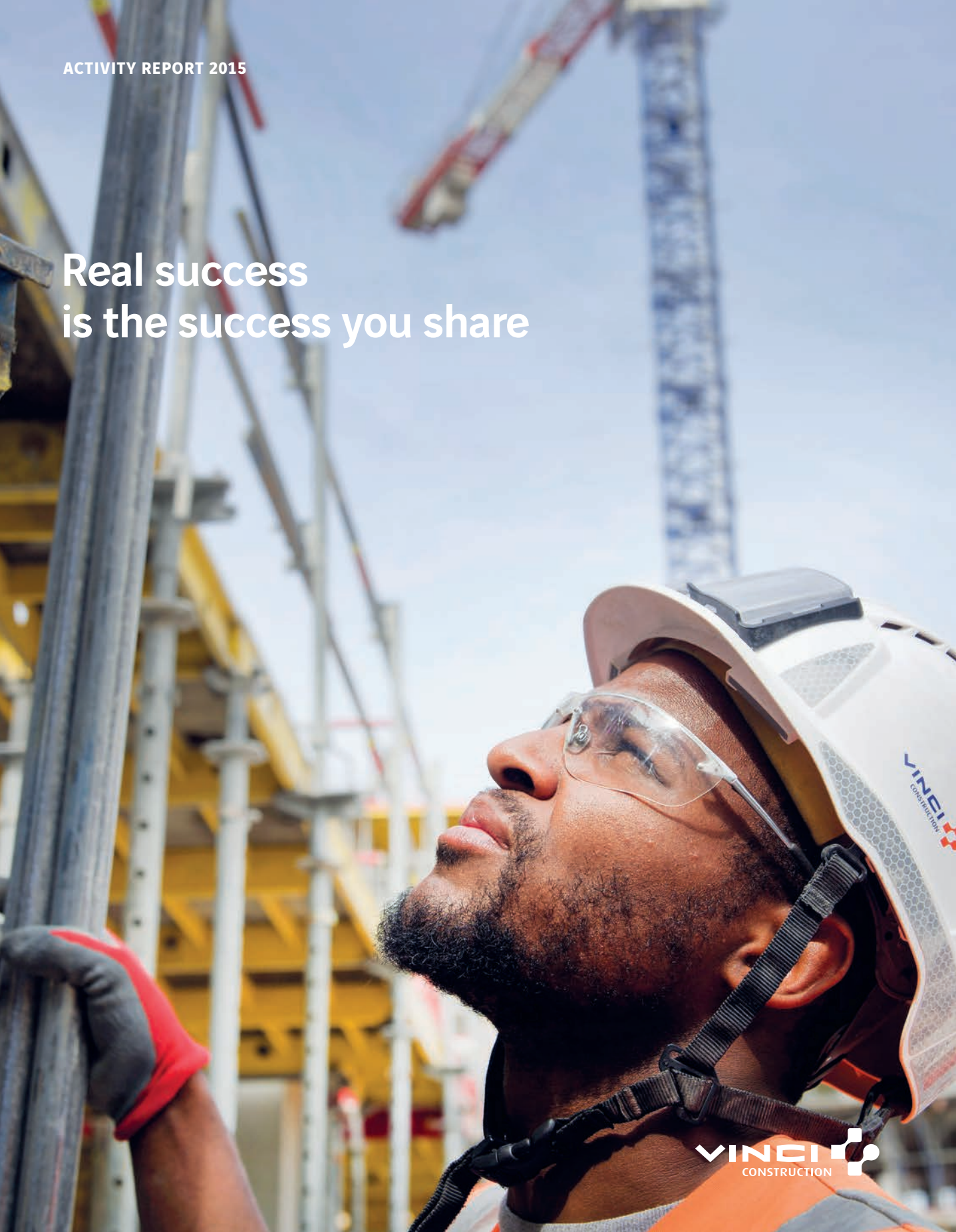
ACTIVITY REPORT 2015

Real success is the success you share



VINCI CONSTRUCTION

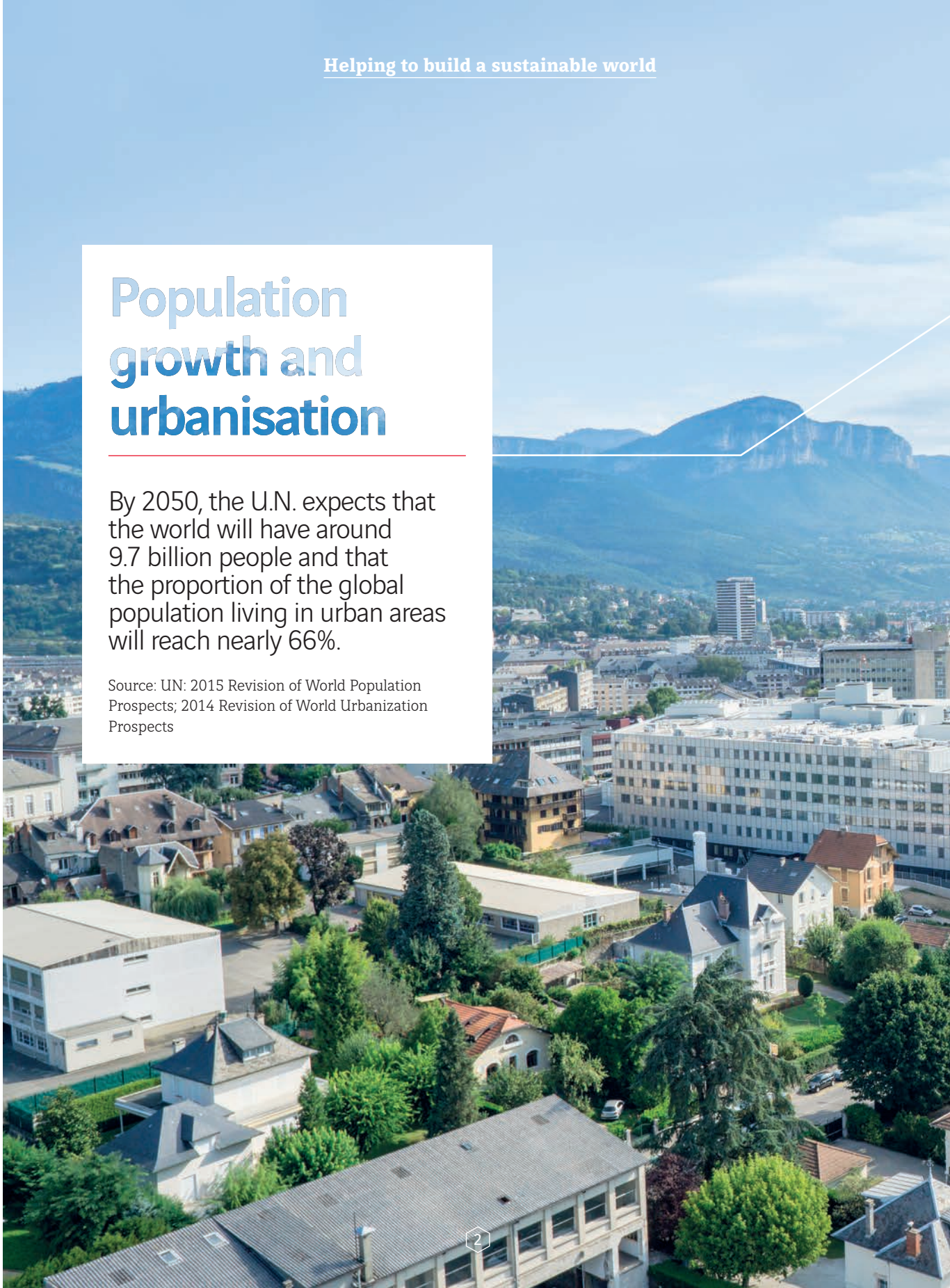
Contents

Helping to build a sustainable world

Population growth and urbanisation

By 2050, the U.N. expects that the world will have around 9.7 billion people and that the proportion of the global population living in urban areas will reach nearly 66%.

Source: UN: 2015 Revision of World Population Prospects; 2014 Revision of World Urbanization Prospects



In France, the VINCI Construction France joint venture (made up of lead company GTM Bâtiment Génie Civil Lyon, Dumez Rhône-Alpes and GCC) designed and built a new 73,000 sq. metre hospital with 671 beds, 80% of them in private rooms, for the Centre Hospitalier Metropole Savoie. The HQE® certified facility was built to the Blue Fabric standard, with fittings (triple glazing, solar panels, patios, etc.) designed to enhance quality of life and boost energy efficiency.

In Hong Kong, VINCI Construction Grands Projets continued work on the new 12 km Shatin to Central Link (SCL) mass transit railway line in a densely populated urban area. In 2015, the Chinese MTR Corporation Ltd awarded a further contract covering 700 metres of blast tunnelling in the city centre. The safety and comfort of local residents during the works is one of the major challenges. The Group's involvement in the project is longstanding: Soletanche Bachy worked on four previous contracts for the line (diaphragm walls, injection grouting, jet grouting).

Growing mobility requirements

The OECD projects that road and rail passenger travel will grow by 120 to 230% between now and 2050, depending on future fuel prices and urban transport policies. International freight transport volumes will more than quadruple.

Source: OECD, ITF Transport Outlook 2015

Drinking water for all

According to the WHO, only 91% of the global population had access to improved drinking water sources and 68% to improved sanitation facilities in 2015.

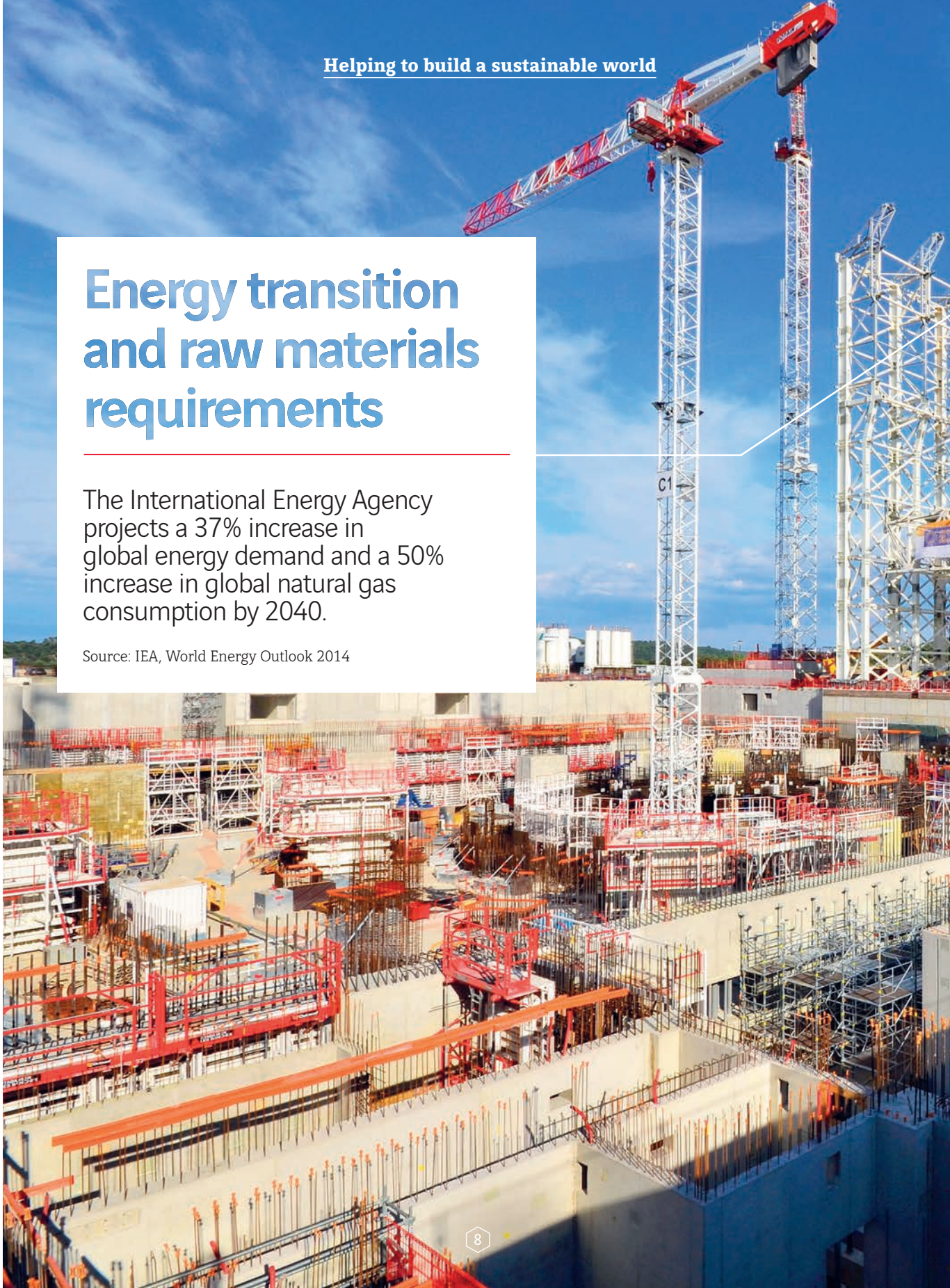
Source: Progress on Sanitation and Drinking Water: 2015 Update and MDG Assessment, WHO/Unicef report

On Reunion Island, VINCI Construction Dom-Tom and VINCI Environnement built a new wastewater treatment plant with a three-tier treatment system – physical, biological (activated sludge) and tertiary – that discharges recreational quality water to the environment. The modular plant, with an initial population equivalent capacity of 18,500, will support the expansion of the municipality of Saint Joseph while protecting the environment.

Energy transition and raw materials requirements

The International Energy Agency projects a 37% increase in global energy demand and a 50% increase in global natural gas consumption by 2040.

Source: IEA, World Energy Outlook 2014

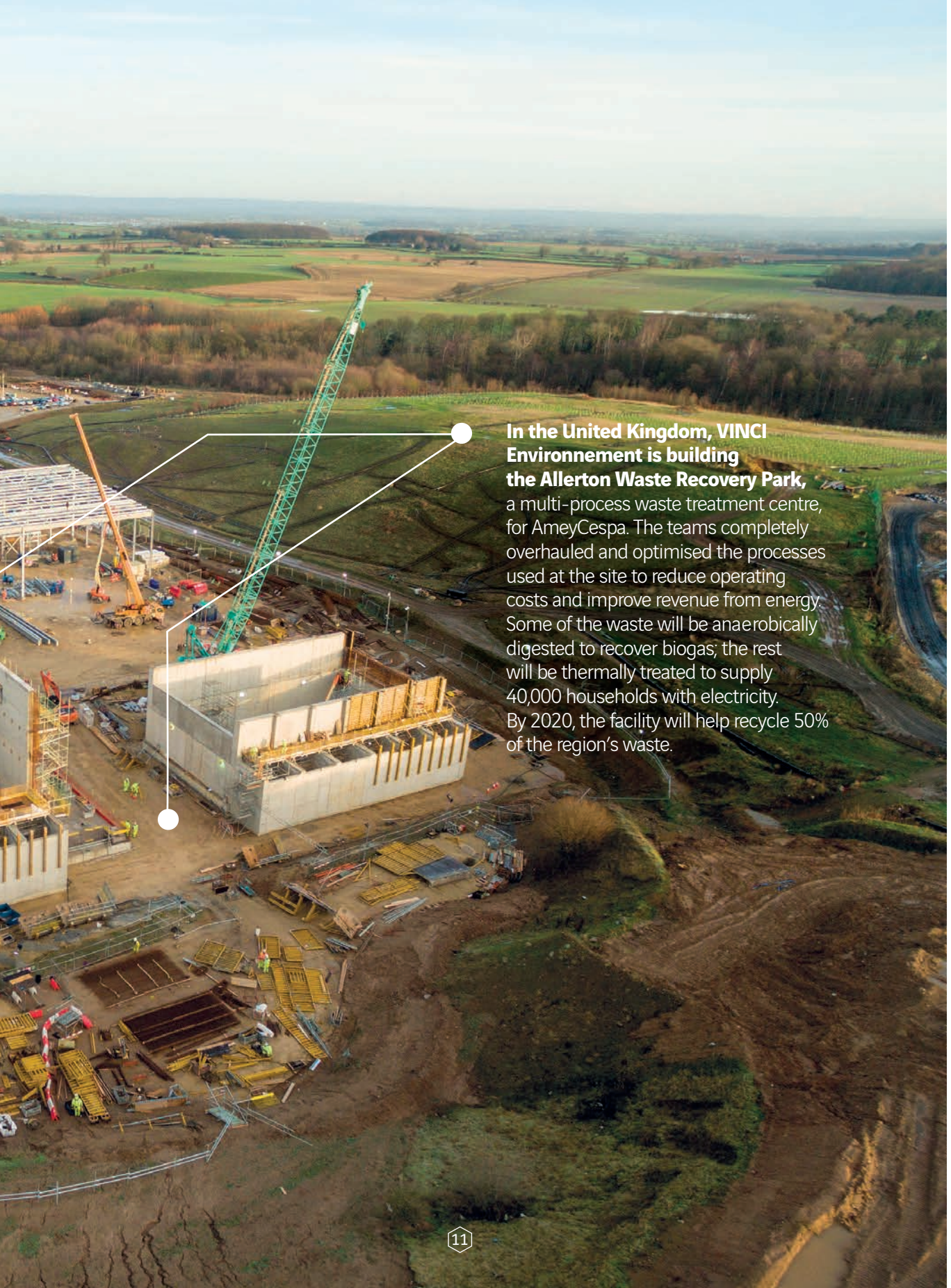


In Cadarache, France, where the future ITER thermonuclear fusion reactor is under construction, VINCI Construction Grands Projets, VINCI Construction France and Dodin Campenon Bernard are carrying out most of the civil engineering work –building the anti-seismic foundations for the Tokamak complex and its nine annexes – as part of the European Fusion for Energy (F4E) initiative. The complex, consisting of three buildings, including the structure that will house the reactor, will weigh 400,000 tonnes and stand 86 metres high. ITER will be the world's most powerful Tokamak reactor.

A cleaner planet

By 2030, the countries of the European Union must recycle 65% of their municipal waste and reduce landfill to a maximum of 10% of all waste.

Source: European Commission, Circular Economy Package, December 2015



In the United Kingdom, VINCI Environnement is building the Allerton Waste Recovery Park, a multi-process waste treatment centre, for AmeyCespa. The teams completely overhauled and optimised the processes used at the site to reduce operating costs and improve revenue from energy. Some of the waste will be anaerobically digested to recover biogas; the rest will be thermally treated to supply 40,000 households with electricity. By 2020, the facility will help recycle 50% of the region's waste.

Who we are

VINCI Construction is a European leader and a global operator, with nearly 800 companies and more than 68,000 employees across five continents. Building on our integrated business model, we deliver a full array of capabilities (financing, design, construction and maintenance) across the entire project life cycle in eight business areas: buildings, functional facilities, transport infrastructure, water infrastructure, energies, environment, oil and gas and mining.

777
consolidated companies

€14,491
million revenue

€299
million operating income from ordinary activities

25,973
projects worldwide

€16,272
million order book at end 2015
(IAS 31 scope)

68,371
employees

Real success is the success you share

The world faces complex, compelling challenges including population growth, urbanisation, growing demand for transport, energy and raw materials and the drive to give everyone sustainable access to the planet's resources.

VINCI Construction designs and constructs buildings and infrastructure to meet these challenges and supports the visionaries of the world of tomorrow.

We build on our longstanding regional roots and on our global presence and the wide-ranging expertise and resources it gives us to deliver turnkey state-of-the-art solutions. By integrating our engineering, methods and project management teams we are able to conduct our design-build activity as a pathway to excellence in safety, first-time quality, environmental performance, cost optimisation and on-time delivery.

Each project represents a new challenge. Its success is built on trust and partnership with the customer and stakeholders and on social and environmental engagement with the host region.

Real success is the success you share.

//The current period gives us an outstanding opportunity to reinvent ourselves//

What is your view of 2015?
For VINCI Construction it was a year of recovery. The order backlog held steady overall and increased slightly in France, against the backdrop of a sluggish economy, with mainland France affected by lower public spending and African markets by the oil price decline. Despite these difficulties, VINCI Construction carried out more than 20,000 projects of all sizes. The major projects were the Thomson Line mass rapid transit system in Singapore, the Regina Bypass motorway in Canada, the airport extension in Santiago de Chile and the M4 bridge and Tideway projects in the United Kingdom. In France, there were the Samaritaine project, the Roland Garros stadium renovation, the building connecting the two terminals at Orly airport and the Trinity tower in La Défense. In addition, we continued to expand internationally, notably via acquisitions in Central America, in Spain with Rodio Kronsa and in New Zealand with HEB Construction.

What are your priorities for the years ahead?
We spelled out our collective goals in the CAP 2020 strategic plan. With its focus on the customer and the worksite, the plan will enable us to further optimise project lead times and costs and to more efficiently help our customers achieve their goals. CAP 2020 sets ambitious safety targets; these are our top priority. Our painstaking safety work has enabled us to reduce our accident frequency rate by 50% over the past four years and our goal is to cut it a further two-thirds over the coming five-year period and to become the world benchmark in safety. CAP 2020 also sets out our expansion strategy based on a stronger international presence, standout products and services in our markets and a strong focus on engineering and operating excellence in construction to create more value in our projects.
Lastly, CAP 2020 spells out the values shared by all Group entities that enables us to meet the same exacting standards in all our projects.

What sets VINCI Construction's approach apart in the construction sector?
At VINCI Construction we see construction as a service business. We work in partnership with our customers and strive to help them build the projects that fulfil their aspirations. Our added value consists in reducing project risk and transforming projects into a viable, long-term physical reality. Helping us achieve this, our integrated business model is a major asset. Our engineering, methods and project management teams enable us to meet the highest standards in terms of safety, first-time quality, environmental performance, cost optimisation and on-time delivery. Our goal in pursuing operational and organisational excellence is customer satisfaction.

At COP21, a historic agreement was reached to limit global warming. How does the Group help devise a more sustainable planet?
Our commitment to sustainability is not new. The buildings we construct today consume four times less energy for heating and air conditioning than those built 10 years ago. With eco-design, we can substantially reduce the environmental impact of a structure throughout its life cycle. We have put the corresponding operational solutions together in our Blue Fabric sustainable building standard and are also the only operator to offer the innovative Oxygen® eco-commitment, which provides for measurement campaigns conducted after

"Our goal in pursuing operational and organisational excellence is customer satisfaction."

handover to ensure that the building achieves its target environmental performance. Lastly, we are working to improve the environmental footprint of the materials used in construction, especially concrete.

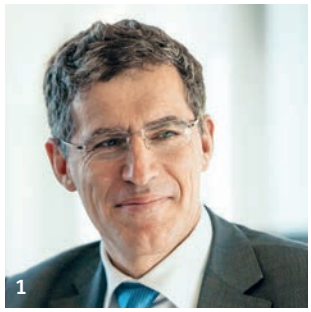
To what extent are you introducing digital techniques in construction?

VINCI Construction initiated digitised design many years ago and helped pioneer the process, using BIM on dozens of projects. The airport in Santiago de Chile gave us an opportunity to take it to a new level by using "Full BIM" to network all project participants from the design stage onwards. The building, its architectural envelope, its structure and its systems were designed using 3D. This provided the depth needed to optimise construction as well as operation and maintenance, for which our VINCI Airports colleagues will be responsible. BIM is becoming part of our projects and enabling us to build a new, deeper but also more exacting relationship with our customers.

Are you optimistic about 2016?

Yes, I am when I look at how energised our teams are and see our company asked to take part in major projects around the world. However, the economic fundamentals remain weak: the price of oil and gas will remain low and prompt the producer countries to cut back on infrastructure investments, and the mining countries will wait a bit longer to resume investing. In France, public spending remains sluggish. We expect volume to remain flat and order intake to pick up in 2016 as a result of the French Motorway Plan, the start of the Grand Paris programme and momentum in a number of dynamic regions. Outside France, we expect business activity to remain brisk, especially in our specialist activities and major projects. I am also very upbeat about the work done by our teams to invent new solutions that enable us to build better, more efficiently and more sustainably. The substantial work we did to strengthen our culture, simplify our organisational structure and put together a project involving the entire Group will enable us to boost profitability, respond more quickly and adapt to the rapid changes taking place in our markets. The current period gives us an outstanding opportunity to reinvent ourselves.

"We work in partnership with our customers and strive to help them build the projects that fulfil their aspirations."


1


2


3


4


5

1 Jérôme Stubler
Chairman,
VINCI Construction

2 Joseph Attias
Director of Engineering,
VINCI Construction

3 Alain Bonnot
Chairman, VINCI
Construction Grands Projets

4 Hugues Fourmentaux
Chairman, VINCI
Construction France

5 Gilles Godard
Chief Executive Officer,
VINCI Construction
International Network

6 Yann Grolimund
Chief Administrative
and Financial Officer,
VINCI Construction

7 Benoît Lecinq
Chairman, Entrepose


6


7


8


9

8 Hervé Meller
Human Resources Director,
VINCI Construction

9 Manuel Peltier
Chief Executive Officer,
Soletanche Freyssinet

10 Jean-Philippe Bréot
Health and Safety Director,
VINCI Construction

11 Samir Hatim
Information Systems Director,
VINCI Construction

12 Manuel Saez-Prieto
Communications Director,
VINCI Construction


10


11


12

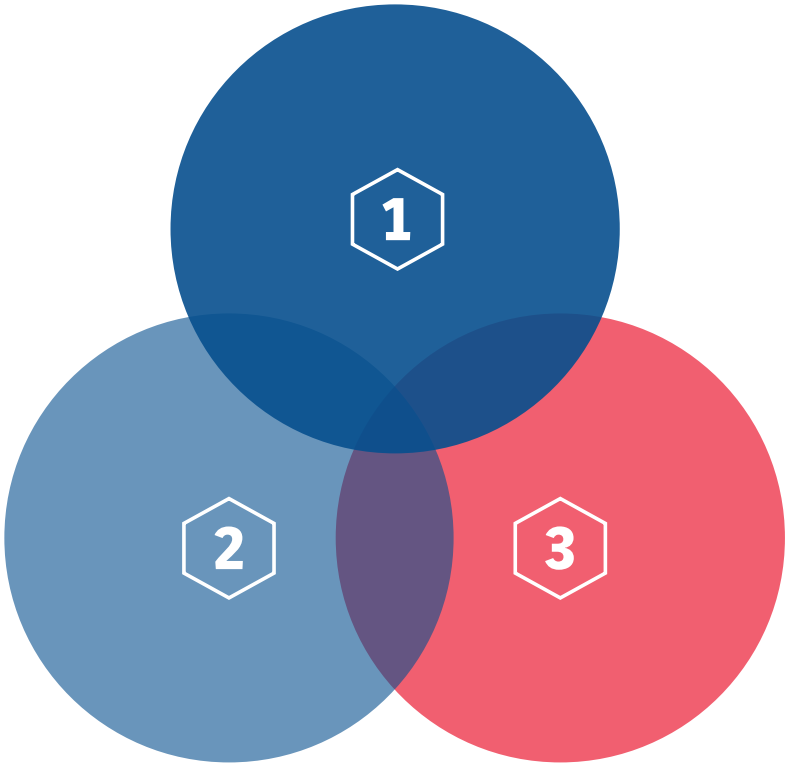
Partners of our customers on five continents

Our 777 companies, some of which have local roots going back more than a century, carry out nearly 26,000 projects every year in 100 countries. VINCI Construction companies work in all types of environment, ranging from densely populated urban areas to remote parts of the world, and in extreme conditions.

2015 revenue by geographical area

Supporting projects of all types

VINCI Construction's business model is based on three complementary pillars to provide long-term support for customers on projects spanning a wide spectrum of technical features, scales and geographies.



1 Network of local subsidiaries

With strong roots in the economic and social fabric of the areas where they operate, the local subsidiaries apply VINCI Construction's methods and expertise to support projects of all sizes.

2 Major Projects Division

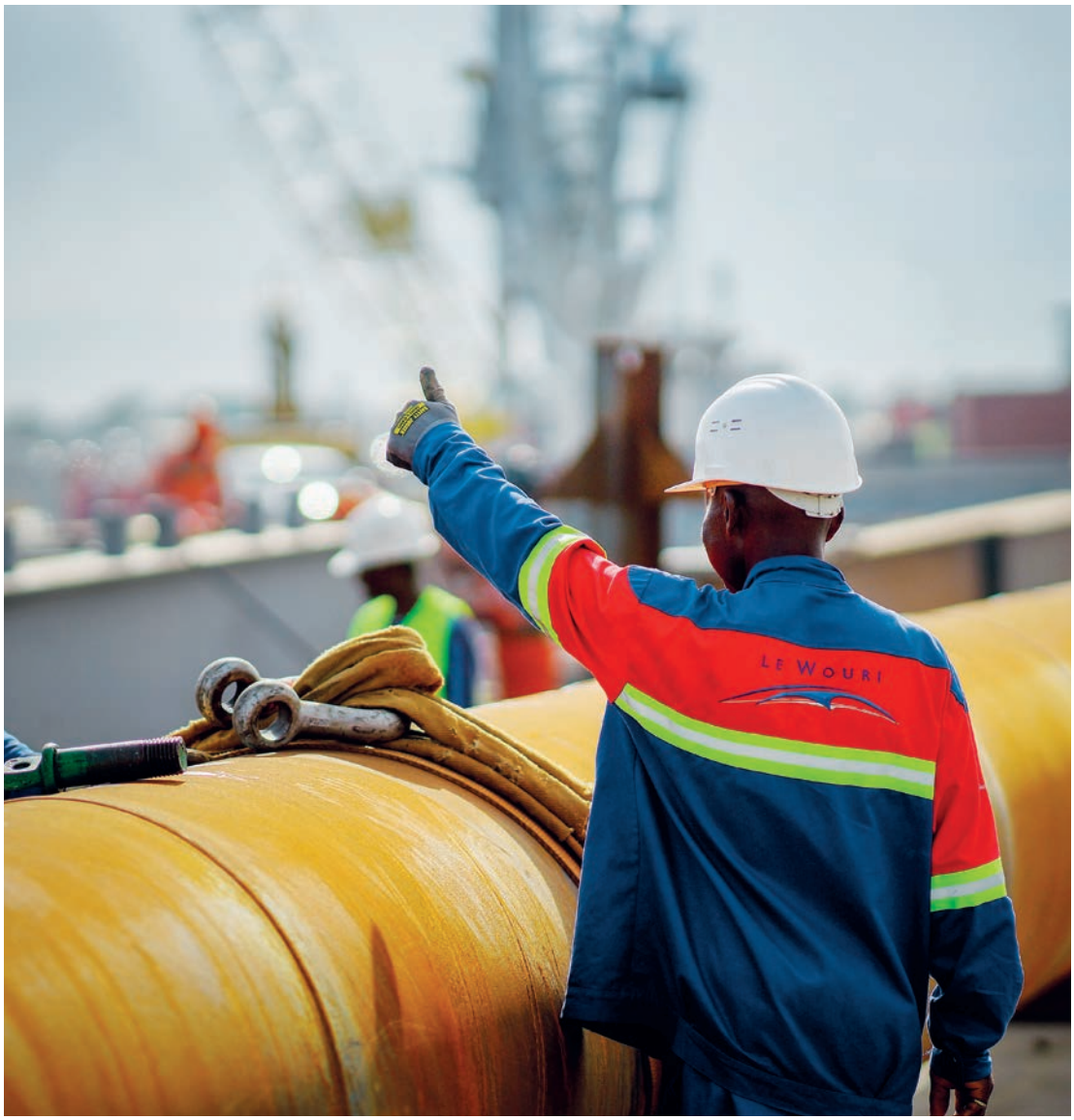
Focused on management and implementation of large-scale projects around the world, the companies of the Major Projects Division operate alone in the countries where the local network does not yet exist and in synergy with the other VINCI Construction subsidiaries in countries where the Group is already present.

3 Specialist subsidiaries

The specialist subsidiaries offer high-tech, high value added solutions in geotechnical, structural, nuclear, oil and gas and environmental engineering.

NETWORK OF LOCAL SUBSIDIARIES

Close to our customers, geared to their needs



VINCI Construction's time-honoured, trademark network of local subsidiaries is made up of small and medium sized companies in France and the rest of the world (South America, Africa, Central Europe, Asia-Pacific, Overseas France). The network, put together gradually over the past 150 years, is based on a main principle: each component is a team focused on a main activity, within a defined area of operation, located close to its customers. Because each entity has detailed familiarity with its customers' local markets, local issues and local stakeholders, it can provide solutions to meet their needs across projects of all sizes.
VINCI Construction subsidiaries are deeply rooted in their regions. They recruit locally but are also able to call on the Group's national and international expertise. This diversity, combined with mobility between subsidiaries, enables VINCI Construction to provide the same quality, safety, engineering and methods on each and every project.

2015 revenue

€8,898 million

2015 workforce

38,982 employees

Main subsidiaries

- **VINCI Construction France** (including VINCI Environnement until the end of 2015)
- **VINCI Construction UK**
- **VINCI Construction International Network:**
  - **VINCI Construction Dom-Tom**
  - **Sogea-Satom** (Africa)
  - **Warbud, Průmstav et SMP** (Central Europe)
  - **HEB Construction** (Australia)

MAJOR PROJECTS DIVISION

Managing major projects around the world

Building on the legacy of companies going back a century and more, VINCI Construction's Major Projects Division delivers the full range of skills required to carry out complex civil engineering structure, earthworks and building projects. The Division's high-level expertise, strong engineering and project management capabilities and simple responsive structure enable it to control risks and roll out solutions that are both comprehensive and modular. For each project, the Division forges partnerships with local companies and can provide training tailored to local teams.

2015 revenue

€1,785 million

2015 workforce

7,229 employees

Main subsidiaries

- **VINCI Construction Grands Projets:** design and construction of complex projects (civil engineering and building) around the world.
- **VINCI Construction Terrassement:** execution of infrastructure and development projects in which earthworks forms the "backbone", including standard engineering structures and drainage.
- **Dodin Campenon Bernard:** design and construction of major civil engineering and underground projects, primarily in France and Africa.

SPECIALIST SUBSIDIARIES

Delivering technology and high-level expertise

Within VINCI Construction, the specialist subsidiaries deliver high technology, high value solutions and bring together engineers with a high level of expertise in geotechnics, structures, nuclear, oil and gas and environment.
Operating in more than 80 countries around the world, the specialist subsidiaries can work as general contractors, joint contractors or subcontractors.
Known around the world for their expertise, the specialist subsidiaries invest heavily in R&D to support innovation and the development of new techniques.

2015 revenue

€3,807 million

2015 workforce

22,159 employees

Main subsidiaries

- Soils: **Soletanche Bachy** et **Menard** (deep foundations and ground technologies)
- Structures: **Freyssinet** and **Terre Armée**
- Nuclear: **Nuvia**
- Oil and gas: **Entrepose Group** (Entrepose Contracting, Spiecapag, Geocean, Entrepose Drilling, Geostock)
- Environment: **VINCI Environnement** which joins Entrepose Group in 2016

How we conduct our business

At VINCI Construction we believe that our success and the success of our customers' projects are predicated on the strong values that structure and guide the way we operate.

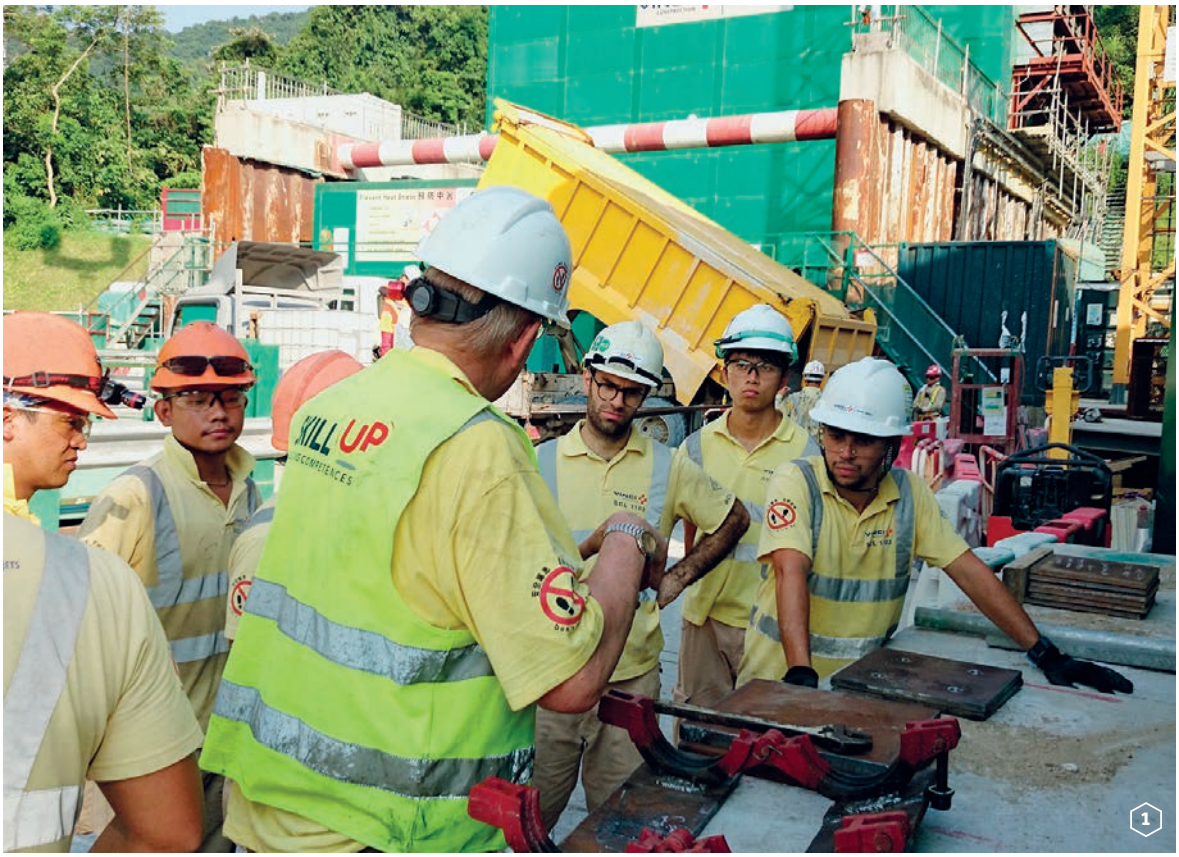
FOCUS ON PEOPLE

Assigning the right team to the right place at the right time

To carry out more numerous, more complex projects in more distant geographies, VINCI Construction makes sure to assign the right person and the right team to the right place at the right time.
Interview with **Hervé Meller, HR Director of VINCI Construction,** and **Alain Bonnot, Chairman of VINCI Construction Grands Projets.**

How does VINCI Construction make sure it provides the most suitable skills and expertise for each of its projects?
Hervé Meller: VINCI Construction has more than 68,000 employees in 100 countries around the world – an outstanding talent pool. We have taken a series of initiatives that enable us to put together the right teams for each of our projects. These include an employee resume database that we share internationally. We have also developed training programmes covering project management and the technical aspects of our projects. We are now doing our utmost to make these courses more internationally accessible.

What is the added value of the academic partnerships you are creating?
H.M.: Academic partnerships facilitate contacts with the talent we will be recruiting in future and strengthen our roots in the geographical areas where we operate. We now have partnerships with more than 20 schools and universities around the world, in Asia, Oceania, South America and Europe.



Innovations such as eco-design, BIM and new types of materials are transforming construction. How do you ensure that your employees keep pace with all these changes?
H.M.: The Group invests in training on an ongoing basis. In 2015, we provided more than a million hours of training for 40,628 employees. Most of this is handled by the various Group entities. For example, Sogea-Satom set up the Africa Campus in Morocco as a training hub for its 26 subsidiaries in Africa; and the Major Projects Division employs the Skill Up programme to train local personnel on the worksites. In addition to these initiatives taken in the field, we are providing an increasing number of Group-wide training courses in subjects such as safety to foster uniform skills development across the Group as a whole.

"Outsized" projects are a substantial challenge, especially in terms of risk management. What teams do you have to carry out this type of project?
Alain Bonnot: A major project is a major challenge that none of us could meet individually. We have to join forces and set up teams that can tackle such projects together. The main requirement, in addition to project organisation and processes, is the human aspect. I don't mean a Great Leader to head the project but a team that brings together our local partners and our major projects teams to work side by side in pursuit of a common goal. We find the right skills and bring them together to make our projects a success. That is what our customers expect when they entrust to us a project that is often not just an outsized structure but a structure that makes a difference in people's lives.

1 — Skill Up, a mobile worksite school to transmit skills to locally recruited teams.

CORPORATE SOCIAL RESPONSIBILITY

Engaging with civil society

Stepping up civic engagement, access to culture and the fight against exclusion

As a private-sector company working in the public interest, VINCI Construction's engagement is supported by the VINCI Group's network of corporate foundations: 11 all told, including two in France and two new foundations in Spain and the UK/Ireland. All provide funding support for projects run by non-profit organisations and sponsored by employees that facilitate access to employment, housing and mobility and create social ties in disadvantaged neighbourhoods. In France, the Fondation VINCI pour la Cité (VINCI foundation for the community) provided €2.14 million in funding for 134 projects – 58 sponsored by VINCI Construction employees – in 2015. In Africa, Issa (Initiatives Sogea-Satom pour l'Afrique) supports local economic development projects sponsored by company employees. In 2015, Issa provided more than €410,000 for 27 initiatives. Meanwhile, VINCI Construction and its subsidiaries continued their cultural and sports sponsorships. In 2015, VINCI Construction became a sponsor of the "Osiris, Egypt's Sunken Mysteries" exhibition at the Arab World Institute in Paris.

Promoting equality

For more than 10 years now, VINCI Construction has implemented a proactive diversity policy focused on promoting equality and preventing all forms of discrimination. In 2015, the emphasis was on gender equality. The proportion of women managers at VINCI Construction is 17%, of which 10% on worksites in France.

In mainland France, a joint group made up of about 15 employees meets regularly to discuss gender equality and broaden the action plan. The priority focus is on explaining the construction sector to high school students and on equality and work-life balance.

1 — The Issa programme gives priority to economic initiatives. Pictured here, the Eco-Spiruline project in Togo.

SAFETY

Zero Accidents, the top priority

Over the past four years, the steady, painstaking effort to boost safety has paid off: the lost-time accident frequency rate for employees and temporary workers has been halved, from 12.6 in 2011 to 6.6 in 2015. Management involvement and the dissemination and sharing of a safety culture throughout the company were decisive factors. Day-to-day, on the ground, the safety programme is based on a common core made up of four commitments and twelve basic principles, five of which are described below.

Principle No. 4: "Managers set a safety example." Safety is the Trojan horse of managerial discipline: at VINCI Construction, exemplary behaviour and collective discipline are considered key levers to achieve progress. In 2015, during International Safety Week, an action plan on setting a road safety example was rolled out to reduce traffic risk on the worksite and in civil society.

Principle No. 5: "Management is present and vigilant in the field, making sure that any risky situation is immediately corrected and recorded." Detection of dangerous situations is one of the two major actions taken on VINCI Construction's 26,000 worksites in 2015. The goal is for every manager, operator and skilled worker to make detecting dangerous situations second nature. To facilitate implementation of these actions, a series of applications, including WATCH for smartphones, is designed to enable every "risk detector" to report a dangerous situation, near miss or best practice.

Principle No. 6: "Safety is one of the criteria used to assess managerial performance." Since 2014, managers in France carry out a self-assessment and draw up a safety improvement plan. In 2016, this system will be applied as part of annual appraisals across VINCI Construction as a whole.

Principle No. 7: "Each organisational manager embraces safety management training." Centred on visible management involvement, the "Managing Safety" training programme is a major turning point in VINCI Construction's safety programme. From members of the Management Committee to foremen and crew leaders, 8,000 managers have taken this course since 2012. A new safety culture training course, to be given to employees just after they are hired, is being drawn up.

Principle No. 11: "Worksite preparation and methods are approved before the start of works and risks are clarified and shared before beginning of each task." Every day, at the start of every work task, the PreStart programme applies. PreStart, the second major safety action taken in 2015, consists in bringing the production team together at the workplace to analyse the tasks to be carried out and identify the risks associated with it before the start of work. PreStart helps make the workplace safer by encouraging teams to actively participate and by raising their awareness.

"In the oil and gas sector, we need to set a safety example. This is a strong commitment that we make to our customers. Safety must be management's top priority and management must plan worksites accordingly and systematically implement best practices. There is no such thing as an unavoidable accident."

BENOÎT LECINQ, Chairman of Entrepose

OPERATIONAL EXCELLENCE

Orchestra, VINCI Construction's management system

Over the past ten years, more than 12,000 employees around the world have received Orchestra training. Developed to ensure compliance with VINCI Construction's values and culture, the Orchestra system professionalised worksite preparation and organisation and introduced key productivity factors in execution management. Orchestra is gradually evolving into a comprehensive project management system covering everything from design to delivery and applying throughout the Group. The approach is geared to operational excellence and designed to provide customers with the best cost-time-quality equation.

A mindset

Applied from the design stage onward, Orchestra supports an in-depth dialogue with the customer about project risks and opportunities. The Orchestra mindset gets the project off to a flying start by spelling out optimised construction methods to the customer. In the preparatory phase, this gives the customer a clearer overview of the project and of our technical and commercial value added. In the execution phase, rigorous worksite organisation boosts productivity.

1 — Orchestra enabled us to deliver the WUM Hospital in Warsaw three months ahead of schedule.

INTEGRATED MODEL

Combining key design-build expertise

VINCI Construction took a decision to integrate the key expertise of its general contracting and specialist business activities. In both design and works, vertical integration increases added value for customers by minimising interfaces and making it possible to control costs, lead times, quality and safety. This does not prevent the various subsidiaries from outsourcing services that do not fall within their core competencies or from operating under different types of contractual frameworks (general contracting, joint contracting, subcontracting and public-private partnership).

Working across the entire project life cycle

VINCI Construction is able to work across the entire life cycle of the project, from financing to design (R&D, audit, consulting, engineering), construction or refurbishment and maintenance. Its teams work at the level corresponding to the customer's expectations and the specific features of the project. They are therefore able to support the wide variety of their customers' projects and countries of operation, delivering a solution (with a focus on technology) at every point in the project life cycle, to fully accommodate the requirements of eco-design, optimise the functionality of the structure and minimise risk.

"Our vertical integration model appeals to our customers. We design, construct and implement our own high value added solutions. This enables us to more responsively meet their exact requirements."

MANUEL PELTIER, Chief Executive Officer of Soletanche Freyssinet

ECO-DESIGN

Reducing the structure's environmental footprint

COP 21 reached a universal agreement to keep global temperature rise within 2°C. The agreement, adopted by 195 nations, marks a turning point in the struggle against climate change. The building and transport sectors are a focus of the endeavour. VINCI Construction has embarked on a process designed to reduce the greenhouse gas emissions per square metre of buildings in the construction phase by 30% between now and 2020. It will do this by incorporating new materials and optimising their use, under environmental management systems that are primarily based on ISO 14001 certification.

Dedicated solutions and services

VINCI Construction France has been developing technical solutions to build more sustainable structures for more than two decades. These methods, technologies and processes have now been brought together in the Blue Fabric sustainable building standard. This one-of-a-kind range of products and services, introduced in 2014, provides customised solutions focused on low consumption, affordability, performance and user well-being. All parts of a project – worksite, energy, transport, accessibility – are integrated before the start of works. In 2015, Blue Fabric was expanded with the addition of the new Conjugo® solution. Based on an innovative construction method, it is used to construct a reversible building that can be converted from office to residential space or vice versa. The "mutable city" is up and running. VINCI Construction also encourages the use of low-carbon materials such as wood (its Arbonis brand is a leader in the wood construction sector in France) and low-carbon concrete using ground cement mixed with blastfurnace slag.

Partnerships for innovation

Renewed in 2013 and endowed with a budget of €4 million over a five-year period, the VINCI-ParisTech partnership supporting the Chair in Eco-design of Buildings and Infrastructure provides a framework for developing tools and guidelines to boost energy efficiency, mobility and biodiversity in urban projects. Biodi(V)strict is an innovative decision-support tool used to draw up a project biodiversity audit and to develop the potential of a neighbourhood. The first-of-a-kind tool won the Sustainable Development prize in the VINCI 2015 Innovation Awards. Other tools such as CO2NCERNED, dedicated to transport infrastructure and developed by VINCI Construction Grands Projets, and Prism, developed by Soletanche Bachy, are the result of work carried out jointly with the scientific and academic communities.

"VINCI Construction France has invested heavily in eco-design for more than 15 years, in partnership with universities. Eco-design is now becoming an intrinsic part of all our projects: our engineers no longer confine their work to structural calculations and architectural design but have also become de-facto energy specialists able to build thermally optimised structures that blend into their natural environment."

HUGUES FOURMENTRAUX,
Chairman, VINCI Construction France

INNOVATION

Innovation, a key part of our range of solutions and services

"The advent of digital operations takes structured information sharing with our customers to a new level and drives a complex but compelling shift in the relationship between the builder and the project stakeholders."

SAMIR HATIM, Director of Information Systems, VINCI Construction

Innovation is the core focus of our endeavour to develop solutions and services that meet not only the current but also the future expectations of our customers. VINCI Construction held 2,147 active patents in 2015.

Grass-roots innovation

The company encourages innovation by its people in the field. Every two years, VINCI Construction employees take part in the VINCI Innovation Awards. In 2015, six of the 14 prizes presented at the final awards ceremony went to VINCI Construction entries, including the Grand Prize of the jury for the Biocalcis® process, which uses bacteria to improve the soil and was developed and patented by Soletanche Bachy.

Open Innovation

VINCI Construction is reinforcing its ties with innovative company incubators and accelerators.

Digital transformation

In a world that is fast going digital, information systems have a role to play in driving innovation. VINCI Construction has decided to give its employees access to state-of-the-art digital tools to support design and information exchange. They all involve sturdy, scalable and available information systems that store, cross-reference and analyse a growing volume of data to serve VINCI Construction's customers. The development of BIM (Building Information Modeling) lies at the heart of the digital transformation of the construction sector.

1 — The Biocalcis® process, which won the Grand Prize of the jury at the VINCI 2015 Innovation Awards.

BIM

BIM, a key part of design-build construction

2 — A 3D model was used to build the Pont d'Arc Cavern (France), a replica of the Chauvet cave in southern France.

BIM (Building Information Modeling) is a collaborative tool used on an increasingly widespread basis to optimise design, construction, renovation and operation of structures by means of a digital platform shared by all project participants. **Joseph Attias, VINCI Construction Director of Engineering,** explains.

What does BIM bring to a project, in practice?

Joseph Attias: Design has always preceded construction. BIM now adds a further dimension to the process. A "representation" of the structure to be built has now been replaced by a virtual reality of it. With BIM, we can factor the way the structure will be built into the design and plan its maintenance and renovation ahead of time. So the first thing BIM does is to bridge the gap between the virtual structure and the real one: the customer can see the project taking shape at each stage of the process, since the virtual and the actual structure are constantly interacting. This is "BIM to site". The second advantage of BIM is that it supports collaborative work. It offers a database shared by all the participants in the design, construction and operation of a structure. They can access the same information in real time and interact by using the virtual object.

What new prospects does BIM hold out?

J.A.: The ability to construct and deconstruct a virtual structure encourages people to be creative. BIM supports innovation by pushing back the limits to our technical capabilities, enabling us to use more complex shapes, increase productivity and better integrate eco-design requirements. Project risk is controlled upstream. The tool enables us to optimise a worksite, and in return data entered in the field is used as input to expand the digital model and introduce alterations. This is "site to BIM". BIM is central to construction, no matter what the size of the project. Control of the virtual structure enables us to maintain the relationship with our customers. I am a great believer in the virtuous circle between the digital transition and the development of the smart connected objects within the building that will enable us to successfully navigate the energy transition.

An integrated range of solutions and services in eight business areas

VINCI Construction can work at all stages of the project life cycle, from financing to design, construction and maintenance, and delivers comprehensive solutions and services.

Buildings

Residential and office space, hotels

Functional facilities

Shopping centres, educational facilities, cultural and heritage buildings, stadiums and sports facilities, hospitals and industrial and service sector installations

Transport infrastructure

Roads, bridges, viaducts, marine and inland waterway infrastructure, railway and airport infrastructure

Water infrastructure

Dams, channels, locks, pipe systems, wells

Energies

Nuclear, wind, hydroelectric, geothermal

Oil and gas

Oil drilling, pipelines, gas pipelines, jetties, storage, processing facilities

Environment

Water treatment, waste recovery, soil remediation

Mining

Roads, tunnels, drilling, soil investigation, cavities

What we achieve

At VINCI Construction we believe that it takes more than technical capabilities and an optimised quality-cost-time equation to ensure the success of a project; success hinges on our ability to work in partnership with our customers and the full range of project stakeholders and to meet the needs of regions.

Improving the living environment

VINCI Construction mobilises its research & development and engineering capabilities to design and construct innovative buildings that improve the living environment while protecting the natural environment.

BERJAYA CENTRAL PARK TOWERS, KUALA LUMPUR, MALAYSIA

In 2015, the silhouettes of the two Berjaya Central Park towers were added to the Kuala Lumpur skyline. Resting on a nine-storey "podium", the 38-storey, 200 metre high towers were completed in just under 30 months. Berjaya, a major economic player in the region, entrusted the 180,000 sq. metre property project to VINCI Construction Grands Projets.

01 **Conversion of the Macdonald warehouse in Paris to create a multi-purpose complex designed to accommodate 2,500 residents and 3,000 employees.**

02 **Central Park Ursynów residential complex in Warsaw, where quality of life is the focus of attention.**

03 **The Cité de Refuge, designed by Le Corbusier for the Salvation Army in Paris in the 1930s, has regained its architectural consistency following refurbishment by VINCI Construction France in 2015.**

Residential buildings: a recovering market

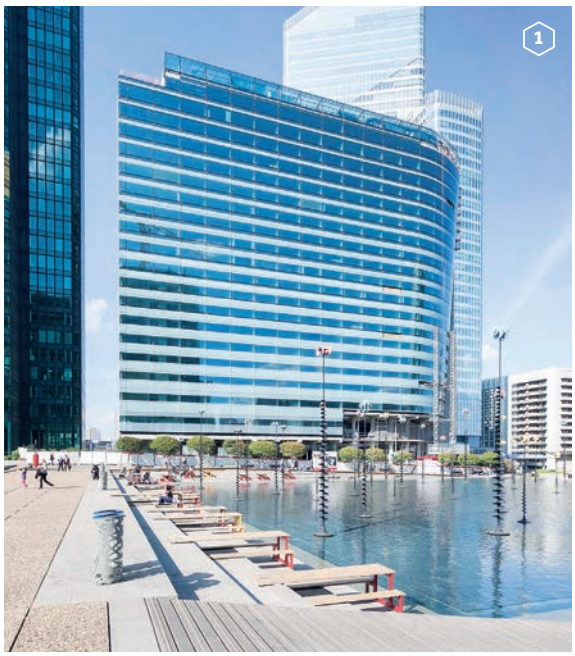
In the Greater Paris area, VINCI Construction France completed the conversion of the former Macdonald warehouse in the 19th arrondissement in the summer of 2015. The former 617 metre long logistics hub was transformed into a new neighbourhood, which serves as a central link in the Paris Nord-Est urban renewal programme. The outsized project covers 165,000 sq. metres and comprises 1,126 housing units, 32,000 sq. metres of retail space, 26,000 sq. metres of office space, 16,000 sq. metres of activity space, 17,000 sq. metres of community facilities (gymnasium, day care centre and middle school) and 1,300 parking spaces. The new multipurpose complex is designed to accommodate 2,500 residents and 3,000 employees. VINCI Construction France worked with six property developers and 10 architectural firms to complete all aspects of the exceptional project, which included infrastructure (notably a tram line passage) and superstructure works, within 27 months.

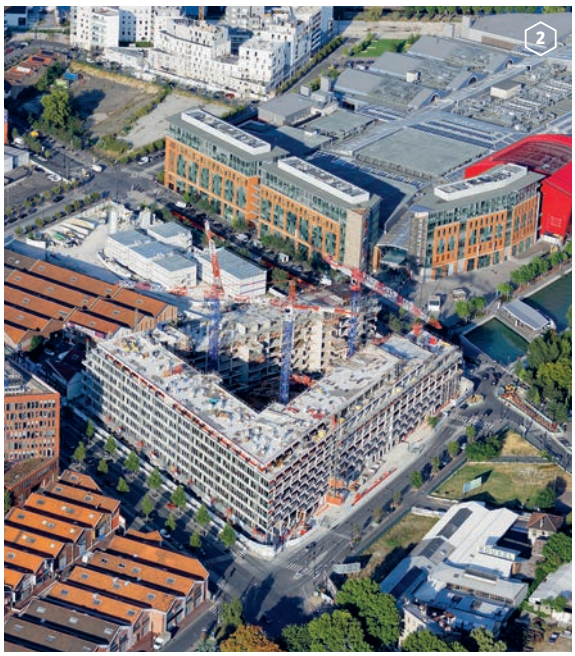
In Poland, Warbud's teams built the first phase of the Central Park Ursynów, a serviced apartment complex in Warsaw's Kłobucka street. The contract covers construction of five 5-to-9 storey buildings comprising a total of 857 apartments as well as underground car parks. Surrounded by shops and cafés, the Central Park Ursynów offers residents high quality of life including a jogging track, basketball court, fitness club, children's club, private lakes and tree-lined courtyards.

01 The four-star Meliá Paris La Défense hotel was designed as the Spanish Meliá Hotels International group's flagship location in France.

02 The new Veolia Environnement head office in Aubervilliers, France, built by VINCI Construction France aims for HQE® and Breeam® Excellent certification.

03 The Fontenoy-Ségur complex in Paris, which will ultimately accommodate 2,300 workstations in 76,500 sq. metres, will bring various government departments together at the same site.





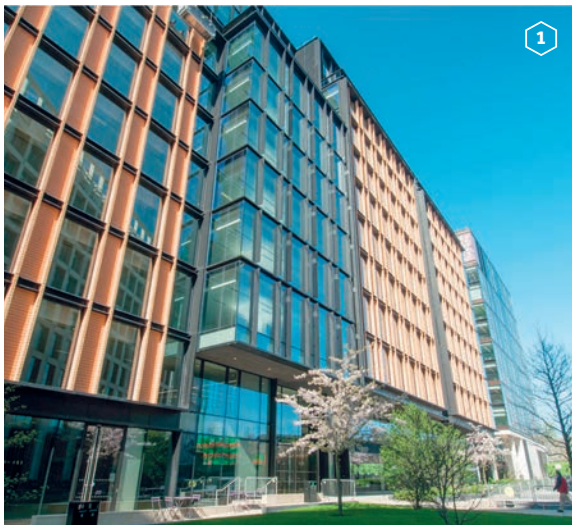
Hotels: complexity and comfort

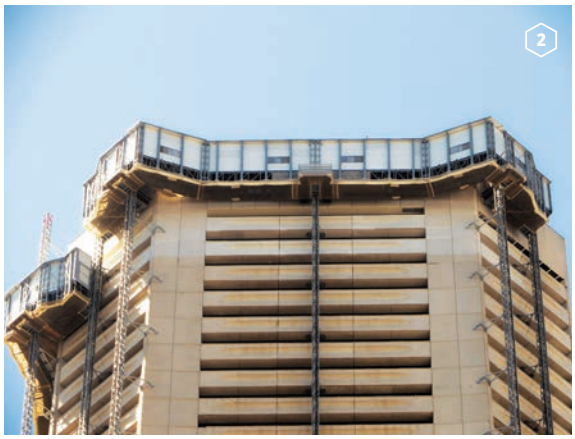
The Meliá Paris La Défense, the first hotel built in La Défense in ten years, opened in early 2015. The four-star establishment, built by a joint venture made up of three VINCI Construction France subsidiaries, offers 369 rooms and suites, a conference space and a sky bar with an unobstructed view of Paris. The 25-level building offers about 24,000 sq. metres of floor area. The hotel, designed as the Spanish Meliá Hotels International group's flagship facility in France, stands in an excellent location at the entrance to the business district on the western edge of Paris. Its construction was an architectural feat since the 1,600 sq. metre plot on which it is built is hemmed in between the Circular boulevard, the La Défense esplanade and a car park exit. To accommodate the restricted land take, VINCI Construction France teams built special foundations and adopted a highly sophisticated logistics system with a software programme to schedule deliveries to within one half hour.

Office space: quality of life at work

In France, VINCI Construction France took part in refurbishing the Fontenoy-Ségur complex in Paris. It is made up of two buildings previously used by the Ministry of the Merchant Marine (Place de Fontenoy) and the Ministry of Posts and Telecommunications (Avenue de Ségur). In addition to upgrading both buildings to applicable standards

3





(accessibility, fire safety, BBC Effinergie certification), the project includes the creation of an inter-administration restaurant, a 450-seat auditorium, a sports hall and a day care centre and renovation of the interior courtyards. The very tight schedule and restrictions relating to the maintenance of the buildings called for high-quality organisation and the use of appropriate digital tools. The complex is to be restructured and upgraded to house independent administrative authorities serving the Prime Minister, including the rights defender, and government departments that are currently spread over 35 sites in Paris. It will accommodate 2,300 workstations in the gross external area totalling 76,500 sq. metres. The Fontenoy building is to be handed over in the summer of 2016, the Ségur building in 2017.

In the United Kingdom, VINCI Construction UK is building a 40,000 sq. metre office complex with ground-floor retail space for BNP Paribas Real Estate Property Development UK in the London neighbourhood of King's Cross. Designed by architect Jean-Michel Wilmotte, the complex will meet the highest international environmental and comfort standards and is designed to achieve Breeam Excellent certification. Located in the heart of the future service sector district where property projects totalling 743,200 sq. metres in floor area will ultimately be built, it will be easy to reach, as it is located next to Saint Pancras, the international railway station where national lines, the Eurostar and six underground lines meet.

In Australia, Freyssinet continued work on the major MLC Tower renovation project. The 60-storey historic building, which reaches a height of 220 metres and had suffered the ravages of time since it was built in 1977, has been given a new lease on life. The project included an assessment of the condition of the outside facade, restoration of the performance and strength of the facade elements, restoration of the appearance of the building and provision of a specific maintenance plan. To renovate the 35,000 sq. metre facade, Freyssinet teams employed a variety of solutions, such as cathodic protection of the reinforcements and application of a waterproof silane surface treatment. Since the building remained occupied during the project, a major effort was made to minimise disruption for residents, including encapsulation of the work areas and specially developed work platforms. Overall, the sound level was reduced by 25 dB. The "facelift" restored the iconic building to its former glory as part of the Sydney skyline.

01 **The 40,000 sq. metre office building constructed in London for BNP Paribas will meet the highest standards of comfort and aim for Breeam Excellent certification.**

02 **During refurbishment of the 35,000 sq. metre facade of the MLC Tower in Sydney, a constant effort was made to minimise disruption for local residents.**

Interview with Carine Bonnard, Deputy Director General for Urban Development and Planning, Petit Quevilly, France

"Primméa[1] fills a gap in the housing supply in our area"

"The Primméa project is a way to enable families and individuals to become first-time homeowners in Petit Quevilly."

How did the installation of the Pictura apartment complex meet your city's urban and social needs?
Carine Bonnard: Petit Quevilly is a municipality with a population of 22,000 on the outskirts of Rouen, lying within the Métropole Rouen Normandie urban community but also close to the Normandy countryside. It is a well balanced, pleasant town with good public transport connections. The Pictura apartment complex fits in with a dynamic region that fosters local economic development. This property programme is part of urban renewal underway in Petit Quevilly, which has 400 retailers and craftspeople and nearly 600 companies and which cultivates its taste for experimentation.

Why did your municipality undertake the Primméa project?
C.B.: The Primméa project offered by VINCI Construction France was built in the new Tallandier neighbourhood. It meets strong demand from families and individuals who wish to become homeowners but do not have the necessary funds to buy an apartment at new-build market rates. This solution fills a gap in the housing supply in our area. It enables us to retain households already living here and to attract new ones. We believe in the success of this innovative project.

In practice, what is the Primméa project in Petit Quevilly?
C.B.: This is an apartment complex with several buildings on a human scale, containing three- and four-room family apartments. It is located close to the future Flaubert eco-neighbourhood, the city centre, shops and a large playground. It offers high-quality construction and fittings. With the price averaging €2,300 per square metre, the unit is more affordable than new-build apartments of comparable quality, which are selling for €2,700 to €3,000 per square metre on the local property market. This is a pilot project and if it is successful, it can be duplicated in the Métropole Rouen Normandie urban community.

1. With its Primméa solution (www.primmea.com), VINCI Construction France is driving a change in the property sector, delivering an unprecedented way to facilitate home ownership without sacrificing quality. A range of further products will soon be added to the offer, which is designed for urban and suburban environments. Two initial programmes will be handed over in the summer of 2016, one of which is the Pictura apartment complex in Petit Quevilly.

Optimising urban facilities

VINCI Construction designs and builds highly complex facilities that meet a wide variety of needs and are fully blended into their environment.

PARC OLYMPIQUE LYONNAIS, FRANCE

Following 29 months of intensive construction work, the Parc Olympique Lyonnais stadium was inaugurated on 9 January 2016. Built by STADE DE LYON Construction (SDLC partnership), which brings together VINCI Construction France, its regional subsidiaries and the Lyon-based Fontanel company, the 59,000-seat arena can host at least 35 sports or cultural events every year and will be a flagship venue for UEFA Euro 2016. The structure is the centrepiece of the Olympique Lyonnais (OL) football club's strategy for joining the ranks of the European leaders and will also burnish the image of the City of Lyon, capital of the Gauls.

01 **In Paris, the Les Halles Canopy symbolises the renewal of the neighbourhood.**

02 **The restructuring of Toulouse – Jean-Jaurès University will help improve campus conditions for some 29,000 students.**

03 **VINCI Construction UK completed the design-build extension of the Swansea University campus in Wales.**

Shopping centres: outstanding technical and aesthetic quality

In France, the renewal of the Les Halles neighbourhood in the Paris city centre is nearing completion. The vast project led by VINCI Construction France will give the iconic neighbourhood a facelift. More than 30 years after it opened, the site needed an upgrade to cope with heavy traffic, repair aging structures and adapt to changing safety regulations. The Canopy, symbolising this transformation, is a huge 25,000 sq. metre translucent skylight that will soon spread its protective shade over this enormous urban beehive. Every day, in addition to thousands of tourists and neighbourhood residents, Les Halles serves as a transit point for 750,000 people in the underground station and its shopping centre, the city's largest, welcomes 150,000 customers. The construction teams achieved a technical and logistical feat by carrying out this large urban renewal project over a 3-year period without disrupting the lives of users or interrupting activity.

Schools and universities: producing knowledge

In France, Toulouse – Jean-Jaurès University continued its transformation. The first phase of work was completed in February 2015 with the handover of the 20,000 sq. metre History, Art and Archaeology and Science, Space and Society training and research units and the extension of the 7,000 sq. metre Maison de Recherche research unit. The reconstruction of a third building, the Letters, Philosophy and Music unit, is currently under way.

01 **The historic Jacobin monastery in Rennes, France, is being converted into a conference centre through a combination of new construction and restoration of the existing structures.**

02 **The Second World War Museum in Gdańsk, Poland, consists of seven storeys over six underground levels with a 40 metre high tilted tower symbolising the ruins the conflict left in its wake.**

03 **In Perth, Australia, Menard Bachy is carrying out ground improvement works for a recreation centre next to a new 60,000-seat stadium.**

04 **The new Matmut Atlantique stadium in Bordeaux was inaugurated on 18 May 2015.**

The overall project, for which the works contract was awarded to VINCI Construction France under a public private partnership (PPP) and which is being built to the Blue Fabric standard, covers creation of more than 50,000 sq. metres of floor area and construction of sports facilities (football pitch and basketball court) as well as a 7,000 sq. metre canopy at a height of nine metres and 1,100 parking spaces and refurbishment of existing buildings. The goal is to improve living and working conditions for the 29,000 students using the campus and to enhance the university's international image.

Culture and heritage: treasure chests for memory

In France, a joint venture including VINCI Construction subsidiaries and VINCI Energies France is continuing work on the conference centre at the 16th century Jacobin monastery, a historic monument. The teams must cope with a variety of constraints: the narrow worksite area in the centre of the city, local urban planning restrictions and the presence of local residents at the edge of the property. The conference rooms will be placed underground and the monastery will be completely refurbished. Compounding the complexity is the need to coordinate engineering capabilities for the construction of structures using highly technical concrete and the restoration by craftsmen of the existing

building. Designed by architect Jean Guervilly, the centre, which has a floor area of about 25,000 sq. metres, will contain two auditoriums with 1,000 and 300 seats respectively, a 500-seat hall, about 20 committee rooms and exhibition spaces.

In Poland, VINCI Construction's subsidiary Warbud is a key participant in the joint venture building the Second World War Museum in Gdańsk under a €24 million contract. To build the foundations of the structure, which will be chiefly underground with six below-grade levels, the teams achieved a technical feat and set a world record by casting a 25,000 cu. metre submerged concrete slab in an uninterrupted single pour lasting seven days. When completed, the 58,000 sq. metre building will house collections bearing witness to the daily life of the populations during the Second World War.

Stadiums and sports facilities: innovation for excitement

In France, the new Matmut Atlantique stadium was inaugurated in Bordeaux on 18 May 2015. Built in 32 months, the project included a distinctive social programme, providing far more than the planned 63,000 hours of integration employment. After designing, financing and building the stadium, the Stade Bordeaux Atlantique 50-50 joint venture made up of VINCI Concessions and Fayat will be responsible for operating and maintaining the structure for a period of 30 years. The work was carried out by VINCI Construction France with the participation of VINCI Construction and Eurovia. Since it opened, the new arena, which has a seating

capacity of more than 42,000, has become a leading Bordeaux cultural and sports venue. In addition to the football matches of its resident club, the stadium hosts rugby and international football matches. It will be one of the official stadiums for UEFA Euro 2016, with five matches scheduled. It offers a range of technological innovations, from a highly resistant hybrid pitch to HD WiFi connectivity and new digital services.

In Australia, Menard worked in a joint venture with Soletanche Bachy to improve the ground in the recreational area around the site of the future stadium in Perth.

Hospitals: an international area of expertise

In mainland France, VINCI Construction France won the contract to build the Institut Coeur Poumon (cardiac and pulmonary institute) at the Lille regional teaching hospital. The project brings together in a single site the teaching hospital's full range of cardiology, vascular and thoracic units as well as the cardiac emergency room, the SAMU-SMUR medic unit and the poison centre. The existing cardiology buildings, totalling 34,000 sq. metres, will be refurbished and 40,000 sq. metres of new spaces will be added to them. The programme is part of the drive to upgrade hospitals to incorporate new equipment, streamline organisation and indoor traffic and pool resources to optimise costs. Because the work was carried out while the hospital remained open (the Lille hospital centre receives 100,000 people per day) a broad range of measures were adopted to limit disruption.

In New Caledonia, the joint venture led by VINCI subsidiaries VINCI Construction and VINCI Energies handed over the Koutio Medipole, the new hospital centre in Noumea, to the Government in early 2016. The 15-hectare site now brings together all departments of the regional hospital centre, which were previously spread across four different sites. The new 82,000 sq. metre complex, which has a modular scalable structure, includes 12 operating theatres and a total of 450 rooms with 650 beds. The Medipole construction project was distinctive on a number of counts, including combined mainland France and local teams, a training school and exemplary safety conditions. The project, unprecedented in the Pacific area, confirms VINCI Construction's expertise in the health care field and its ability to handle major projects outside mainland France. With 800 people working at the site at peak activity, the project was handed over in 48 months – a very short lead time for a hospital complex on this scale.

In the United Kingdom, VINCI Construction UK worked with Sir Robert McAlpine in the Integrated Health Projects joint venture to build a mental health care facility for the Lancashire Care NHS Foundation Trust in Blackpool. The project recently won a special innovation prize at the Building Better Healthcare Awards.

01 **The Lille cardiac and pulmonary institute will bring together a wide variety of specialities and departments at the same site to optimise organisation and resources.**

02 **The Koutio Medipole, an unprecedented project in the Pacific area, was handed over in record time.**

Interview with Hervé Tonkovic, head of VINCI Construction's Healthcare solutions and services

"We deliver a turnkey hospital and provide a single interface for the customer"

"Outside France, we can directly apply state-of-the-art solutions based on the expertise we have built in our work on hospitals in France."

What does the global hospital infrastructure market look like?
Hervé Tonkovic: It is a booming market in which the needs of the developed and the emerging countries are converging. The former are adapting to changing medical techniques and striving to better control healthcare costs; the latter are seeking to catch up, better treat pathologies and meet the aspirations of their populations. A recent study showed that the world hospital market is expected to grow an average of 11% per year to reach $37 billion in 2018.

Hospital construction has a reputation for being complex. What is VINCI Construction's experience?
H.T.: Over the past 15 years, we have built nearly 200 hospitals all over France and in the process we have acquired substantial expertise, which is not limited to mainland France. We also operate internationally. In the United Kingdom, for example, VINCI Construction UK has already carried out more than 53 projects as part of the ProCure 21+ programme. And in Poland, Warbud has built eight hospitals.

What advantages does VINCI Construction offer in meeting the expectations of its customers?
H.T.: We are able to devise genuinely customised solutions by listening carefully to the medical teams to identify their needs, mobilising the expertise of our companies and subsidiaries and bringing partners together. To succeed, we also need to accommodate the specific features of each country – its climate, construction methods, approach to healthcare, financial and social constraints and so on. We also have the capacity to offer financial structuring including subsidies by the government, institutions or outside donors.

Making the world more mobile

VINCI Construction designs and builds transport infrastructure to meet the growing need for transport of people and goods, facilitate traffic flow and ensure safety.

NEW COASTAL HIGHWAY, REUNION ISLAND

In 2020, the New Coastal Highway will connect Reunion Island's two main cities, Saint Denis and La Possession. It has the distinctive feature of being partly built offshore. Its alignment includes a 5,400 metre viaduct – France's longest – lying off the coast. Built by VINCI Construction within a joint venture, the major project will make daily travel much easier for thousands of inhabitants who will no longer face road closures due to storms and landslides. Meanwhile, VINCI Construction is also building the embankment and interchange at La Possession.

01 **The A9 alignment change in Montpellier, is France's largest current motorway project.**

02 **The redevelopment of the RD120 highway in France's Cantal department was carried out under a PPP to optimise cost and quality.**

03 **The renovation of the S19 motorway, one of the main arteries in southern Poland, will foster economic development in the region.**

Roads: ensuring traffic safety

In mainland France, VINCI Construction Terrassement teams made substantial progress on the A9 motorway project in Montpellier, the largest motorway project currently under way in mainland France. They have established an uninterrupted dialogue with all project stakeholders about the environment, traffic and the impact of the project on the day-to-day lives of local residents. The new motorway section, which comprises 60 engineering structures, is set to open to traffic at the end of 2017.
In the Cantal department, VINCI Construction Terrassement and Eurovia completed the 10 km refurbishment of the RD 120 departmental highway between Prentegarde and Montvert, northwest of Aurillac. The new alignment brings it closer to the A20 and A89 motorways and will improve safety for users. The project is one of the first road infrastructure projects carried out for a department under a public private partnership. The contractual model made it possible to complete the refurbishment in record time and to optimise cost and quality for both local authorities and users for the next 20 years.

On Reunion Island, much progress was made on the New Coastal Highway project on which VINCI Construction is working in a joint venture. A mega-barge, the size of a rugby field, is being built in Poland and will arrive at the worksite within the next few months. On the island, prefabrication plants began production of the first elements of the viaduct (segments and mega-segments) and in parallel a geotechnical survey was carried out to investigate the area where they will be installed.

In Poland, a joint venture bringing together the local subsidiaries of Soletanche Bachy, Menard and Eurovia began the renovation of the Swilcza-Kielanowka section of the S19 motorway, one of the main arteries in the south of the country. Work is set to continue until the end of the year.

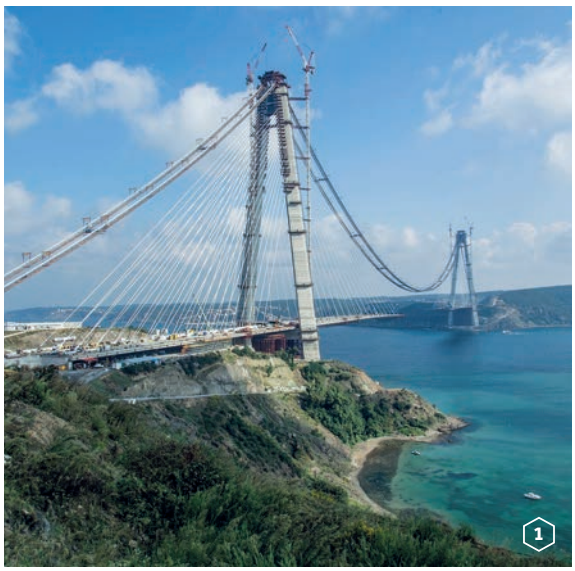

1


2


3

01 The Yavuz Sultan Selim Bridge in Istanbul, Turkey, will set a new world record for a cable-stayed span.

02 The second bridge over the Wouri River in Douala, Cameroon, will decongest traffic in the city.



In Canada, VINCI Construction Terrassement, working in a joint venture with Eurovia and local companies, took its international expansion to a new level. The VINCI Construction subsidiary has an 18.5% share in the joint venture tapped to build the Regina Bypass motorway skirting the capital of Saskatchewan. The Regina Bypass contract, with a value of about €1.3 billion, is the first transport infrastructure project to be carried out in the region under a public private partnership. It was awarded to a joint venture led by VINCI Concessions. The work will take four years to complete.

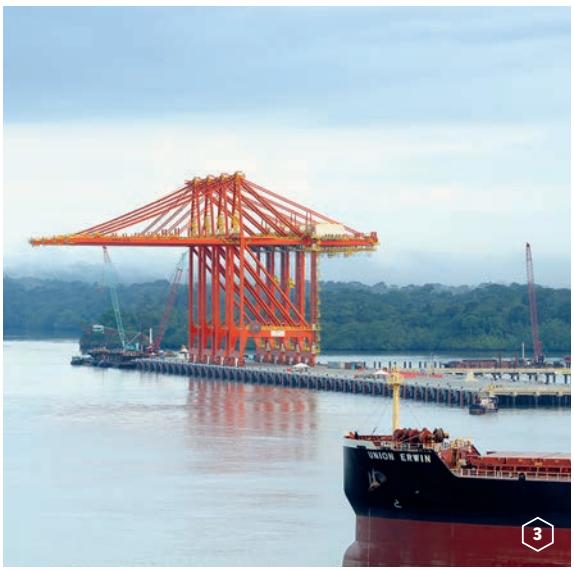
Bridges and viaducts: crossings

In Turkey, Freyssinet teams began in April 2015 to install the 176 cable stays on the Yavuz Sultan Selim Bridge under construction in northern Istanbul, for which its Turkish subsidiary Freysas is also building the access viaducts. The length of the cable-stayed span of the 1,408 metre hybrid cable-stayed/suspension bridge will set a new world record. The bridge will accommodate 2x4 traffic lanes and two railway tracks in its centre and will bypass Istanbul and cross the Bosphorus north of the city. Handover is scheduled in 2016.

In Cameroon, construction of the second bridge over the Wouri River continued in Douala. A joint venture made up of Sogea-Satom (lead company), VINCI Construction France, Soletanche Bachy, Freyssinet and Dodin Campenon Bernard is building the 760 metre crossing. It will smooth traffic flows between the two parts of Cameroon's economic capital.

03 **No fewer than 650 people were assigned to build the quay and the access structure to the new terminal in the port of Buenaventura, Colombia.**

04 **Refurbishment of the Webb Dock in Melbourne, Australia, involved a substantial environmental programme.**



Marine and inland waterway infrastructure: expansion and reinforcement

In Morocco, the Agence National des Ports port authority awarded two contracts to Sogea-Satom: extension of the fishing port in Casablanca, which is to be moved and completely rebuilt as part of seafront development projects; and construction of the new marina at Al Hoceima in the northeastern part of the country.

In Colombia, Soletanche Bachy worked in a joint venture with ConConcreto to take part in the construction of a multi-user container terminal. The teams built a 600 metre long, 45.6 metre wide quay and a 165 metre long, 14 metre wide access structure. In addition to the logistics required for a site that is difficult to reach and engineering to accommodate substantial prefabrication, the project included a large social and environmental programme. Menard and Soletanche Bachy teams are currently building a second terminal with a 250 metre long quay.

In Australia, Freyssinet is currently completing, after just over a year of work, the rehabilitation of two docks in the port of Melbourne as part of the Port Capacity Project. The project is designed to return the Webb Dock to its initial role as a container port able to handle a million containers per year. The worksite has applied high-level safety and environmental (marine conservation) standards.

Railway infrastructure: ahead of the curve

In France, on the South Europe Atlantic high-speed line (SEA HSL), several VINCI Construction subsidiaries completed the earthworks and civil engineering works in mid-2015. Completed in a record 38 months, the huge project involves construction of the 340 km of infrastructure, including 302 km between Tours and Bordeaux and 38 km of connecting lines to stations. The HSL is set to begin operating in the summer of 2017.

Several VINCI Construction companies, including Soletanche Bachy, Dodin Campenon Bernard and a number of VINCI Construction France subsidiaries, were also involved in the Line 14 extension of the Paris metro as part of the Grand Paris programme. The project consists in boring a tunnel between Saint Ouen and Saint Denis and building the Clichy Saint Ouen station and its access tunnels.
Lastly, in Rennes, Dodin Campenon Bernard (lead company) and VINCI Construction France continued, in a joint venture, to carry out underground works for metro Line B, totalling 8 km of tunnels. On 11 April 2015, the teams celebrated the arrival of the Elaine tunnel boring machine at the Cleunay station, the first of 9 stations to be built deep underground.

In Switzerland, a joint venture bringing together five Soletanche Bachy and VINCI Construction France subsidiaries as well as VINCI Construction Terrassement continued the construction of the Cornavin-Eaux-Vives-Annemasse (CEVA) rail line, which includes 3.7 km of cut-and-cover on the Swiss side of the border and two underground stations designed by architect Jean Nouvel. The teams are coping with a number of logistics constraints, including limited access to the worksite, small land take, steep slopes and a wide variety of utility lines. In early 2015 an additional contract was signed covering the French part of the line. The new contract provides for construction of a 1,552 metre dual electrified line in a cut-and-cover opened between the Swiss border and the station in Annemasse.

In Singapore, Soletanche Bachy began construction of the Orchard station and associated tunnels on the new Thomson Line MRT line. The VINCI Construction subsidiary also won the contract to build the Gardens by the Bay station and its tunnels.

Airport infrastructure: a further international expansion

In Chile, VINCI Construction Grands Projets began working in a joint venture on the design phase of the project that will raise the capacity of Arturo Merino Benítez Airport in Santiago de Chile to 30 million passengers per year. The €800 million major project takes VINCI Construction to a new level in the airport infrastructure market. It covers construction of a new international terminal and renovation of the existing terminal, which will in future handle domestic flights. The worksite is one part of the concession contract for the Santiago de Chile airport awarded by the authorities to VINCI Airports and its partners ADP and Astaldi *(see opposite)*.

01 **Earthworks and civil engineering works on the South Europe Atlantic high-speed line were completed this year.**

02 **Construction of the French-Swiss CEVA rail line continues.**

03 **The capacity of the airport in Santiago de Chile will be raised from 16 to 30 million passengers.**

Interview with Gilles Rolland, Project Director in the construction joint venture for the international airport in Santiago de Chile, VINCI Construction Grands Projets

"BIM makes the overall project easier for each of the stakeholders to understand"

"One of the main benefits of BIM is that it brings the participants in a project together more rapidly."

On the Arturo Merino Benitez airport project in Santiago de Chile, you are using BIM (Building Information Modelling). Could you tell us how it works?
Gilles Rolland: The new working method is based on a number of IT tools, more particularly 3D modeling software. In a nutshell, previously all the project participants started out with 2D drawings and the third dimension was added as the project progressed.
The revolution BIM has introduced is that they now all use a 3D model from the start. On the ground, 2D drawings are still indispensable, but they are printed after the 3D model is worked on. For the Arturo Merino Benítez Airport, we started the project by drawing up the 3D models and their main components (architecture, structure, heating / air conditioning, plumbing, power supply, ELV networks, etc.) and we then checked to make sure all these models fit together perfectly.

What are the benefits of this approach?
G.R.: The method boosts overall project efficiency. 3D models are more realistic and more comprehensive. They make the overall project easier for each of the participants to understand. Everyone has the same information at the same time. The customer, meanwhile, can more easily establish the connection between construction and subsequent operation. Thanks to the models, the customer knows that thus-and-such a system is installed in thus-and-such a place, so that if there is a problem he will know where to work on it. The approach also makes it easier to detect potential difficulties.

Could you give us an example from Arturo Merino Benítez Airport?
G.R.: Thanks to the BIM approach, we realised that the design we had planned for the structure, geared to the seismic standards, entailed too many drawbacks. We decided to take a different tack and adopt a lighter-weight but equally earthquake-resistant design.

Making the most of water resources

Building on its longstanding expertise in the hydraulic engineering sector, VINCI Construction delivers solutions across the entire water cycle, from pumping to rainwater runoff management, design, construction and maintenance of dams and wastewater discharge.

DAMS ON THE AISNE AND MEUSE RIVERS, FRANCE

Under a public-private partnership (PPP) contract awarded to the Bameo company (VINCI Concessions, Shema-Groupe EDF and Meridiam), VINCI Construction France is responsible for the design-build construction of a large-scale civil engineering infrastructure programme. The project covers reconstruction of 29 dams on the Aisne and Meuse rivers and an upgrade of two existing dams. The goal is to make the network of inland waterways managed by Voies Navigables de France safer, more modern and more reliable. This will be done by means of a technology never before applied in France that improves working conditions for dam managers while making the water level more reliable and ensuring the ecological continuity of waterways (*see also Page 62*).

01 The Mayor of London, Boris Johnson, presided over the inauguration of the Lee Tunnel in London on 28 January 2016.

02 VINCI Construction's most recent tunnel boring machine will be working underground in Glasgow starting in 2016 to build the Shieldhall tunnel designed to clean up the River Clyde.

Water supply and sewer systems: major works and major successes

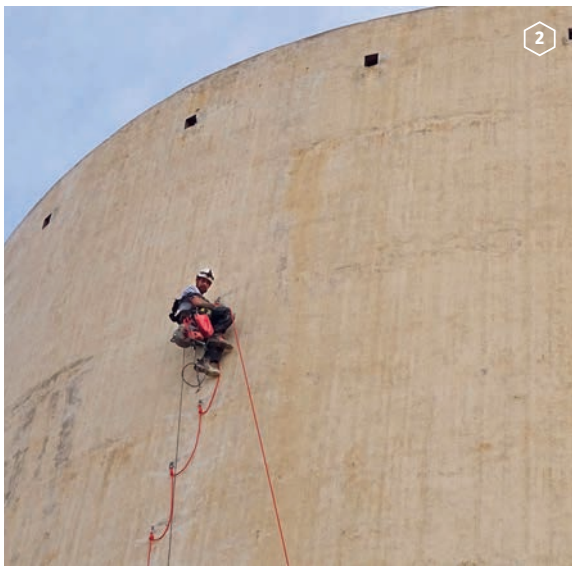
In the United Kingdom, the Lee Tunnel, built by the MVB joint venture (which includes VINCI Construction Grands Projets and Bachy Soletanche Ltd) was inaugurated at the end of January by Boris Johnson, Mayor of London, and Martin Baggs, Chairman of Thames Water. The 7 km tunnel bored at a depth ranging between 55 and 75 metres comprises five large shafts (20 to 40 metres in diameter and 75 to 100 metres deep) and six mega pumps, each with a capacity of 3 cu. metres / second. The outsized structure will reduce the quantity of polluted water discharged to the Thames every year by 16 million tonnes or 40%, by capturing it at source and treating it at Europe's largest treatment plant in Beckton. The success of the exemplary project, which received Britain's most highly respected distinctions, was followed by a further success with the award in mid-2015 of the East contract for the Tideway programme in London to a joint venture including VINCI Construction Grands Projets (40%) and Bachy Soletanche Ltd (20%). The new 25 km tunnel is also designed to limit the discharge of untreated wastewater into the Thames. Work is set to get underway in 2016. The East works package – one of three included in the project – covers construction of two tunnel sections with lengths of 5.5 and 4.6 km respectively to drain rainwater runoff and wastewater in the eastern part of the city. The contract also includes construction of five large shafts, marine works in the Thames estuary, connections to the existing sewerage system and electromechanical works.

The Lee Tunnel received the highest distinction awarded by the Considerate Constructors Scheme (CCS), the benchmark organisation assessing construction site social and environmental performance in the United Kingdom.

01 Sogea-Satom worked to improve the drinking water and sewerage systems in Kampala, Uganda.

02 In Djibouti, VINCI Construction Grands Projets is installing 27 km of pipes and refurbishing three water towers.

03 One hundred years after the first Assiut dam was built in Egypt, VINCI Construction Grands Projets teams are breathing new life into the management of the waters of the Nile.



In Uganda, Sogea-Satom continued work on two hydraulic projects awarded by the National Water & Sewerage Corporation in the capital, Kampala. The first is designed to double production at two existing wastewater treatment plants (Ggaba 1 and 2) and to increase storage capacity to supply new outlying neighbourhoods with drinking water. The second covers construction of 30 km of collection mains to extend the coverage of the city's sewer system and substantially improve its operation. This work will have the added benefit of protecting water quality in Lake Victoria's Murchision Bay.

Dams: sources of life and energy

In France, VINCI Construction France continued work to rebuild and automate six dams on the Aisne River and 23 dams on the Meuse and to modernise two further structures in the Oise and Ardennes regions. This major inland waterway upgrade project extending over four departments and 41 municipalities is being carried out under a public private partnership. The comprehensive 30-year contract covers design, financing, construction, operation, maintenance and major repairs and replacements of 29 automated dams and related equipment. It also covers demolition of the existing dams and upgrade, operation, maintenance and major repairs of two dams that have already been automated. The works portion of the €312 million contract was awarded to the Corebam design-build joint venture made up of several VINCI Construction France subsidiaries. The Aisne and Meuse needle dams are

3

currently operated manually, an arduous and even dangerous task performed by dam managers. The project, carried out under VINCI Construction France's Blue Fabric standard, provides for their replacement by automated dams equipped with inflatable membranes filled with water – the first use of such systems in navigation dams in France. Some dams will also be equipped with innovative Very Low Head (VLH) hydroelectric turbines to generate a total of 15 million kWh of electricity.
To protect the environment, each dam will be fitted with a fish ladder and special attention will be paid to blending the dams into their landscape and architectural settings. The 29 dams are scheduled for commissioning in 2020.

In the United States, Soletanche Bachy's U.S. subsidiary Nicholson Construction carried out major works on the Wanapum hydroelectric dam in Washington State under a $61 million (€54 million) contract awarded by the Grant County Public District. The work consisted in stabilising a crack with a length of about 20 metres in the dam. To carry out the project, it was necessary to lower the water level in the reservoir by about eight metres, resulting in a drop in dam activity by about 50 to 60%. The highly complex operation called for a wide range of skills – mapping the fracture by means of core drilling, installation of vertical anchors with a maximum capacity of about 1,000 tonnes on each pier, installation of drains and anchor bars and injections to fill the crack.

In Egypt, VINCI Construction Grands Projets and its Egyptian partners moved into the final stages of work on the new Assiut Barrage, built 400 metres downstream from the historic dam. Completed at the end of 2015, the concrete work was followed by installation of the turbine support in Unit 1. Once commissioned, the new structure will have a reservoir raised 1.5 metres to increase flow rate in the irrigation system fed by the dam that will cover 690,000 hectares of agricultural land. The structure will also include a 32 MW hydroelectric power plant. Two large 17 metres wide locks will improve navigation on the river, bulk transport and access to tourist sites in Upper Egypt. The work is scheduled for completion in September 2017.

01 **Soletanche Bachy's full range of expertise was mobilised to repair the Wanapum Dam in the United States.**

02 **In Laos, Hydroplus (VINCI Construction Grands Projets) is raising the Nam Mang and Nam Leuk dams.**

Interview with Jean-Michel Guélaud, Managing Director of Sogea-Satom

"When we bring water to a village, we substantially improve the daily lives of its population"

"Population growth and urbanisation will increase the need for water infrastructure going forward."

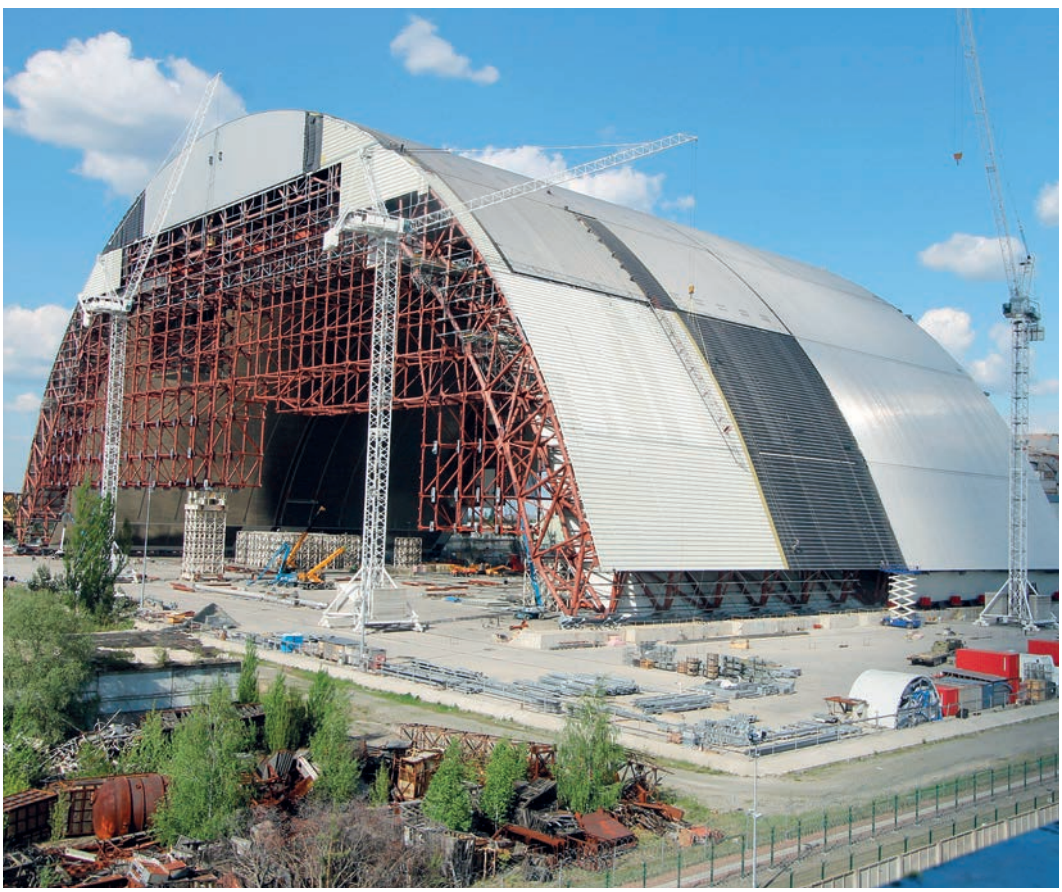
Africa has undergone substantial economic growth in recent years. Does access to drinking water remain a strong objective there?
Jean-Michel Guélaud: Yes, it does. Requirements are still huge. It is estimated that 50% of the population still has difficult or no access to running water. The problem exists not only in the countryside, where many villages have only a single public pump. It also exists in large cities, where whole neighbourhoods get their water from tank trucks. Population growth and urbanisation, especially in coastal areas, will increase the need for water infrastructure going forward.

What experience does Sogea-Satom have in this field?
J.-M.G.: Over the past several decades, we have built infrastructure, including pumping and treatment stations, pipelines, tanks, water towers and reservoirs, in more than 30 African countries. Our strength lies in the fact that we are very familiar with Africa, which comprises a patchwork of very different situations. Some areas, such as coastal regions, have no drinking water at all, and in that case we can offer desalination solutions or large pipelines to bring water in. Elsewhere, water may be plentiful but difficult to store. For us, these projects are special because bringing water to a village substantially improves the daily lives of the population.

Have you developed a special approach to this market?
J.-M.G.: When we bid on a project, we study it in sufficient detail to make certain that there are no surprises – such as the need for an extra pump or an extra structure – for the customer as the work proceeds. We deliver on budget and on time. I would add that we are also very responsive. Sogea-Satom has operated for more than 90 years in Africa and our teams are highly familiar with the area. They can take action very rapidly and can, for example, bring water to a village within a few months. Our local roots offer real benefits.

Fostering access to more sustainable and safer energy

VINCI Construction designs and constructs buildings for nuclear reactors, logistics and on-site storage, as well as specialised materials and equipment. The company also carries out nuclear decommissioning works and supports the development of renewable energies, including wind (construction of high concrete masts), hydroelectric and geothermal installations.



NEW SAFE CONFINEMENT, CHERNOBYL, UKRAINE

In Chernobyl, the VINCI Construction Grands Projets teams working within the Novarka joint venture assembled the two parts of the sarcophagus confinement. The steel arch, weighing 36,000 tonnes, the equivalent of six Eiffel Towers, could cover an 80,000-seat stadium. Prior to handover in 2017, it will be slid over the sarcophagus to confine damaged reactor No. 4 and the sarcophagus built over it immediately after the accident. The huge protective structure will also make it possible to safely dismantle the reactor and sarcophagus using articulated arms controlled from a separate building.

01 The platform developed by Nuvia for the decontamination works in Sellafield, United Kingdom, will enable operators to work safely.

02 VINCI Construction companies are working on France's largest hydroelectric project at Romanche Gavet.

4 million
hours were worked consecutively without lost time accidents on the Chernobyl confinement project.

Nuclear: supporting research

In the United Kingdom, Nuvia is working at the Sellafield site on the coast of the Irish Sea, where it is notably helping to dismantle the first-generation pond in Unit B30. The pond, designed to store spent fuel, is the national Nuclear Decommissioning Authority's priority. Prior to the operation, the unit must be cleared of its contents, in an operation that Nuvia is responsible for designing and implementing. To ensure the safety of its employees, the company developed an innovative protective platform system that enables workers to spend two hours working at the site, instead of ten minutes, to which they were previously confined due to the level of radiation.

Renewable energies: preparing the future

In France, several VINCI Construction companies are taking part in the country's largest hydroelectric project, Romanche-Gavet, an innovative facility that will replace six former power plants with a single higher-capacity plant. More than a dam in the conventional sense, the €250 million project comprises three major works packages: a dam, an impressive head race tunnel that is nearly 10 km long (with two tunnel boring machines required to build it) and an underground powerhouse. At the site, VINCI Construction Terrassement removed 180,000 cu. metres of materials to stabilise the ground. The structure rests on a slab that is 2.5 metres thick and 50 metres wide. In addition to the dam and the head race, the Dodin Campenon Bernard (VINCI Construction) teams are also working with Spie Batignolles TPCI to build the underground pressure shaft, the underground powerhouse consisting of a generating plant chamber and a transformer

chamber, and several related structures including a surge chamber, tailrace tunnels and a stilling basin. The new facilities will increase generating capacity by 30% to supply more than 250,000 households.
In addition, Entrepose Drilling, the VINCI Construction subsidiary specialised in oil drilling, is putting its expertise to use in the Greater Paris area to develop completely natural geothermal energy. Semhach, a public-sector company belonging to three municipalities in the Greater Paris area, awarded a contract to the subsidiary to reline the wells of the geothermal plants in Chevilly Larue and L'Haÿ les Roses east of Paris. The plants will supply Europe's largest geothermal district heating network, which serves about 30,000 housing units and avoids atmospheric emission of some 35,000 tonnes of CO_2 every year. The relining procedure, carried out for the first time in Europe, consists in introducing glass fibre tubes into the existing steel tubes to extend the service life of the facility.

In Morocco, Sogea-Satom is working for Daewoo Engineering and Construction on the third works package at the Safi thermal power plant. The €35 million contract covers construction of a sea water intake basin (at a depth of 12.75 metres), an aeration tank, a 1,500 metre reinforced concrete discharge channel and a discharge structure at a depth of four metres. The project, which got under way in March 2015, is expected to take 26 months to complete.

01 **Sogea Maroc (Sogea-Satom) is working on works package 3 at the Safi conventional thermal power plant in Morocco.**

02 **Entrepose Drilling is drilling a doublet for the city of Tremblay en France north of Paris. The new wells will extend the existing network and connect some 20 additional buildings.**

Interview with Bruno Lancia, Chief Executive Officer of Nuvia

"In nuclear works, we can deliver a very broad range of solutions and services, from the highly technical to the very general"

"Beyond technology, we also innovate in services, proposing new ways of working to our customers."

What is Nuvia's standout feature in nuclear works?
Bruno Lancia: Nuvia both specialises in the nuclear sector, with all that entails in terms of permits, safety, security and training, and offers a broad range of expertise. We work on the entire life cycle of nuclear facilities across 11 business activities. Our expertise ranges from design-build construction of support installations to maintenance, fire safety and decommissioning. We even work, at times, for other sectors that require nuclear equipment, such as hospitals.

What are Nuvia's advantages in these markets?
B.L.: Since we are both specialists and general contractors, we are able to work in highly specialised fields and on much broader projects. We are also one of the very few companies in our sector to work internationally. We operate in 11 countries. This enables us to give our customers the benefit of our experience and also to support our major accounts in their own international expansion.

What role does innovation play in Nuvia's business activity?
B.L.: It plays an overarching role. Recently, for example, we developed a special filtration system for reactor building pools. We also cooperated with our Czech and Canadian subsidiaries to develop a range of measuring equipment to draw up a precise map of a potentially contaminated area. Beyond technology, we also strive to innovate in services, proposing new ways of working to our customers.

Delivering durable and safe industrial energy infrastructure

VINCI Construction brings proven civil engineering capabilities and specialised expertise to the oil and gas industry, designing and building production, transport and storage structures and delivering drilling services, petrochemical site development, underwater pipelines, underground hydrocarbon storage, LNG tanks, ground and structure consolidation and commissioning services.

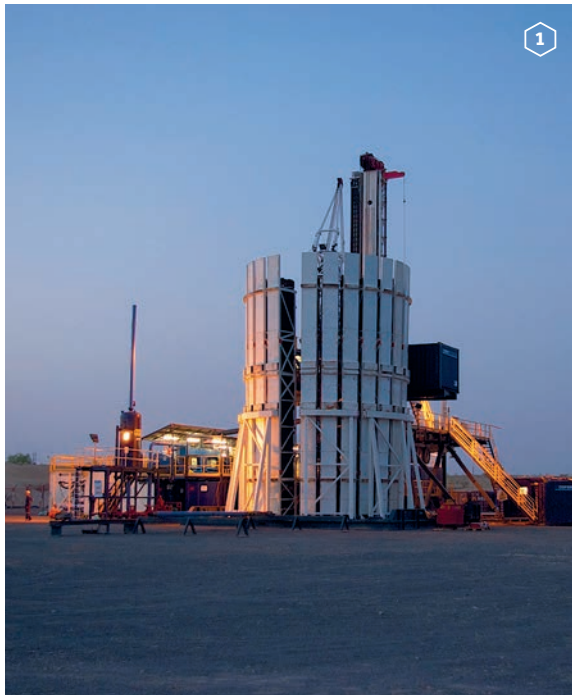
LNG TANKS, YAMAL PENINSULA, SIBERIA

In Russia, Entrepose Contracting and VINCI Construction Grands Projets teams completed the civil engineering works for the four LNG cryogenic storage tanks under construction in northern Siberia one year ahead of schedule. This feat is especially noteworthy since the work was carried out on the Yamal Peninsula, one of the world's coldest regions, where winter temperatures can fall to -55°C. The innovative solution developed to ensure stability of the foundations, called "Yamal socks", won the special jury prize at the VINCI 2015 Innovation Awards.

01 The oil exploration campaign carried out by Entrepose Drilling for Cairn India Ltd achieved outstanding safety results.

02 Several Group subsidiaries worked on the giant Dunkerque tanker terminal project in northern France.

03 The Wheatstone LNG tanks in Australia will store Australian natural gas pending export to countries around the world.



Oil drilling: ensuring safety in extreme conditions

In India, Entrepose Drilling completed an oil exploration campaign for Cairn India Ltd in Rajasthan. Despite extreme climate conditions, there were no lost time accidents during the project, an exceptional safety performance.

Natural gas infrastructure: giant worksites

In France, Entrepose Contracting completed construction of three liquefied natural gas (LNG) storage tanks with unit capacities of 190,000 cu. metres at the Dunkerque tanker terminal site in early 2016. Other VINCI Construction companies worked on the giant (56 hectare) infrastructure project, which will have an annual regasification capacity of 13 billion cubic metres, the equivalent of 20% the annual natural gas consumption of France and Belgium: VINCI Construction France built the wharf of the tanker port, Soletanche Bachy's subsidiaries Soletanche Bachy France and Bessac built the 5 km tunnel connecting the Gravelines nuclear power plant and the tanker terminal, Soletanche Bachy Pieux improved the subsoil under the LNG tanks and the regasification plant and Menard improved the ground under the port infrastructure.

In Australia, VINCI Construction Grands Projets was part of a joint venture notably including Entrepose that is building two 150,000 cu. metre liquefied natural gas (LNG) tanks and two 120,000 cu. metre condensate storage tanks, which are now nearing completion at the Wheatstone site in north-western Australia. Hydraulic testing of the first of the two

LNG tanks got under way at the end of 2015 and work on the condensate tanks is progressing. Overall, in 2015, nearly 3.5 million hours were worked on the €400 million project, with an average of 500 people on the site at any given time.

Offshore and onshore pipelines around the world

In France, Spiecapag finished laying 63 km of gas pipelines for GRTGaz as part of the Arc de Dierrey project, a new pipeline system linking three existing compression sites in the Oise, Aube and Haute Marne departments, in May 2015.

In Africa, Geocean (Entrepose) worked on three major projects in 2015.
In Benin, Geocean teams completed the installation of three pipelines with a combined length of 24 km in the offshore Sèmè-Podji Field. The Geocean Protis barge was used to carry out the project with a total value of $96 million (over €85 million).
In Marocco, Geocean completed construction of a sea outfall for Lyonnaise des Eaux de Casablanca (Lydec) under a €33 million contract awarded to a joint venture. Tests were conducted in October 2015.
In the Republic of Congo, pipeline laying support services continued for Technip UK Congo Branch as part of the development of the Moho Nord UFR field.

In Bolivia, Spiecapag laid the entire 140 km of pipelines for the Incahuasi project that had started a year earlier for Total. The pipelines will link the gas field with existing export lines. The project team introduced a programme to assist populations living near the worksite.

Underground hydrocarbon storage: start of anchor systems in Mexico

In Mexico, Entrepose Contracting signed a contract with the Asse company covering surface facilities for an underground liquefied petroleum gas (LPG) site in a salt cavern. Located in Shalapa in the State of Veracruz, the facility will be operated by Geostock (a specialised subsidiary of Entrepose), which holds a stake in the Asse company, demonstrating its goal of operating in the major oil producing country.

01 **To complete operations in the Sèmè-Podji offshore field in Benin, Geocean acquired the Geocean Protis barge and adapted it to pipeline laying.**

02 **Entrepose finished laying 140 km of pipelines for the Incahuasi project in Bolivia.**

Interview with Pascal Baylocq, Deputy CEO of Geostock

"50 years of expertise in designing, building and operating underground storage facilities"

"In the Fukushima region, underground storage caverns remained intact after the earthquake and the tsunami, while the surface installations were totally destroyed."

What does Geostock do?
Pascal Baylocq: We design, build and operate underground storage facilities for liquid and gaseous hydrocarbons. Our caverns, excavated in rock or salt at depths between 100 and 1,000 metres, can contain between 50,000 and several million cubic metres of product – crude and refined oil, natural gas, LPG, LNG and even, with the development of renewable energies, CO_2, compressed air and hydrogen. Our main customers are the national agencies in charge of managing strategic hydrocarbon stocks, energy companies and oil and petrochemical companies. Our activities, which we are already providing in some 50 countries, have strong growth potential.

What are the main advantages of underground storage compared to conventional surface tanks?
P.B.: Upwards of a certain volume (about 50,000 cubic metres), provided the right geological conditions are available, underground storage requires less capital investment and costs less to operate than conventional storage tanks. Maintenance costs are very low. In addition, the underground storage solution generally protects the environment. The facilities have a small footprint, are not very visible and are not a blot on the landscape. They are therefore well accepted by local residents. Another advantage is safety and security. Caverns are protected from tampering and from earthquakes.

What are Geostock's advantages in this market?
P.B.: We are the world leaders in the sector. We cover the entire supply chain, from design to operation. We also receive one-of-a-kind feedback that enables us to constantly improve the performance of our storage solutions. I would add that the fact that we are part of VINCI Construction enables us to take on integrated projects of all sizes.

For a cleaner planet

VINCI Construction designs and builds turnkey water and waste treatment units combining civil and process engineering. The company also carries out remediation and asbestos removal projects.

SEINE AVAL WASTEWATER TREATMENT PLANT, ACHÈRES, FRANCE

VINCI Construction France and Dodin Campenon Bernard continue their work on the large modernisation project at the Achères wastewater treatment plant near Paris. The pretreatment unit was commissioned in February 2016. The teams are also implementing the biofiltration system, i.e. overhauling the biological and membrane treatment circuit. This part of the works will accommodate population growth in the western part of the Greater Paris area and drastically reduce the volume of pollutants discharged to the Seine, while better controlling noise and odour.

01 **VINCI will be responsible for the major part of the design-build contract for the Ivry-Paris XIII waste recovery centre.**

02 **The Cornwall Energy Recovery Centre in the United Kingdom will supply electricity for 21,000 households.**

03 **The comprehensive upgrade of the Bruxelles Sud treatment plant handling one-fourth of the region's wastewater is scheduled for completion in the summer of 2017.**

Waste and fume treatment: efficient and effective environmental works

In France, VINCI is part of the IP13 joint venture (led by Suez Environnement subsidiary Sita) responsible for the major part of the design-build contract for the Ivry-Paris XIII waste recovery centre currently under construction. The comprehensive contract was signed in March 2015. The project, which has a value of €513 million for all VINCI business lines, will take just over 12 years to complete.

In the United Kingdom, VINCI Environment UK is completing the construction of the €170 million Cornwall Energy Recovery Centre's slag processing centre and energy from waste unit. Cold testing began at the end of 2015. The unit, which employs processes that are both innovative and environmentally proven, will handle up to 240,000 tonnes of non-recyclable residual waste annually, provide the energy to supply power for 21,000 households and deliver heat to nearby industries.

Water treatment: upstream to downstream

In the Czech Republic, the €223 million Prague wastewater treatment plant upgrade and extension project carried out by a joint venture led by SMP CZ got under way at the end of 2015. The plant, which has a capacity of 350,000 cu. metres per day, will serve a population equivalent of 1.6 million. It is scheduled for commissioning in 2018. The underground plant is covered by a garden open to the public and will be perfectly blended into its surroundings.

In Morocco, King Mohammed VI inaugurated the eastern coastal pollution control system in Greater Casablanca, built by Sogea-Satom. The system intercepts wastewater discharged between the port of Casablanca and the city of Mohammedia and channels it to the pretreatment plant at Sidi Bernoussi, which was also built by Sogea-Satom. The project involved 230,000 cu. metres of earthworks to a depth of 17 metres below sea level, 1,400 tonnes of reinforcement steel, 15,000 cu. metres of reinforced concrete and 4,700 sq. metres of roofing. It will better protect the population in the eastern part of Casablanca from the risk of pollution due to discharge of wastewater, notably from industry, into the sea.

In Canada, Menard's subsidiary Geopac is currently working in the western city of Delta to carry out its largest ground improvement project as part of the construction of the Annacis Island wastewater treatment plant. The work began with the installation of stone columns to increase the bearing capacity of the soil and reduce its compressibility. The columns, which reach a depth of 34 metres, help attenuate liquefaction of 1.7 million cu. metres of soil. The company then applied the cutter soil mixing technique to build a 430 metre long, 30 metre deep wall designed to protect existing structures from subsidence due to vibrodensification. Since the work is carried out in a service unit, Geopac called on Soldata, a subsidiary of Soletanche Bachy, to monitor the vibrational behaviour of the main installations and structures during the works.

Deconstruction: techniques suitable for urban sites

In the Greater Paris area, Neom, a VINCI Construction France subsidiary specialising in deconstruction, has taken charge of cleaning, asbestos removal and dismantling of the facades of the Ampère tower in the La Défense business district. The project involves disassembly and asbestos removal of two kilometres of thermal insulation, 85 asbestos cement pipe openings and 70 linear metres of bitumen on pipes. The work was designed to achieve several objectives: avoid interrupting activity during work in an underground level that the Ampère building shares with an occupied neighbouring building and accommodate the constraints of the La Défense district while complying with a precise specification and delivering the asbestos removal project on budget and on time.

Soil remediation

In the Greater Paris area, VINCI Construction Terrassement's specialised subsidiary Navarra TS began work on a large pyrotechnical remediation and deconstruction project at the Le Bourget airport. The work consists in identifying the presence of Second World War era bombs on a 10-hectare site using magnetometers and radar. To accommodate the fact that the site is close to the runways of the Roissy airport, the Le Bourget airport, residential areas and an Airbus production site, the teams handle "anomalies" at night and use special containment structures created by the company.

01 **Menard employed its full range of expertise to carry out its largest ground improvement project, in Annacis Island, Canada.**

02 **The pollution control system covering the eastern coastal area in Greater Casablanca, Morocco, was inaugurated in May 2015.**

Interview with Sloane Simono, platform manager, Extract Ecoterres

"We offer customised soil and sediment remediation and recovery solutions"

"Work on the Grand Paris Express project alone is expected to generate about 40 million tonnes of spoil."

Why did Extract Ecoterres, a subsidiary of VINCI Construction France, decide to open a facility dedicated to polluted soil recovery?
Sloane Simono: Extract Ecoterres is the leading polluted sediment remediation company and it needed new infrastructure to support its expansion, particularly in the run-up to the Grand Paris and Seine-North Europe canal projects. The Grand Paris Express project alone is expected to generate about 40 million tonnes of spoil. Our new platform, inaugurated in 2015, will enable us to handle this volume and give us an opportunity to broaden our range of solutions and services to cover all materials generated by civil engineering and building projects, including soils, concrete sealers, drilling fluids, roadworks sands, etc. And lastly, the VINCI Construction companies will now be able to offer turnkey solutions including earthworks and remediation of polluted spoil.

How does the facility work?
S.S.: The 30,000 sq. metre facility is located at the head of the five largest centres collecting, sorting and recovering polluted soils and sediments in the Greater Paris area. It is also the only centre in mainland France to offer all four major techniques: mechanical sorting through sifting; physical and chemical washing; bioremediation; and lastly a technique that combines gravity dewatering and dynamic drying to treat sediments with few reusable fractions. We can thus carry out customised treatment by combining several techniques to ensure a maximum degree of remediation and recovery.

Why did you locate the facility in Bruyères sur Oise, north of Paris?
S.S.: We are ideally located to cater to all projects over a broad geographical area that includes Normandy, the Greater Paris area, the Hauts de France region and even Belgium. Since we have a river loading quay, materials can even be brought in by inland waterway, which avoids further congesting an already strapped road network and thus provides an additional environmental benefit.

MINING

Providing access to new resources

VINCI Construction supports the mining sector by building the infrastructure required to operate the sites: tunnels, roads, site development and special equipment such as tanks and piling.

TAILINGS PILE AT THE GORO MINE IN NEW CALEDONIA

VINCI Construction DOM-TOM was in familiar territory in New Caledonia when it won the Vale NC contract to create a tailings pile to collect mining waste at the Goro open-pit cobalt and nickel mine where it had already carried out site preparation works and built the plant. Located within the Yaté municipal area, the pile – a sort of buried sarcophagus – was built in successive 4 metre layers to reach a height of 60 metres. At peak activity, 160 people were working simultaneously on the large-scale project.

01 **The RN1 refurbishment and surfacing works in Guinea are one of the main preparatory projects for operations in the Simandou mining area, which holds one of the world's largest iron ore deposits.**

In Guinea, VINCI Construction's roadworks expertise was put to use in an unusual project for a private-sector customer, Rio Tinto. The international mining group awarded the design-build contract to Sogea-Satom to refurbish a section of the RN 1 national highway, the major access road to the Simandou mining area, which has one of the world's largest deposits of iron ore. Located in the heavily forested south of the country between Beyla and N'Zérékoré, this section of the RN1 long remained difficult to navigate, especially during the winter.

Initiated in 2013, the refurbishment and surfacing work calls for substantial earthworks equipment and requires a large logistics system.

On the RN 1 highway project in Guinea, Sogea-Satom builds on its ability to rapidly mobilise its strong equipment fleet – the largest in Africa – in difficult terrain.

01 **Some 4,400 sq. metres of Terre Armée® walls with a height of more than 30 metres were built at the Cerro Verde copper mine in Peru.**

In Cuba, Geocean (Entrepose) began engineering studies for the Moa Nickel mining complex in 2015. The project covers construction of a deep-sea outfall, onshore pipelines and effluent treatment facilities. The goal is to modify the waste, tailings and effluent removal process to better meet current and future environmental requirements.

In Peru, to support a sharp increase in production at the Cerro Verde copper mine, Terre Armée built 33.80 metre high walls for two primary crushers to facilitate dumper traffic. A total of 4,400 sq. metres of Terre Armée® walls were erected with GeoStrap® reinforcement. Terre Armée also provided technical support and supplied the materials.

Interview with Eric Audigé, Managing Director of Soldata Oceania and Mining market business development manager

"We help mining companies better control soil and sub-soil stability risks"

"Our range of solutions and services facilitates data interpretation and decision making to improve safety and operations."

What needs does the Soldata range of solutions and services meet in the mining sector?
Eric Audigé: Mining in general and open-pit mining in particular are subject to the risk of collapsing terrain and landslides and the stakes are high in both human and financial terms. An accident can quite simply shut down a mining operation. Mining groups therefore deploy a wide range of sensors and instruments at their sites to monitor the stability of their soils. Some, such as radar, laser and satellite measuring systems, are highly sophisticated. Our GEOSCOPE platform can handle the large volume of data involved in real time.

In what way is Soldata's expertise innovative?
E.A.: These sensors are generally provided by different suppliers, produce non-uniform information and are not connected to each other. The strength and originality of our service lies in the fact that we provide a platform that brings all the data together and processes and displays it for interpretation so that it can be used to support decision-making. The key concept here is integration. In fact we adapted for the mining sector a concept that has been used in construction – especially tunnel construction – for several years now. Innovation is sometimes generated by looking at other industrial sectors.

What benefits does the method offer your mining customers?
E.A.: Our customers gain a more precise, more comprehensive overview of their site conditions in real time, around the clock. In practical terms, if GEOSCOPE detects an abnormal movement, it sounds the alarm and gives operators full information to enable them to take the right decisions. Integration is even more extensive when data from several sites are centralised at a single control centre. This gives our customers an overview of their full operations and enables them to more easily pool their resources to reduce costs.

Design and layout: Idé Édition. **Art Director:** Emmanuel Christiny. **Editorial design:** SoDifferent. **Contributing editors:** Denis Baudier and Géraldine Pascaud. **Photoengraving:** Sphinx. **Printing:** Imprimeries Morault.

Printed on 100% recycled Igloo Offset, paper, certified FSC Recycled and European Ecolabel

REAL SUCCESS IS THE SUCCESS YOU SHARE

Watch the VINCI Construction video by scanning:

5 cours Ferdinand de Lesseps
F-92851 Rueil-Malmaison Cedex
Tel.: +33 1 47 16 39 00
Fax: +33 1 47 16 46 26
www.vinci-construction.com

VINCI CONSTRUCTION