadership role as its Chair, a position he occupied for 19 years.

This year the BIC celebrates its 80th anniversary. Its mission has been to promote the safe, secure and sustainable expansion of containerization and intermodal transportation. The BIC Award honours an organization or individual for a significant contribution to the advancement of these goals. The winner was announced at the North South Conference on Intermodal Transportation in April 2013 in Italy. ■

International Year of Water Cooperation



The United Nations has declared 2013 the International Year of Water Cooperation. Led by the UN Educational, Scientific and Cultural Organization (UNESCO), the objective is to raise awareness, both on the potential for increased cooperation and on the challenges facing water management, in light of the increased demand for water access, allocation and services.

The Year will highlight the history of successful water cooperation initiatives, as well as identify burning issues on water education, water diplomacy, transboundary water management, financing cooperation, national/international legal frameworks, and the linkages with the Millennium Development Goals.

ISO's multi-stakeholder and consensus-based approach exemplifies international cooperation. Its numerous water standards constitute global solutions for a problem that cannot be treated in isolation, helping us manage our shared resources equitably and durably. ISO water standards target areas such as water quality, hydrometry, drinking and wastewater services, piping systems and irrigation among others. ■



Michael Bohlman and wife Kathy at the ceremony of the BIC Award.

Jean-Michel Herrewyn

**Chief Executive Officer
of Veolia Water**



Jean-Michel Herrewyn is Senior Executive Vice-President of Veolia Environment and Chief Executive Officer of Veolia Water.

Making water businesses work is not a new challenge for the man responsible for turning Veolia Water around. Before he was appointed group CEO in November 2009, Mr. Herrewyn was in charge of transforming Veolia Water Solutions & Technologies, the contracting arm of Veolia Water.

A graduate from the *École Polytechnique* and the *École Nationale d'Administration*, Jean-Michel Herrewyn began his career in 1986 as an Engineer in the Avionics division of Thomson CSF.



Drinking water plant in Montauban, France.

ISO Focus+: *Veolia Water, the world leader in water utilities, provides its expertise to millions of people across 69 countries. Managing the water and wastewater services for local authorities and enterprises requires a high level of commitment. How do you assess your performance? Do standards act as a support or a constraint?*

J.-M. Herrewyn: In the 1990s, Veolia Water chose to implement the ISO 9000 and ISO 14000 management system standards. Today, these standards provide a framework for the monitoring and reporting of our activities. Looking across the spectrum at all our certifications (ISO 9001, ISO 14001, OHSAS 18001...), at the end of 2012, certifications accounted for 81% of our revenue.

All our services are assessed through performance indicators (PIs) such as the efficiency of our water distribution networks or the overall compliance of treated water (both drinking and wastewater).

At the local level, these PIs form part of our monthly operating reports and are later included in the service provider's annual report.

Ten years ago, Veolia decided to develop an environmental management system (EMS) covering its entire global operations. This EMS was crafted specifically for the company with the help of ISO standards, in particular ISO 14001. It is based on a set of requirements aimed at ensuring that the company remains aware of the environmental impacts of its activities, is able to assess them and take action to reduce them. The group sets itself performance targets over three years; in fact, the Veolia Water division has announced its new targets for 2012-2014 (see our press release of 22 March 2012). The PIs describe the company's performance, covering all aspects of sustainable development through criteria such as the use of green energy, the miles travelled by our vehicles or the

“ Standardization is a productive investment for the company.



Photo: Veolia Water

Checking water quality at the water tower in Lorient, France.

“ At the end of 2012, certifications accounted for 81 % of our revenue.

performance of our distribution networks. Each step in the development of this report is then audited by an independent firm to verify that the method used was correctly applied. The report is used by corporate social responsibility agencies worldwide to determine Veolia Environment’s ranking.

At the end of 2012, the percentage of revenue covered by an (internal or certified) EMS was 93.5 %.

Far from being a constraint, the standards we use for our organizational structure are considered an asset and a pledge of reliability, professionalism and credibility to our clients and shareholders.

ISO Focus+ : In the current context of global warming and increased human activity, water quality and access to drinking water represent major challenges that have an impact on public health. How does Veolia Water anticipate, and prepare for, potential water-related health crises ?

J.-M. Herrewyn : Veolia provides water supply services to over 100 million people worldwide. The group has put in place risk prevention and crisis management

procedures spanning all its divisions, to help mobilize the relevant local, national or international experts as circumstances dictate.

This level of mobilization is made possible through proper management and leadership of experts. Clear identification of our experts and their field of expertise helps ensure a prompt and efficient response to emergency situations.

In addition, Veolia Environment, through its subsidiary Veolia Force, has set up an emergency unit which provides assistance in the event of a major crisis. Several hundred Veolia Water employees have been trained up specifically for emergency missions and are able to respond immediately to extreme situations such as natural disasters. Specific technical resources have been designed and developed by our experts to provide emergency drinking water and are traditionally deployed in cooperation with the Red Cross and similar organizations.

ISO Focus+ : How do you apply ISO standards to your water cycle management,

2011 key figures

- 12.6 billion EUR in revenue in 2011
- 103 million people supplied with drinking water worldwide
- 73 million residents provided with wastewater services around the world
- 96 651 employees
- A permanent operator in 69 countries

from source extraction to the return to the natural environment? Do ISO standards help you anticipate the environmental impacts of your activity?

J.-M. Herrewyn: Veolia Water closely monitors the quality of the water supplied to the 100 million users it serves worldwide. Our environmental reporting includes several indicators that help us guarantee the high quality of the water we provide. As a consequence, in 2012, 97.5% of the population served by Veolia Water enjoyed water of good bacteriological and physicochemical quality; nobody received poor-quality water. This level of monitoring helps us detect any breaches in quality linked to a gradual deterioration of the water resource, which complements the daily assessments by employees in the field.

ISO Focus+: **What is the return on investment of Veolia's involvement in International Standards development?**

J.-M. Herrewyn: Veolia is the world leader in water and wastewater utilities, covering the areas of construction and services. Our participation in International Standards work enables us to promote and showcase our know-how. This earns us

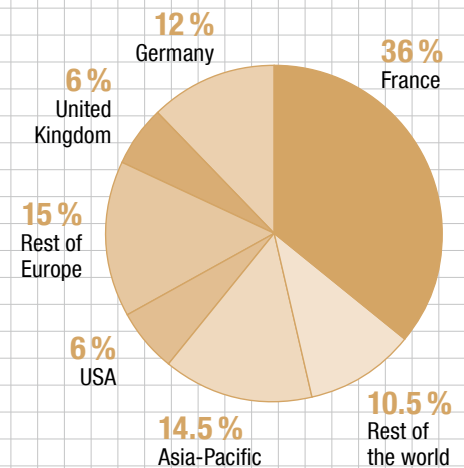
the trust of our clients who later contact us to build and operate their facilities. More generally, it provides an opportunity for sharing the good practice and knowledge learned at the *École française de l'eau* (French Water School).

ISO Focus+: **What advice would you give to other organizations that are not yet engaged in standardization? And what is Veolia Water's strategy with regard to standardization in years to come?**

J.-M. Herrewyn: Standardization is a productive investment for a company. It gives experts from all over the world a chance to compare notes in terms of experiences, knowledge and failures. It is a school of humility where each word matters, each opinion is taken into account and only consensus prevails. The benefits of standardization are shared by all; they provide a solid foundation on which to achieve the technical convergence that will lead to a sustainable development of economic activities.

Veolia is heavily involved in many areas of environmental standardization and intends to pursue its efforts in its different business activities, particularly in the field of water. ■

2011 revenue breakdown by geographic area



Source: www.veoliawater.com/about/key-figures



Wastewater treatment plant in Burlingame, California, USA.

Water. Arguably our most precious commodity and key to our survival.

Although essential for life, water supplies are burdened by drought, water shortages, climate change, contamination and pollution, the requirements of large cities, intensive irrigation and a growing population with higher standards of living. Water resources flow through boundaries, accentuating the need for concerted international action to address these issues.

ISO's portfolio of more than 19 500 International Standards includes at least 500 which directly or indirectly support the objectives of this year's International Year on Water Cooperation. Our standards provide practical tools for developing a common understanding and cooperation between countries on aspects such as water quality and measurement, and the management of water supply services, including under crisis conditions.

The July/August 2013 *ISO Focus+* takes a close look at today's water-based issues and how standards are key to solving many of the challenges. It outlines ISO's water solutions for good business practice, management of resources, risk assessment, metrics and infrastructure. It also looks at how ISO water standards can facilitate sustainable water management and increase water potential, helping to alleviate water scarcity and achieve the Millennium Development Goals. ■

Managing water assets

Tackling the infrastructure gap

Asset management is not a new practice. Managing assets to meet organizational or social objectives has existed since humans first began building infrastructures, whether private or public. The expenditure of effort and resources involved inevitably generated the need to preserve and maintain such infrastructures. In simple terms, assets are managed so long as the benefit of maintaining them is greater than the costs of doing so – and nowhere is asset management more important than in the water supply and wastewater services sector.

From Babylon to Rome

Constructing and operating water infrastructure is one of the oldest engineering activities of mankind, and certainly one of our greatest assets. Its earliest function was simply to transport water from one place to another. The construction of aqueducts began more than 3 000 years ago as early civilizations, such as those in Assyria, Babylon and Egypt, recognized that society is reliant on a safe and sure water supply.

Early aqueducts were simply open canals dug between a river, a community and its surrounding farmlands. The most famous early aqueduct engineers were the Romans. Over a period of some 500 years they constructed 11 aqueducts to supply Rome with water from as much as 90 kilometers away. Much of this network

was a system of underground tunnels, while some traversed valleys in open channels on stone arches. Aqueducts of this period can be found throughout the Roman Empire, and some continued to supply water for over 1 200 years.

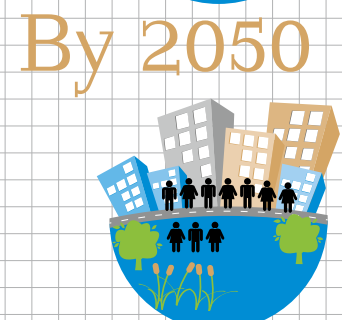
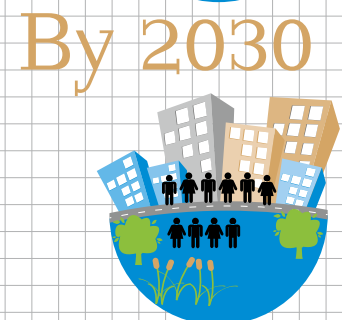
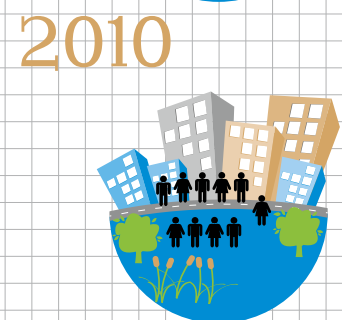
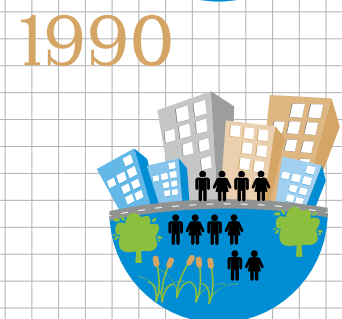
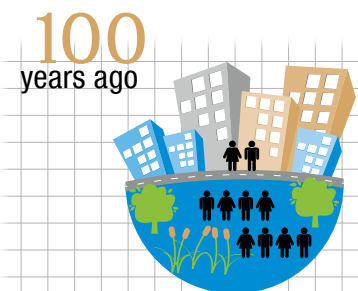
More recent examples of aqueducts are to be found in India, Peru and Turkey. The transport of water remains a major reason for the construction, maintenance and operation of water infrastructure throughout the world – not just for urban supply, but for agriculture, industry, and transportation through canal and lock systems.

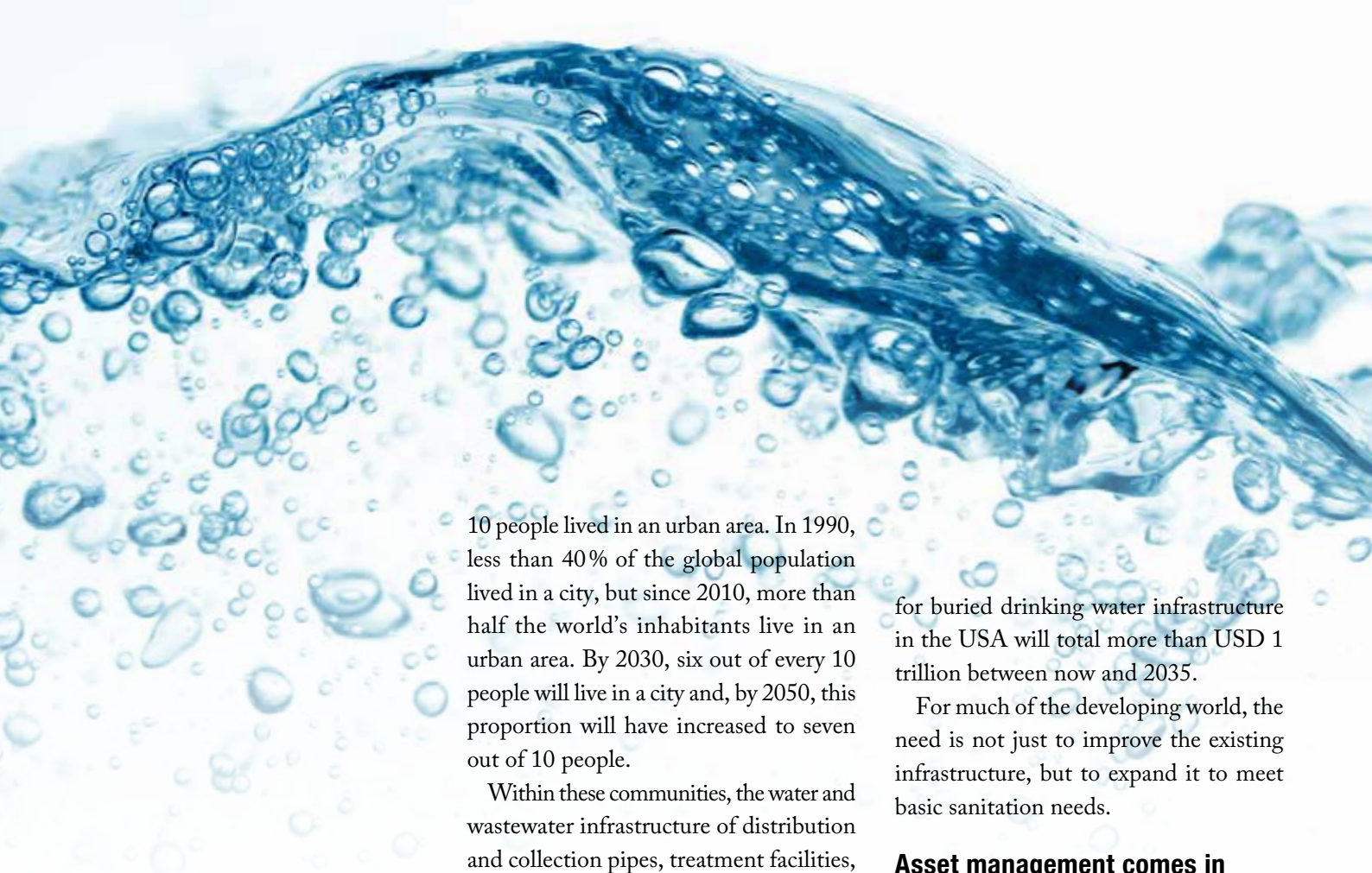
From the earliest times, ancient civilizations also built infrastructure to carry water away (particularly from the urban environment) once it had been used, and of course, to carry unwanted floodwaters.

Today, water infrastructure is most often understood in the municipal context of transporting, treating, storing and distributing water to residents for drinking purposes, and collecting wastewater and treating and discharging or re-using it after treatment.

The infrastructure gap

According to the World Health Organization, for the first time ever, the majority of the world's population lives in a city, and this proportion continues to grow. One hundred years ago, two out of every





10 people lived in an urban area. In 1990, less than 40% of the global population lived in a city, but since 2010, more than half the world's inhabitants live in an urban area. By 2030, six out of every 10 people will live in a city and, by 2050, this proportion will have increased to seven out of 10 people.

Within these communities, the water and wastewater infrastructure of distribution and collection pipes, treatment facilities, storage tanks and reservoirs amounts to an enormous investment in physical assets. A typical city of 100 000 to 500 000 people may have between 5 000 km and 10 000 km of underground piping for water distribution, and a similar network for wastewater collection. Some of these installations may date back centuries, but with the enormous population migration to cities, a large portion of the infrastructure may be less than 40 years old.

The replacement value of these assets amounts to many millions of dollars for every city. However, much of the available capital would already have gone into investing in the expansion of the infrastructure to meet growth, with the result that almost all cities face an ageing infrastructure in need of repair, rehabilitation or, more likely, the replacement of significant portions of it.

This problem highlights what is sometimes referred to as the infrastructure gap – the difference between available financial resources and the financial resources needed to maintain and improve the infrastructure. No global data is available, but estimates by the American Water Works Association reveal that the massive investment needed

for buried drinking water infrastructure in the USA will total more than USD 1 trillion between now and 2035.

For much of the developing world, the need is not just to improve the existing infrastructure, but to expand it to meet basic sanitation needs.

Asset management comes in

The very fact that early societies invested huge amounts of time and effort to construct such water engineering marvels meant that they valued the infrastructures they had created for the benefits obtained. Great efforts were expended over the centuries to preserve the infrastructure's functionality, and the accumulated wisdom of the early engineers who designed and built them has been passed on from one generation of engineers to the next.

Standards, codes of practice and guidelines evolved over the period, and in recent decades these have developed into the principles and policies of asset management. The latter is seeing increasing linkages to other management systems related, for example, to the financial and risk aspects of organizational activities.

Best practice

The ISO committee dealing with service activities relating to drinking water and wastewater systems (ISO/TC 224) is working on best-practice guidelines specifically for the management of assets within the municipal water sector.

“ A city of 100 000 to 500 000 people may have between 5 000 km and 10 000 km of underground water pipes.

Another ISO committee, ISO/PC 251, is developing three standards on asset management:

- Overview, principles and terminology (ISO 55000)
- Requirements (ISO 55001)
- Guidelines on the application of ISO 55001 (ISO 55002)

These new standards are due for publication later in 2013.

ISO/PC 251 is taking the broadest approach to the topic. It sees an “asset” as something that has potential or actual value to an organization, although it acknowledges that, for many, an asset is normally thought of as a physical entity such as infrastructure used to transport, treat, store and distribute water. This infrastructure approach is addressed by ISO/TC 224.

Parallel needs

ISO/TC 224 representatives within ISO/PC 251 argued that there were two parallel needs: one for overall management system standards, and the other for technical guidance on managing assets within individual sectors such as water.

The ISO 55000 asset management suite therefore states that it may be used in combination with any relevant sector- or asset-specific asset management standards and technical specifications. ISO 55001 specifies requirements for an effective asset management system.

Other standards detail sector-specific, asset-specific or activity-specific technical requirements, or give guidance on how ISO 55001 should be interpreted and applied within a specific sector or to particular asset types.

ISO/TC 224 is now working on a stand-alone technical report entitled *Technical aspects, tools and best practice in the management of assets of water supply and wastewater systems*. Publication is expected within three years.

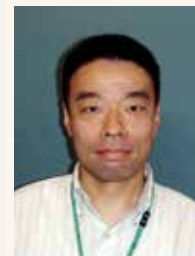
In the meantime, water services around the world will continue to manage their physical assets in the best possible manner, and no doubt will be seeking additional funds from revenues, grants from senior levels of government or investments from the private sector, to reduce or eliminate the infrastructure gap. ■

“ISO is developing guidelines for the management of assets in the municipal water sector.”

The authors



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Thomas Zenz is Convenor of ISO/TC 224's working group WG 7 on the crisis management of water utilities.





Water crisis action

Help is on the horizon with ISO 11830

Water is the source of life. Impaired drinking water services can seriously compromise people's health and comfort, threatening their very survival. Similarly, improper disposal of sanitary wastewater and poor drainage harbours epidemics and can cause water contamination and floods.

But good water management is challenging. A soaring world population places increasing demands on water for domestic and industrial uses. This is compounded by uneven water distribution, complex hydrological cycles and the effects of pollution and climate change. So troublesome is the situation that the United Nations has declared this year the Year for Water Cooperation.

Many countries still lack the know-how to successfully manage a crisis in drinking water and wastewater services. Happily, ISO standards come to the rescue. ISO technical committee ISO/TC 224 on drinking water and wastewater systems is developing a new standard – the first of its kind – on the effective crisis management

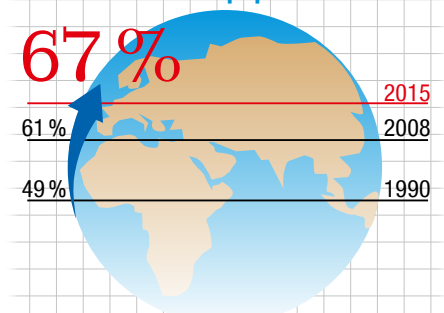
of water utilities. The standards will take the form of a globally applicable set of guidelines devised to ensure that water utilities respond successfully to any crisis situation.

Crisis management starts before the onset of a crisis and requires comprehensive preparation during routine operations. Future ISO 11830, *Crisis management of water utilities*, will sketch out the fundamentals of a crisis management system, enumerating the essential steps that need to be taken to prepare the water utility for a crisis situation (pre-crisis phase), deal with the crisis (crisis phase), and re-establish the service after a trauma (post-crisis phase) – making it easier for water utility operators and national regulators to implement efficient emergency management tools. ■

Note: Extracted from the article *Attention, water utilities! – Future ISO guidelines for crisis management* by Yaron Ben-Ari, Jacobo Sack, Bruno Tisserand and Thomas Zenz, featured in the May 2012 issue of *ISO Focus+*.

Access to sanitation

as a percentage
of world population



Source: www.unwater.org/statistics_san.html



Blue gold

Reclaiming wastewater for crop irrigation

Ever since humans first established settlements, they have altered the earth's hydrological cycle by using water from natural sources and discarding it as wastewater, with or without treatment. Over time, however, the amount of water used per capita has increased dramatically, resulting in a scarcity of freshwater and growing volumes of wastewater. In many countries, wastewater now represents more than 60% of the total volume of water used for domestic purposes.

The combination of severe water shortages, contaminated water resources, densely populated urban areas and intensive agricultural irrigation – as much as 90% of total water resources in arid to semi-arid countries are used for agriculture – threatens to diminish water supplies. As water becomes increasingly precious, countries most at risk have a duty to implement plans to make wastewater treatment and use a national priority.

Renewable water

Treated wastewater is the most readily available and renewable source of water, and provides a partial solution to water shortage. If used properly, it is the most sensible way to return water to the natural environment. It may be called recycled, regenerated, purified, new or eco-water depending on the country, but

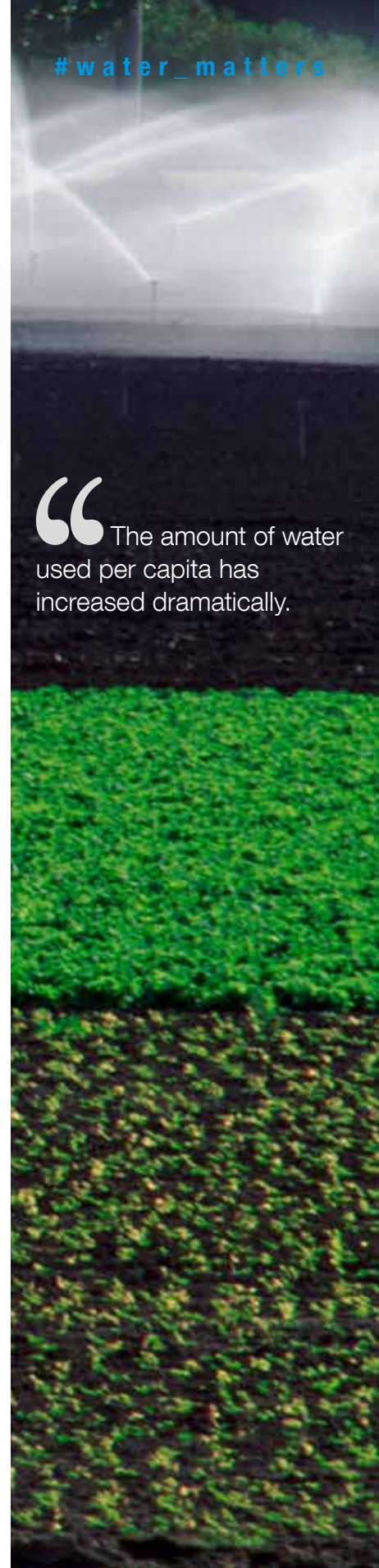
the mere fact that it has so many labels only serves to emphasize the importance of this new resource.

Treated wastewater can be used for agriculture and silviculture (the growing and tending of trees) as well as for urban, recreational, industrial and environmental purposes, including groundwater recharge, as it is known to improve the water balance when used for irrigation. Population growth and the rise in living standards are taking their toll on water supplies, making irrigation with treated wastewater an attractive and urgent fix for sustaining irrigated agriculture.

New guidelines in the making

Project committee ISO/PC 253, *Treated wastewater re-use for irrigation*, was established in 2009 to develop guidelines for treated wastewater irrigation projects. The resulting International Standard, ISO 16075, *Guidelines for treated wastewater use for irrigation projects*, is expected to be published this year and will consist of five parts covering all aspects of the development and execution of projects using treated wastewater for irrigation.

It gives detailed specifications on all aspects of a project using treated wastewater for irrigation, including design, materials, construction and performance, for both restricted and unrestricted irrigation of



“The amount of water used per capita has increased dramatically.



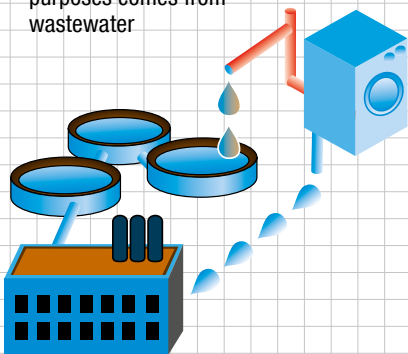
agricultural and silvicultural crops, and the irrigation of public and private gardens.

These guidelines will provide tools that benefit those using treated wastewater for irrigation and will tackle fundamental issues such as water quality and maximum concentration values of substances in order to prevent or minimize the effects on public health and damage to soil, crops and surface or groundwater sources. They will also help gauge the quality of treated wastewater and match its suitability to possible uses according to crop sensitivity (health and agronomy), water sources (hydrological sensitivity of the project area), and the soil.

- The combined assessment of the irrigated wastewater and the crops to be irrigated
- The strategy of using barriers to reduce the risks of transmitting diseases through treated wastewater irrigation
- The correlation between the quality of the treated wastewater, the irrigated crops, and the type of barriers that can be used
- The distance required between the treated wastewater irrigation areas and residential areas

60 %

of the total volume of water used for domestic purposes comes from wastewater



Safeguarding our health

An important criterion when designing treated wastewater irrigation projects is the risk to public health through direct or indirect contact with such water or with products thus affected. The standard will therefore consider:

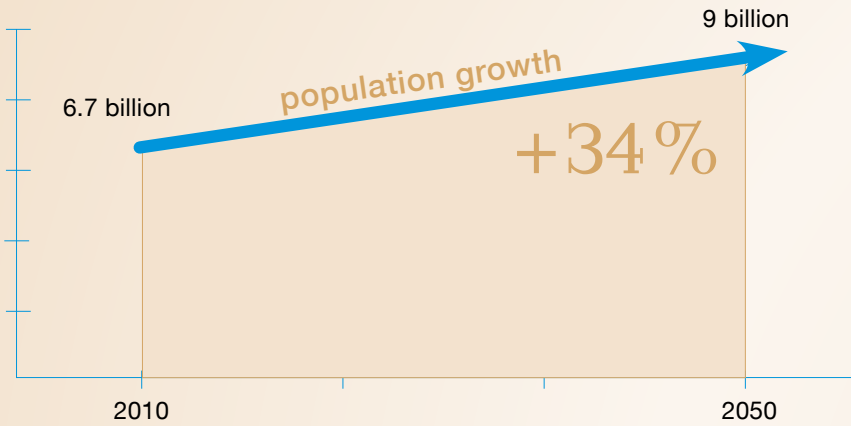
- The quality of treated wastewater that is suitable for irrigation
- The type of crops that can be irrigated with treated wastewater

The pros and the cons

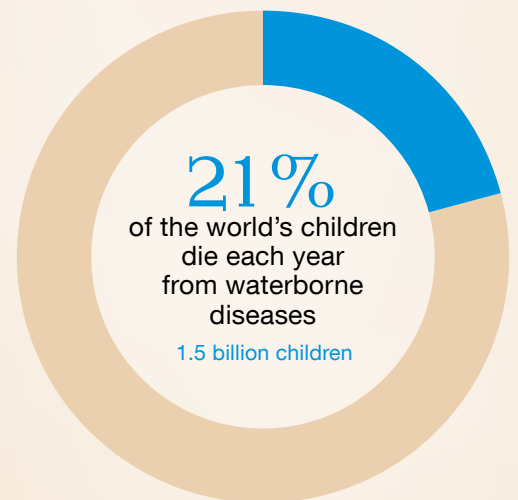
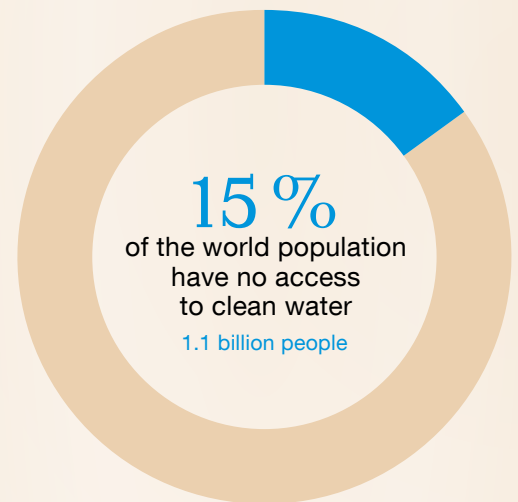
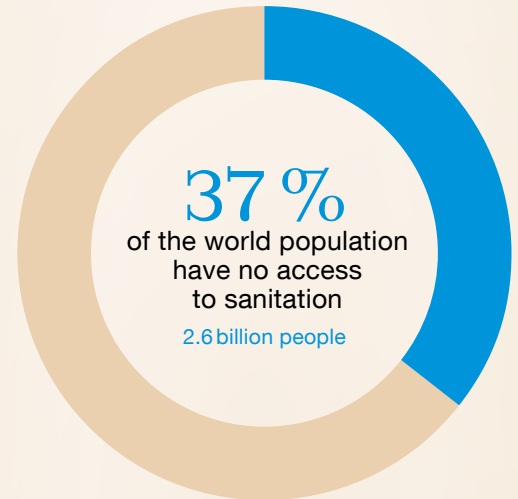
From an agronomic point of view, the main limitation to using treated wastewater for irrigation is quality. Unlike freshwater supplied for domestic and industrial purposes, wastewater may contain higher concentrations of inorganic, suspended and dissolved materials (total soluble salts, sodium, chloride, boron, heavy metals) that can damage plants and the soil. On the flip side, the presence in treated wastewater of nutrients such as nitrogen, phosphorus and potassium may amount to possible savings on fertilizers.

What about water ?

Over the next 30 years, the global water supply is in danger of drying up, with developing countries most affected.



Did you know ?



Water footprint



1 kilogram of beef has a water footprint of **16 000** litres

1 cup of tea has a water footprint of **35** litres

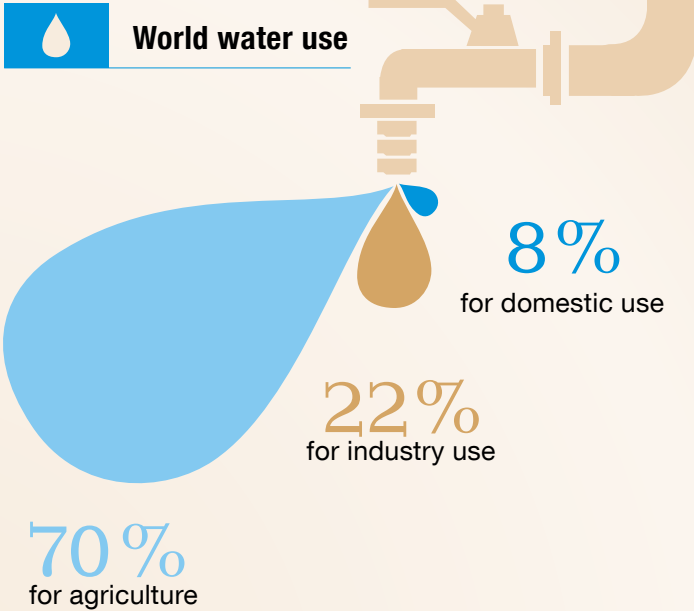


1 microchip has a water footprint of **32** litres

1 sheet of paper has a water footprint of **10** litres



Source: Water Footprint Network



How much water do you use?

- 94.5 to 189.3 litres of water to take a five-minute shower
- 4.9 to 22.7 litres to flush a toilet
- 7.6 litres to brush one's teeth
- 75.7 litres to hand-wash dishes
- 151 litres to wash one laundry load in the washing machine

ISO's intervention

Today

More than **550** standards related to water. To find out more, see: www.iso.org/water

Tomorrow

Top 5 areas*

- Water loss and water leakage
- Re-use of water
- Sludge use and generation
- Storm water management
- Water-related asset management

* identified at the ISO workshop on water in Kobe, Japan



No more waste

Tracking water footprints

Water is an essential natural resource, vital for life. Growing water demand, increasing scarcity and degradation of water quality means that its use and management have become central to the global debate on sustainability.

To improve water management at local, regional and global levels, we first need a better understanding of related impacts, as well as internationally consistent assessment techniques, to identify our water footprint and report results.

To address these issues, ISO created working group WG 8, *Water footprint*, within technical committee ISO/TC 207, *Environmental management*, subcommittee SC 5, *Life cycle assessment*. The WG is developing ISO 14046, *Environmental management – Water footprint – Principles, requirements and guidelines*, expected to be published by mid 2014.

ISO 14046 will specify principles, requirements and guidelines related to the water footprint assessment of products, processes and organizations, based on life-cycle assessment. It can be used to conduct and report a water footprint assessment.

Who will benefit ?

ISO 14046 is expected to benefit organizations, governments and interested parties worldwide by providing transparency, consistency and credibility to the task of assessing water footprint and reporting the water footprint results of products, processes or organizations.

What is a water footprint assessment ?

According to ISO 14046, a water footprint assessment:

- Relies on a life-cycle assessment
- Is modular (that is, the different life-cycle stages of the water footprint can be summed up to represent the water footprint)
- Identifies potential environmental impacts related to water



- Includes relevant geographical and temporal dimensions
- Identifies the quantity of water used and changes in water quality
- Utilizes existing hydrological knowledge
- Evolving a risk management strategic related to water
- Facilitating water efficiency and the optimization of water management at product, process and organizational levels
- Informing decision makers in industry, government or non-governmental organizations of their potential impacts related to water (for example, for the purpose of strategic planning, priority setting, product or process design or redesign, and decisions about the investment of resources)
- Providing scientifically consistent and reliable information for reporting water footprint results

How will it help ?

A water footprint assessment can help in:

- Assessing the magnitude of potential environmental impacts related to water
- Identifying opportunities to reduce water-related potential impacts associated with products at various life-cycle stages, and with processes and organizations

“Water use and management have become central to the global debate on sustainability.”

The author



Dr. Sebastien Humbert is Convenor of ISO/TC 207/SC 7/WG 8. He is also Vice-President Scientific Affairs and Co-Founder of Quantis, an environmental life-cycle assessment consultancy company.

With input from

Barbara Mullis is Secretary to ISO/TC 207/SC 7/WG 8, and Senior Technical Officer for the Swiss Association for Standardization (SNV).

Nydia Suppen is Co-Chair of ISO/TC 207/SC 7/WG 8, and represents the Center for Life Cycle Assessment and Sustainable Design (CADIS), Mexico.

A water footprint assessment alone is not enough to describe the overall potential environmental impacts of products, processes, services or organizations, including the impacts on ecosystems, human health and resources. However, an assessment conducted in conformity with ISO 14046 can be treated as a stand-alone result focusing only on impacts related to water. It can also be part of a more comprehensive environmental assessment. The results will provide a single value or a profile of indicator results. In ISO 14046, the term “water footprint” is only used when it is the result of an impact assessment. ■



Sludge treatment

The sifter of standardization

How do you re-use or recover the waste material contained in sludge, particularly when it originates from wastewater treatment or the production of drinking water? How do you dispose of sludge when recovery is not possible? At what cost? How do you manage the associated risks? And how do you communicate about this issue? What does

sludge contain, especially when it is a by-product of urban wastewater treatment or water purification?

These are just some of the questions that need to be addressed by new technical committee ISO/TC 275, *Sludge recovery, recycling, treatment and disposal*, during its first ever meeting scheduled to take place by end of 2013.



Water challenge

ISO's response

“The task force on water should help lay down this global approach.”

Water use has grown at more than twice the rate of population increase in the last century and the UN estimates that an escalating number of regions are chronically short of water. By 2025, 1 800 million people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under hydric stress. And the situation only stands to get worse as rapidly expanding urban areas put increasing pressure on neighbouring water resources.

A task force on water was set up within ISO's Technical Management Board

(TMB) in June 2012. The Implementation Task Force on Water (ITFWA) is co-led by France (AFNOR) and Japan (JISC) and aims to improve the way ISO organizes its standards development work in the field of water.

Its two co-convenors, Christophe Bonnin* of France and Ryuji Uematsu of Japan, tell us about the task force's objectives.

* Christophe Bonnin's comments are adapted from an article published in March 2013 in *Enjeux* (the magazine of AFNOR, ISO member for France).

ISO Focus+: *Why create a task force on water?*

Christophe Bonnin: Leakages in water networks, sludge management, and the re-use of treated wastewater are all areas of global concern, particularly in light of the challenges posed by climate change.

The task force on water was created to find smart ways of incorporating and responding to new needs. Water activities at ISO still lack an overarching strategy and can even appear somewhat incoherent.

There are around 15 technical committees dealing with water-related issues. Some subjects, while related, are assigned to different structures, meaning that their scopes partially overlap... And when new issues emerge, nobody knows which category they fit into. Reorganizing the overall structure will be the task force's first line of action.

Priority was given to 14 broad standardization categories at the Kobe workshop:

1. System water wastage and water leakage
2. Standards for efficient re-use of water
3. Standards on sludge use and generation
4. Storm-water management standards
5. Water-related asset management
6. Water crisis management
7. Water footprint
8. Benchmarking of water-related processes and approaches
9. Watershed management
10. Expanded work on water quality
11. Public and general awareness issues
12. New energy opportunities utilizing water and sludge
13. New management and system standards
14. Coherent water terminology and classification

“ ISO intends to pursue its activities in the area of water.



The world's population is growing by about

0.08 billion

people a year

implying an increased freshwater demand of about

64 billion

cubic metres a year

Source: FAO, 2012



ISO Focus+ : What is the key mandate of the task force ?

Ryuji Uematsu : Three main objectives were defined, starting with the implementation of the recommendations made by ISO Council, which include a review of the existing committee structure to establish whether any improvements are needed.

The second goal is to review existing developments in the various committees working in the water field and suggest ideas for future standardization activities in line with water and related matters.

Finally, the conclusions of the ISO international workshop on water, which took place in July 2012 in Kobe, Japan, will also be taken into account.

ITFWA intends to submit a final report by September 2013.

ISO Focus+ : What will be the benefits of this task force ?

Christophe Bonnin : The idea is to streamline the number of technical committees by grouping them according to structured themes and business sectors, with well-defined scopes and clear boundaries. At the same time, these groups should be kept to a workable size so as not to create overly complex and unmanageable systems.

The task force on water should help to lay down this global approach and coordinate the standardization strategy.

ISO Focus+ : An ISO workshop held in July 2012 in Kobe, Japan, provided an overview of what has been done so far in ISO's technical committees with regard to water and wastewater, and looked at the kind of standardization activities that might be developed in the future. Could you give us an idea about directions for the future ?

Ryuji Uematsu : A host of new ideas came about for future standardization activities on aspects such as water quality, water recycling for a variety of uses, underground infrastructures, service/management, sludge, water distribution inside buildings, efficient usage and wastage, and coordination.

Discussions have led ISO to build a considered and coherent strategy for the fields of water and wastewater, which will serve as a basis for future standards development activities in the various technical committees.

ISO intends to pursue its activities in the areas of water and wastewater standardization, and we hope this will help solve some of the predicaments we face, such as water scarcity or contamination by wastewater. ■

The authors



Ryuji Uematsu is Co-Convenor of ITFWA. He is Executive Director, Engineering Division, Japan Sewage Works Association. He has worked for over 20 years for various organizations active in the field of wastewater management.



Christophe Bonnin is Co-Convenor of ITFWA. He is also Chair of the AFNOR Water Cycle Strategic Committee and Technical Director of Veolia Water, France.

What users think

ISO guidelines keep water flowing



Access to water is a basic human right. So says the United Nations whose ambitious Millennium Development Goals aim to improve access to drinking water and wastewater services throughout the world by 2015. Supporting this endeavour, ISO has developed a series of standards on drinking water and wastewater services that provide a common methodology for assessing the services provided by water utilities of all types and sizes worldwide.

Developed by ISO technical committee ISO/TC 224 for quality water supply and wastewater services, ISO 24510 and its sister standards ISO 24511 and ISO 24512 are intended promote dialogue and continued improvement within the water service itself and among all its stakeholders – the owners, the regulators and the users.

The methodology works by linking the performance of the utility to its objectives, such as promoting public health, protecting the environment and providing services to its users.

With the service objectives set, the question then remains how to determine if these objectives are being met, in other words what service criteria would be applicable for this assessment to be made. The next challenge is how to measure the service provided by the utility within the criteria selected, or more specifically what numerical measures might be calculated to demonstrate that the objectives have been achieved. This is where the ISO 24510 series comes in, offering hands-on solutions to help water utilities through the process.

“ Access to water is a basic human right.”

Growing excitement over ISO 24510

Latin America – ISO 24510 has been embraced with open arms in Latin America because of the region's growing interest in meeting the needs and expectations of water users and enhancing the dialogue between the utilities operators and their stakeholders, including regulators.

Africa – Several water service suppliers in Burkina Faso have defined the objectives of their services to users, while the town of Parakou in the Republic of Benin – backed by its twin town of Orleans in France – has decided to implement ISO 24510. Stakeholders have been mobilized and objectives for service improvement are being defined and will cover water supply and sanitation.

This water intake station operated by Aguas de Corrientes in Argentina follows ISO 24510 drinking water and wastewater service guidelines.

User successes

Plenty of positive feedback is sent by organizations worldwide about their experiences and the benefits of implementing these ISO standards. Following are a few examples.

Aguas de Santiago S.A., Argentina

Argentinian water utility Aguas de Santiago (AdeS) was an early adopter of the standard. Encouraged by the Argentine National Standardization Body (IRAM), AdeS used ISO 24510 to establish a set of templates that would help define its “service to users” objectives and to decide what service assessment criteria it would use to measure performance. The company developed criteria for performance indicators calculated over a finite period of time, and targets were set for performance improvements to be accomplished within that assessment period. AdeS published its first summary of the achievements, verified by IRAM, in its 2010 annual report which can be found at: www.aguasdesantiago.com.ar/paginas/ver/21/iso_24_500.

Sebastián Paz Zavalía, General Manager of AdeS, said of the standard: “Its

flexibility, specificity and user-oriented approach makes ISO 24510 the right tool for any public or private utility.”

In 2008, the company was strongly user-oriented, resolving one crisis at a time, as Marcela Paz, AdeS Project Coordinator for the implementation of ISO 24510, explained. “We worked really well,” she commented, “and we needed a tool to organize and systemize all the knowledge and procedures acquired over time. When these standards were published they seemed perfect for us because their orientation, especially ISO 24510, is focused on the user”.

Aguas de Corrientes S.A., Argentina

Aguas de Corrientes S.A. (AdeC) of Argentina was already familiar with management standards and thus able to build on existing procedures. The company established a baseline for key process and performance indicators: the number of user complaints about low water pressure and water quality, and the number of successful water quality control samples, are submitted to the Board in a monthly report. AdeC also extended its report on



Photo: Aguas de Corrientes S.A.

wastewater service customer satisfaction by measuring the number of user complaints received on flooding.

“The clarity and versatility of ISO 24510 was evident from the very beginning of our implementation. This was clearly shown in the successful implementation in 13 different cities, each with its own reality and characteristics,” said a company spokesperson. “During the implementation process, it was very important to understand that defining specific objectives and performance indicators aligned with ISO 24510 would enable us to obtain results on which to base decision making, planning and continual improvement.”

Mei-Raanana Water Company, Israel

The Mei-Raanana Water Company is developing a national list of performance indicators for Israel, together with the regulator and a few other Israeli water companies. Its purpose is to create realistic performance indicators that will give the regulator a positive tool with which to assess the activities and processes of each water company, instead of simply comparing numbers. This involved adapting indicators to the function commonly referred to as benchmarking where the performance of individual utilities can be compared to others. However, this requires the indicators to be calculated from exactly the same data sets.

Mei-Raanana is using ISO 24510 to assess the efficiency of its customer service, taking into consideration the time it takes

to respond to a complaint, start working on a leak and repair the leak, the time the customer is without water and, finally, the number of complaints lodged.

“Working with ISO 24510 is a process that involves teams of workers and managers,” says Nir Barlev, Manager at Mei-Raanana, adding that, “This mutual activity makes the workers feel much more involved and responsible, so it acts as a motivating force for all employees.”

Worldwide implementation

Uptake of the ISO 24510 series is gaining ground around the world, albeit at different paces. Europe and North America have been using performance measures for many years and most utilities are comfortable with these concepts, both on a management and technical level.

A few steps behind, water utilities in Latin America are fast coming to appreciate these standards and the Federal Council of Sanitation Services in Argentina is actively encouraging other water utilities in the country to follow in the footsteps of AdeS and AdeC. The ISO standards are part of a broader Latin American effort, led by the regional component of working group ISO/TC 224/WG 5 through the Latin American Association of Water and Wastewater Operators. The working group will continue to document implementation activities and hope to prepare a technical report on examples of applications of the ISO 24510 series. ■

Workers from Aguas de Corrientes S.A. weld replacement water supply pipes in Corrientes, Argentina, to ensure continual improvement of its service to users.

“ ISO 24510 offers hands-on solutions to help water utilities.

The authors

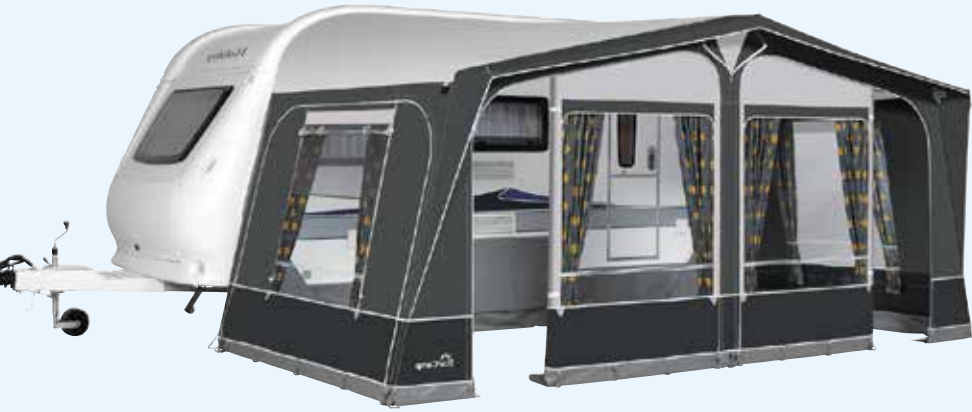


Natalia Drault is Energy and Environmental Affairs Manager at IRAM, the Argentine National Standardization Body, and Co-Convenor of working group ISO/TC 224/WG 5, *Examples of the application of ISO 24510, 24511 and 24512 standards.*



T. Duncan Ellison chairs three Canadian mirror committees related to water and several national and US-based standards committees. He is a member of the American Water Works Association Hall of Fame.

WANTED: Experts for camping tents and caravans!



Are you working in the camping tent and caravan industry? Do you want to have a say in the standards that shape the industry? The ISO working group (WG) on camping tents is looking for experts.

Noting the important recent developments in the awning industry in Europe and Asia, ISO/TC 83/WG 2, *Camping tents*, realized the need to bring ISO 8936:2007, *Awnings for leisure accommodation vehicles – Requirements and test methods*, up to date with the newest technologies and materials.

The group is now ready to take on the work, but more experts are needed. Having

more participants on board will mean greater acceptance and wider implementation of the revised standard, not to mention the benefit of broad international experience.

If you want your country to have a say in the new standard, and share your experience and knowledge, contact Marco Hanusch, Secretary of WG 2 within ISO/TC 83, *Sports and other recreational facilities and equipment*: marco.hanusch@din.de.

The working group expects the new standard to also be adopted as a European standard. Seize your chance to influence this work! ■

Asset management close to finish line

Significant progress was made on a series of asset management standards at the plenary of ISO project committee ISO/PC 251, *Asset management*, in April-May 2013 in Calgary, Canada.

Participants discussed issues related to the treatment of “risk”, asset life, financial versus technical elements and more. The three standards for asset management systems have now progressed to the final stage of development:

- Overview, principles and terminology (ISO 55000)
- Requirements (ISO 55001)
- Guidelines on the application of ISO 55001 (ISO 55002)

Following recommendations from ISO/PC 251, the ISO Committee on conformity assessment (ISO/CASCO) began the development of a technical specification providing competence requirements for auditing and certification of asset management systems (ISO/IEC TS 17021-5).

The event was hosted by the Standards Council of Canada, ISO member for the country, and the City of Calgary. It also featured a workshop to share asset management experiences from different country perspectives.

The Chair, Rhys Davies, noted the increase in number of participants, some 80 delegates overall, attesting to the growing interest in this work. ■

Education and standards in Brazil

Recognizing the fundamental contribution that education can make to standardization, ISO and its member bodies are organizing a number of initiatives to promote cooperation with educational institutions.

Among them are a series of regional workshops in support of developing countries, to boost and strengthen education about standardization, with a focus on universities. The second event in the series,

entitled “Enhancing collaboration between national standards bodies and academia”, was held in São Paulo, Brazil, in April 2013.

The workshop was also an opportunity to gather important feedback for the development of an ISO publication outlining best practice and guidance for national standards bodies (NSBs) and universities on how to develop fruitful cooperation, introduce or reinforce educational programmes on standardization and promote other activities of mutual benefit.



Participants at the workshop on education and standards in São Paulo, Brazil.

A substantial part of the workshop was therefore dedicated to capturing information and ideas from the 40 participants who attended from over 20 countries, including NSB staff, university professors and experts from ISO. The event was organized in cooperation with ABNT, the ISO member for Brazil, and co-sponsored by KATS, the ISO member for the Republic of Korea, who shared their own experience and lessons learned.

Coordinator of the event and Strategic Advisor to the ISO Secretary-General, Daniele Gerundino said, “KATS’ contribution was extremely valuable and highly appreciated by participants. I would also like to express ISO’s and my personal gratitude to ABNT and his Director, Ricardo Frago, for the warm welcome and excellent support.”

To find out more, see ow.ly/IsAUF. ■

New age for health informatics

The ISO technical committee on health informatics (ISO/TC 215) has its sights set on standardization that will facilitate the creation, interchange and use of health-related data, information and knowledge to support and enable all aspects of the health system.

Two new initiatives with a huge potential for public health were discussed at the ISO/TC 215 plenary held in Mexico City, Mexico, in April 2013.

The first was the development of a report assessing the adoption, gaps, and needs of public health informatics standards. The document will pool the needs and experience of the international community to address current and future public-health-related standards initiatives all over the world, particularly in low- and middle-income countries.

The second is a new project led by the Biomedical Research Integrated Domain Group (BRIDG) which was proposed for publication as an ISO standard. BRIDG is a domain analysis model that provides a shared view of the semantics in the domain of protocol-driven research. The standard is touted to be an important tool for clinical research.

The BRIDG project is a collaborative effort engaging stakeholders from four organizations:

- Clinical Data Interchange Standards Consortium (CDISC)
- HL7 Regulated Clinical Research Information Management Work Group (HL7 RCRIM WG)
- National Cancer Institute (NCI), including the Cancer Biomedical Informatics Grid (caBIG®) project
- Food and Drug Administration (FDA). ■



Participants at the recently held plenary meeting of ISO/TC 215, Health informatics.

Compliance programs kick off

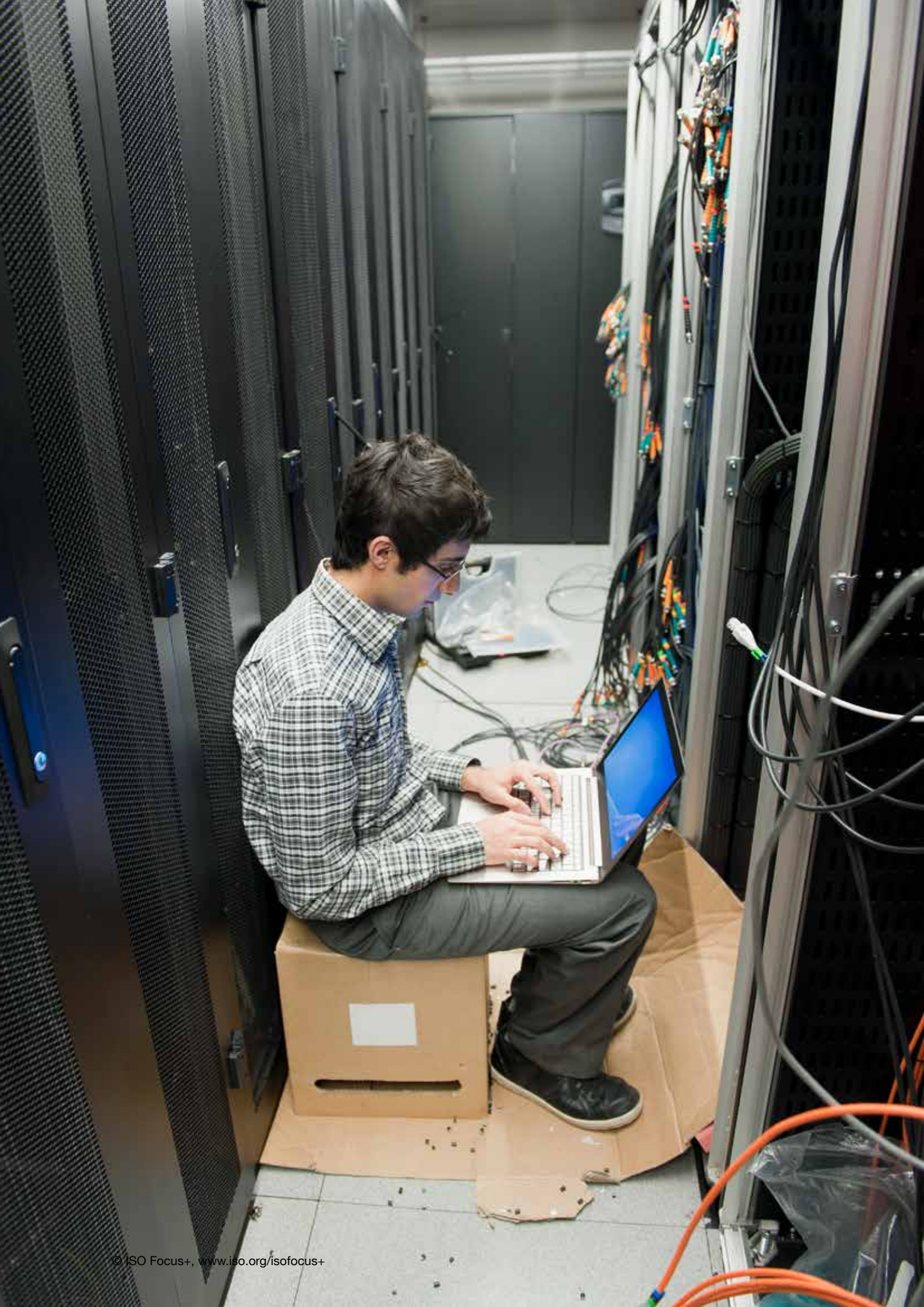
Compliance programs are the subject of one of ISO's newest committees, ISO/PC 271, *Compliance management systems*. Over the past 40 years, notable excesses, misconducts and corruption from corporations and other organizations have resulted in new legislation, regulations and standards forcing organizations to adhere and demonstrate compliance. Now ISO/PC 271 aims to develop a new standard harmonizing best practice on compliance programs – the future ISO 18386.

The committee held its inaugural meeting in Sydney, Australia, in April 2013, which was attended by 14 delegates from five countries. Progress was made on a number of items and experts agreed to meet next on 14-18 October 2013 in Paris, France.

If you would like to participate in this work, contact your ISO member at www.iso.org/isomembers. ■



The kick-off meeting of ISO/PC 271 on compliance programs.



Corporate social responsibility

NEC makes ISO 26000 the centre of its CSR policy

As adoption of ISO 26000:2010, *Guidance on social responsibility*, gains pace around the world, many organizations are making the International Standard central to their corporate social responsibility (CSR) concepts, principles and practices.

NEC Corporation of Japan, a leading global provider of Internet, broadband, IT integration and network technologies, was one of the first Japanese companies to institute a stakeholder review based on the seven core subjects* of ISO 26000 – (i) organizational governance, (ii) human rights, (iii) labour practices, (iv) the environment, (v) fair operating practices, (vi) consumer issues, and (vii) community involvement and development.

In his key message to stakeholders, heading the company's CSR Report 2012, NEC President Nobuhiro Endo said, "In fiscal 2012, we continue to implement a Stakeholder Review based on the ISO 26000 International Standard for social responsibility." He confirmed that the company plans to continue promoting CSR-driven management across the NEC Group, based on ISO 26000.

Instilling a CSR mindset

ISO Focus+ interviewed Ms. Hiromi Fujii, Assistant General Manager, NEC CSR and Environmental Management Promotion Division, to ask why the social responsibility standard is so important to an organization employing nearly 110 000 people at the NEC Corporation and 265 subsidiaries worldwide.

ISO Focus+: *Can you comment on the benefits to NEC of adopting and following ISO 26000 guidance – what difference do you expect it to make to the company?*

Hiromi Fujii: This standard has created a common understanding of CSR worldwide, and that has made it easy for us to explain CSR to our entire company. In particular, ISO 26000 guidelines are very meaningful to our employees, making it possible for us to effectively instill a CSR mindset at NEC. We also utilized ISO 26000 as a means to look back on our approaches and determine our level of global CSR standardization by measuring the degree of CSR achievement in an objective way.



Hiromi Fujii, Assistant General Manager, NEC CSR and Environmental Management Promotion Division.

*These seven core subjects are underpinned by the seven overarching principles of social responsibility – accountability, transparency, ethical behaviour, respect for stakeholder interests, respect for the rule of law, respect for international norms of behaviour, and respect for human rights. These principles enshrine the essence of ISO 26000, which is to assist organizations in contributing to sustainable development, and provide guidance on taking responsibility for their actions, behaving in an ethical manner, and upholding values.



NEC headquarters building, Tokyo, Japan.

“ NEC Corporation was one of the first Japanese companies to institute a stakeholder review based on ISO 26000.

Moreover, we hope to foster a culture in which each and every employee starts to think deeply about social requirements, such as stakeholder engagement and attention to value chains, and reflects them in their daily activities.

ISO Focus+: *Did you find ISO 26000 and its guidance easy to follow? Is it clear and easy to implement?*

Hiromi Fujii: Mr. Hitoshi Suzuki, the previous general manager of the CSR Promotion Division, was a key member of Japan’s ISO 26000 Standardization Working Group under the Corporate Social Responsibility Management Committee. So our division was able to easily understand ISO 26000 standardization at an early stage.

ISO Focus+: *Do you apply ISO 26000 guidance to NEC activities’ worldwide?*

Hiromi Fujii: Yes, we are adopting ISO 26000 in the NEC Group around the world, as stated in our president’s message in our CSR Report. For example, NEC Europe, one of our five regional headquarters, is taking the lead in an effort to respect human rights, which is emphasized in ISO 26000. They implemented employee training based on the NEC Group Charter of Corporate Behaviour and the NEC Group Code of Conduct, both of which refer to ISO 26000. And the training covers human rights in detail. In addition, we are promoting human rights training in other regions by referring to this progressive approach in the European zone.

ISO Focus+: *Can you explain how you have used ISO 26000 to integrate, implement, and promote socially responsible behaviour throughout your organization?*

Hiromi Fujii: In the NEC Group, we are integrating CSR concepts in relevant staff divisions that represent each element of CSR through the process of producing our CSR Report. That is, after the introduction of ISO 26000, we explained the seven core subjects to related divisions so they would know what is required in global society based on this standard, and asked them to disclose their activities in the CSR Report. We also requested that the general managers of those divisions participate in a “stakeholder review” as a part of the stakeholder engagement undertaken by the CSR Review Forum Japan.



NEC's 2012 Stakeholder Review Panel meets to assess the progress of initiatives to address CSR issues, identified during the 2011 review based on the seven core subjects of ISO 26000.

The forum is an alliance of NGOs and NPOs, consumer organizations, and labour representatives. The divisions then incorporated this review in their Plan-Do-Check-Act management as a way of improving their activities. As a next step, we are planning to carry out a stakeholder review in our business divisions as well.

ISO Focus+: *How did you get your employees to commit to CSR practices – for example, did you provide training in ISO 26000 principles and practices relating to social responsibility?*

Hiromi Fujii: As an example, we added ISO 26000 to our CSR training for new employees. And in the areas of human rights and supply chains, which we consider extremely important, we integrated ISO 26000 into the training programmes of people in charge of these issues in cooperation with our personnel and procurement divisions.

In addition, at our annual CSR Convention, speeches made by our corporate officers to employees include elements of CSR reflecting the seven principles and seven core subjects of ISO 26000. As an example of another regional approach, NEC Europe regularly issues newsletters whose the topics are arranged in the order of those seven core subjects.

ISO Focus+: *What key CSR initiatives and measures have you introduced as a result of adopting ISO 26000 guidance?*

Hiromi Fujii: We implemented stakeholder engagement based on ISO 26000, and reinforced activities promoting respect for human rights and enhancing partnerships with suppliers, which is emphasized in ISO 26000. Moreover, some NEC Group companies use this standard as a self-check tool of their activities.

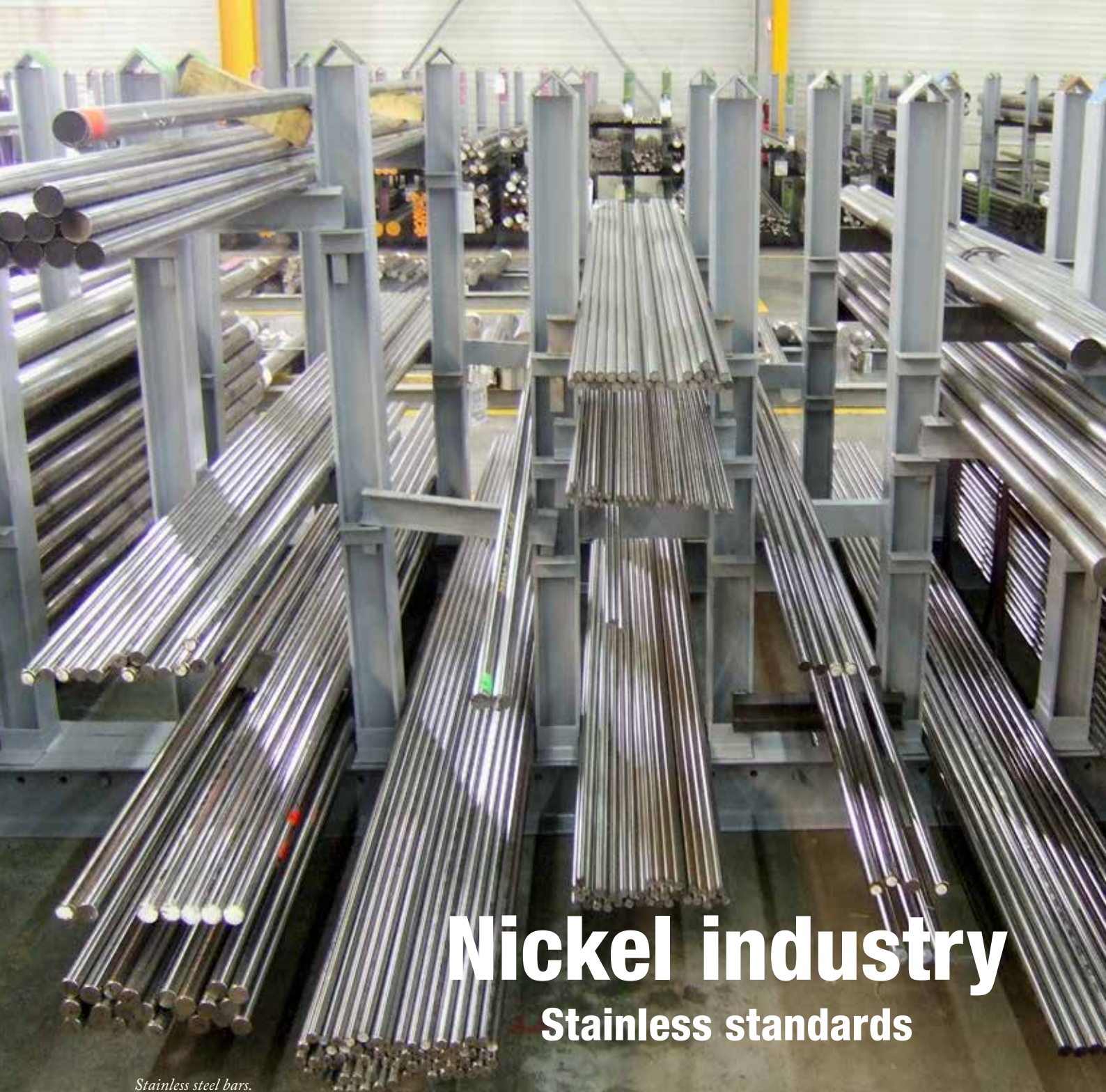
ISO Focus+: *Is NEC certified to any ISO management system standards?*

Hiromi Fujii: Yes, we have certifications for ISO 9001 (quality management) and ISO 14001 (environmental management), and some divisions that handle crucial information have obtained certification to ISO/IEC 27001 on information security management.

ISO Focus+: *Are there any other comments you would like to make about NEC and ISO 26000?*

Hiromi Fujii: As we move forward, the NEC Group will continue to promote CSR management based on the ISO 26000 standard, fulfills accountability, strive to make ongoing improvements to its activities, and respond to the trust and expectations of all its stakeholders. ■

“ We are adopting ISO 26000 in the NEC Group around the world.



Nickel industry

Stainless standards

Stainless steel bars.

“ The global demand for nickel is growing.

Nickel is widely used in materials of everyday life. Walk through the streets of any modern city and you will encounter all manner of stainless-steel structures. The global demand for nickel is growing steadily (5% a year on average), driven by society's move towards urbanization and industrialization.

Of the 1 658 million tonnes of nickel produced in 2012, ferrous metallurgy accounted for nearly two-thirds of nickel consumption in the production of stainless

steels used in the chemical/petrochemical, food and paper industries, road and rail transportation, capital goods manufacturing, construction and decoration. The balance is spread between nickel alloys, plating, coinage and the chemical industry.

A fluctuating activity

This year marks the 40th anniversary of the creation of the ISO technical committee on nickel and nickel alloys (ISO/TC 155): Set up in 1973 in response to the industry's



sustained growth, the committee's priority was to meet the needs of enterprises involved in the production or use of nickel. Its purpose was to develop standards for refined nickel and, more specifically, the analysis of refined nickel.

Over the years, the committee's work programme expanded to include the development of terminology and specifications for nickel alloys and ferronickel. The 1990s were marked by a sharp decline in the number of nickel industries around

the world, probably due to the severe economic downturn experienced during that decade, causing a lull in standards development activities. Originally held by Canada, the committee's Secretariat was taken over by France in 2010.

The nickel-producing and nickel-consuming industries involved in standardization activities expect the committee to develop standards that define a common language between countries. The goal is to enhance export capacities and facilitate the trade of nickel, ferronickel and nickel alloys. To this end, the committee developed a three-part standard in the form of ISO 6372:1989, *Nickel and nickel alloys – Terms and definitions*.

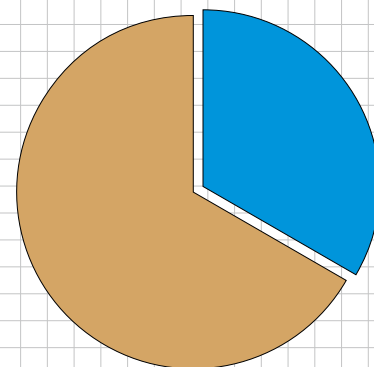
In order to ensure product quality and enhance mutual trust between suppliers and users, some standards are referenced in contracts, namely standards on sampling and analysis methods and standards on the technical delivery conditions of nickel. Compliance with competition rules thus reinforces transparency and ethical behaviour. The ISO/TC 155 work programme also seeks to promote innovation and push back technological boundaries by codifying knowledge in product standards such as ISO 6207:1992, *Seamless nickel and nickel alloy tube*, or ISO 6208:1992, *Nickel and nickel alloy plate, sheet and strip*.

Adapting to market needs

Since 2010, an industry-focused approach has been implemented by the committee to stimulate the market relevance of its work. Moreover, the involvement of emerging countries demands that the standards portfolio be aligned with new requirements in terms of quality, efficiency and simplicity. The technical committee's structure was redefined accordingly to simplify coordination of the work. Since its inception, the technical committee has developed 56 standards.

In line with its standards classification (see [Sidebar](#)), ISO/TC 155 has defined a number of priorities. Pre-normative

1658
million tonnes of nickel produced in 2012



used in:

- chemical/petrochemical, food and paper industries, road and rail transportation, capital goods manufacturing, construction and decoration
- nickel alloys, plating, coinage and the chemical industry

Classification of ISO/TC 155's standards portfolio

Nickel	Sampling Methods of analysis Specifications
Nickel alloys	Sampling Methods of analysis Specifications
Ferronickel	Sampling Methods of analysis Specifications



Ferronickel smelting plant.

“ The ISO/TC 155 work programme seeks to promote innovation.

research is being carried out on methods for sampling and analysing ferronickel and refined nickel. The following standards will be revised in the foreseeable future: ISO 8049:1988, *Ferronickel shot – Sampling for analysis*, ISO 6283:1995, *Refined nickel*, several methods of analysis for nickel alloys, and parts 1 to 3 of ISO 6372:1989, *Nickel and nickel alloys – Terms and definitions*.

Besides, although these are still valid, industry is pushing to get old standards on analytical methods replaced with

recent editions focusing on more modern technologies. Developing such standards involves performing inter-laboratory tests to obtain data for statistical measurement. This, in turn, helps build a climate of trust between parties outside the business environment.

A survey carried out in 2012 on the use of specification standards for nickel alloys showed that these did not meet the needs of the industry. ISO/TC 155 will therefore have to decide on their future. ■



Nickel aluminum bronze tubes.

The author



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Making buildings earthquake-proof

A new ISO standard will help

A new ISO standard will help developing countries assess the safety of buildings before and after earthquakes.

ISO 28841:2013, *Guidelines for simplified seismic assessment and rehabilitation of concrete buildings*, has been developed specifically for countries that do not have national building codes already in place.

The development and implementation of national building codes relies on having in-depth data on the characteristics of the region (physical, meteorological, geological, seismic, etc.). However, many countries do not have a collection of such data, which can be very resource-heavy.

A stand-alone solution

ISO 28841:2013 is a stand-alone solution that provides sufficient information on its own to allow designers to use it without supplementary, external data and without the use of sophisticated calculation tools. However, the guidelines are for relatively simple structures and building characteristics such as occupancy and number of stories should be considered.

“Instead of having to conduct a thorough structural analysis of the building, this standard contains guidelines to assess the seismic vulnerability with simple validated calculations for undamaged buildings, and to assess the damage and risk level for damaged buildings. Using it helps ensure the building is safe in a wide range of circumstances,” explained Josef Farbiarz, project leader for the development of this standard.

“One downside to the simplified approach could be that the building uses slightly more building materials than is strictly necessary for the situation. But construction materials are significantly cheaper than getting hold of the necessary data and running the traditional assessment and design procedures; having a stand-alone solution is really valuable for developing countries,” he added.

The standard can be used before an earthquake to assess a building’s vulnerability, as well as after the event to decide on what repairs need to be made to ensure a safe structure.

A further standard for concrete bridges that follows a similar model, ISO 28842:2013, *Guidelines for simplified design of reinforced concrete bridges*, is now also available. Both ISO 28841 and ISO 28842 refer to ISO 15673:2005, *Guidelines for the simplified design of structural reinforced concrete for buildings*. ■

Katie Bird, Head,
Communication and Content Strategies

**Positive
change...**

debuts in the next issue !