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Cover photo: Biscarrosse Lake, Landes, France.
n these menacing times, vigilance and responsiveness are the watchwords that must govern everything we do, day after day.

In this respect, Colas’ decentralized organization, combined with the fact that it operates as a network, gives the company a significant degree of maneuverability, enabling it to navigate through turbulent waters, no matter how extreme the conditions.

Although it is still difficult to ascertain the extent of the effects, measures taken to reduce public debt around the globe – national as well as regional and local – will have an impact on our business. A lack of funding will mean that some investments in construction and maintenance of transport infrastructure will be curtailed.

However, several factors should mitigate this trend. Firstly, our businesses create jobs – local jobs that remain local – and are vectors for economic and social development. Those awarding public contracts are well aware of this. Secondly, the regular and optimized maintenance of road and rail networks guarantees effective future management. And thirdly, on a planetary scale, the challenges of mobility, urbanization and environmental protection are immense.

Beyond our day-to-day activities we also have to look at the longer-term picture: the fundamental changes in behavior that will improve our competitiveness and our attractiveness and help us better respect our values.

Two cross-disciplinary projects have therefore been launched internally. The first, known as “cLeanergie”, focuses on energy savings. Our goal is to reduce our energy bill by 15%. The second project, known as “M Road”, concerns human resources: the objective here is to reinforce the Group’s management culture and clarify some of our organizations and operating rules.

And there is a third challenge that I’m particularly keen to emphasize – and I know it is important to you too –, namely safety. Following disappointing results over the last two years I asked you to renew your efforts. The slight improvement recorded in the first half-year is encouraging but it does not mean that we should lower our guard and it does not make the latest tragic accidents any more acceptable. Colas stands as a benchmark and, as such, safety is an obsession that should be innate in every employee at all times and in all places.

Safety, the development of human resources and the environment are the values that embody Colas’ vision: Entrepreneurial, Pioneering & Innovative, Responsible.

It is up to each and every one of you to focus on these values and improve performance in the broadest sense of the term.

By doing so, Colas will continue to pave the way forward.
Teams from Genier-Deforge (Colas Ile-de-France - Normandie) carried out work to clean out and remove asbestos and lead from the ventilation system of the salle Richelieu, at the Comédie-Française, the quintessence of Parisian Theater. Four air treatment units installed in 1975 were dismantled in the process. The entire operation took place within a complex environment. To access the ventilation grids, suspended from an Eiffel-type frame 10 meters above the ground, external scaffolding was erected. The steel structure – more than a century old – was cleaned by spraying it with abrasive foam beads. The technical challenges of the operation were exacerbated by the highly restrictive safety standards related to asbestos removal, with protective breathing apparatuses and decontamination showers compulsory. A high-risk project conducted without a hitch.
80 years after its inauguration, Sydney harbor's most famous bridge – the widest in the world – has been given a makeover. The renovations were necessary due to the fact that the 12,000 m² of road surface was no longer watertight, leaving the steel structure of the bridge exposed to potential corrosion. The work was carried out over two weekends in January. Two subsidiaries of Colas Australia, Sami Bitumen Technologies and SRS Roads, were involved in the project. The former supplied the modified bitumen while the latter applied the waterproofing layer.
A consortium made up of Colas Centre-Ouest, Screg Ouest and Sacer Atlantique is involved, alongside Colas Rail, in the construction and design of the first tram line in the city of Tours. Launched in April 2011, the project includes the creation of the tramway platform along a 9-km route, including 15 stations and the redesign of the road layout, as well as the construction of the overhead contact line (OCL) and eight electricity substations. Armed with their considerable experience in this type of complex urban project, the subsidiaries are particularly attentive to safety aspects and to making sure that inconvenience to local residents, businesses, motorists and pedestrians is kept to a minimum. Two facilitators and a safety and environment manager have therefore been appointed within the consortium. These are the main points of contact for the four “tram'bassadors” who act as mediators with residents and who monitor – and correct, if necessary – the installation of barriers, the safety of access routes to shops, signing problems, etc. The project is scheduled for completion in August 2013.
A cycle path through the marshes

Last spring, on behalf of the Vendée regional council, Screg Ouest’s Sables d’Olonne profit center created a 200-meter cycle path on the Gachère Bridge, in the heart of the Olonne marshes, near Brem-sur-Mer. With a total surface area of 1,500 m², the path clearly stands out from the road thanks to the beige color of the surfacing. A protective barrier also lines the cycle path, created using granite and exposed-aggregate concrete. Opened at the end of June, this section has now been incorporated into the 1,000-km network of cycle paths that crisscross the Vendée region of western France. It is also part of “Vélodyssée”, the longest cycle route in France, running for a distance of 1,200 km along the Atlantic coast.

TR54: Colas Rail Ltd. is making tracks!

In 2010 Colas Rail Ltd. began working on a project (set to last until April 2014) to replace some of the tracks on the UK rail network, managed and maintained by the private operator Network Rail. At the end of 2010, the teams had access to the Track Relaying System 4 (TRS4). The advantages with this machine are that it is more powerful, quicker and more efficient than standard equipment. Prior to being brought into service, six months of intensive testing and modifications were carried out by mechanics from Colas Rail Ltd. The TRS4 was inaugurated in June 2011 on the West Coast Mainline South, one of Europe’s busiest rail routes. In just under a year 130 km of track were thus replaced. In addition to speed of operation, the advantage of the unit is that it does not require adjacent tracks to be closed to traffic. Today, the TRS4 is making tracks in northern England.
Saint-Nazaire's project to ensure high service transport is nearing completion. Since May 2011, teams from Screg Ouest and Colas Centre-Ouest have been working in the town center to create a dedicated bus lane. 1,800 meters in length, the project covers several streets, including avenue de la République, rue d'Anjou and avenue Charles-de-Gaulle. On the agenda: creation of several bus stops, laying of sidewalks using grit-blasted asphalt mix and black mastic asphalt, redesign of road layout, renewal of street lighting, planting of trees and ground-cover plants and the installation of semi-buried garbage containers for household waste collection. Designed to relieve traffic congestion, this new dedicated route should cut the journey time between the town center and the hospital to just 15 minutes!
GTR on the Oued Yquem bridge

Built in 1923, the bridge spanning the Oued Yquem on the main Rabat to Casablanca road, did not meet current standards and could no longer cope with the increase in road traffic. The contract to construct a new bridge, parallel to the old one, was awarded to the recently created civil engineering unit of the Moroccan subsidiary, GTR. Begun in July 2011, the work is set to last for 18 months.
The roadway reinforcement project carried out by Colas New Caledonia in Kaalagomen, in the north of the island, required 11,000 tons of road base asphalt concrete and 5,000 tons of semi-coarse asphalt mix. The materials were easily produced by the subsidiary thanks to its industrial site in Voh, in the island’s North Province, some 300 km from Nouméa. This site, which has been operational since the beginning of June 2011, comprises an asphalt plant – the only one of its type in the region –, a binder plant with three tanks capable of storing up to 100 tons of emulsions and a mixing plant. The objective for 2012 is to produce some 40,000 tons of hot mix asphalt. Colas New Caledonia also offers its customers cold micro asphalt, something of a novelty in the North Province, helping the subsidiary to secure a contract to resurface 120,000 m² of roadway in Belle-Bosse. Numerous road resurfacing projects are likely to be up for grabs soon in a region that is particularly dynamic at present: an urban hub is currently being developed around the future nickel processing plant, for which Colas New Caledonia carried out the civil engineering and earthworks.
Strasbourg: place d’Austerlitz revamped

Screg Est’s Bas Rhin profit center was selected to give the place d’Austerlitz in Strasbourg a facelift. The meeting point between the old town and the modern center, this town square had been suffering from heavy traffic congestion for a number of years. Hence the decision to re-design it, creating a series of green islands and promoting non-motorized modes of transport. Launched in May 2011, the work focused primarily on the development of planted areas. Play areas have also been created for younger children. Work on the project was suspended to make way for the Christmas market. As is the case for any urban development project, teams focused on keeping disruption to pedestrians to a minimum, as well as on user safety and the quality of relations with local residents and businesses. All in all, a new feather in the cap for Screg Est.

3E® warm mixes reach new heights

At the end of the winter season, teams from Colas Midi-Méditerranée spent a month and a half working on the annual maintenance program for roads serving the ski resorts of Valberg, Auron and Isola 2000, in the Alpes-Maritimes region of south-east France. The main feature of this project was the use of 3E® warm mixes (environmentally-friendly and energy-efficient).
New road in the canton of Vaud

The Swiss road network is extremely dense and new road construction has become something of a rarity. The creation of route H144, in the canton of Vaud, is an exception that proves the rule. The project is designed to relieve congestion on the existing cantonal road. Located close to the French border, the H144 will link up with Swiss Highway A9 via several viaducts. Construction work began in the summer of 2011, with teams from Colas Vaud (Colas Switzerland) responsible for waterproofing the viaducts and surfacing an area of 30,000 m². 5,000 tons of Valorcol® – 100% recycled cold mix asphalt – have been used for the purpose.

FRANCE  Rurcol®

In May, horses, riders and visitors were able to roam the pathways of the brand new Menneville equestrian center in the Pas-de-Calais area of northern France, recently treated with Rurcol®. Highly resistant to mechanical stress and animal excrement, compact and waterproof, this asphalt mix has been specifically designed for use in the agricultural sector and is particularly suitable for equestrian centers. Its grading curve provides a very rough surface and ensures a high level of skid resistance. As a result, the risks of slipping and falling are greatly reduced. The other benefit associated with the use of Rurcol® is that it doesn’t take long to apply and dries quickly. So, despite the adverse weather conditions, teams from Colas Nord-Picardie’s Littoral profit center needed just half a day to carry out the work. Twenty-four hours later, the surface was dry and ready to receive horses and riding enthusiasts alike.
As part of the development of downtown Arcachon, in south-west France, Screg Sud-Ouest’s Merignac profit center has renovated five streets. Launched in September 2011, the first phase involved resurfacing the sidewalks. Once these had been widened, limestone paving stones were laid and black bollards installed, to add a touch of elegance and harmony to a bustling commercial district. The second phase focused on the roads. To enhance the urban environment, the customer opted for Scintiflex®, an esthetic asphalt mix incorporating light-reflecting crushed mirror glass. The main challenges were to facilitate the movement of pedestrians and road users and to minimize inconvenience to local businesses and residents throughout the work. Permanent dialogue was the key and Screg Sud-Ouest’s teams were congratulated for their efforts in this respect by the town of Arcachon.
Royal renovation in Angers

Partially destroyed by fire, the royal lodge at the château of Angers in France’s Loire valley has been given a new lease on life after two years of painstaking renovation work. Teams from Sacer Atlantique’s Angers profit center were responsible for the outside redevelopment: earthworks, paving, gravelling and application of Sacerbike®, the aesthetic appearance of which harks back to the paths of yesteryear.
By the end of 2012, people living alongside the main RN2 road in Baie-Mahault, in the Basse-Terre region, will no longer need to put up with noise pollution from traffic. The Guadeloupe regional council has asked Sogetra, Colas’ Guadeloupe-based subsidiary, to build a 350-meter long noise barrier made of wooden panels and erected on a foundation of fill concrete. The subsidiary is also constructing reinforced embankments. In total, 7,000 m² of geogrid and 500 gabions (metal cages with a capacity of between 1 and 2 m³ pre-filled with stones) will be laid the length of the section of road, rising to a height of between 3 and 5 meters. 10,000 m³ of tuff fill will be used for the foundations of the noise barrier wall. The geotechnical aspects of the project are challenging given the 8-meter height difference between the road and the housing. The noise barrier itself will be erected by Aximum’s Major Project teams, the first time they have been involved in the French West Indies.

Synergies on the A6 Highway

To improve user comfort and safety, Autoroutes Paris-Rhin-Rhône (APRR – the highway operator) commissioned Scred Est’s Snel profit center and Colas Est’s Côte d’Or center to renovate a 17-km section of the A6 highway around Pouilly-en-Auxois, in Burgundy. Aximum was responsible for road-marking work and installing the guard rails and concrete curbs.
Le Bourget airport: Colas IDFN and Colas Centre-Ouest hit the runway

Every year, Paris-Le Bourget airport, which is used by private jets, suspends all night-time traffic for a week. From May 21 to 25, the Paris Nord profit center of Colas Île-de-France - Normandie (IDFN) and Erco (Colas Centre-Ouest), which specializes in planing, joined forces to carry out a variety of night work including the widening of an apron access ramp.

FRANCE

Thonon-les-Bains: lakeside synergies

Launched in September 2011, the Morcy bypass, due for completion in December 2013, will provide a link between the Thonon-les-Bains (Haute Savoie region of eastern France) bypass and the western access to the town. A new 1,450-meter section of road, which also spans a rail track, is currently under construction. The work is being carried out on a greenfield site by teams from Perrier TP’s Haute Savoie profit center (Colas Rhône-Alpes Auvergne) and Scred Sud-Est’s Thonon profit center. There are several environmental constraints facing the teams, the first of which involved the presence of a wetland area that had to be moved and recreated. Piasio (Colas Switzerland) supplied 20,000 m³ of fill for the purpose. The second challenge is the proliferation of Japanese knotweed, a plant that is highly invasive and notoriously difficult to get rid of. Thirdly, it is important not to damage the water table from the Versoie spring, which supplies the Thonon mineral water plant.
In January 2012, the Anglo-Australian mining giant Rio Tinto began modernizing its Kitimat blast furnace, in British Columbia. The contract to supply the 120,000 m³ of ready-mix concrete required to carry out the work was secured by Canadian subsidiary Terus, via Kentron (YCS Holdings). The success was nothing more than well deserved by the company, having put together a cross-disciplinary team of experts and responded to the call for bids in record time. For its part, Rio Tinto had undertaken to choose a local company within the context of its regional economic development program. In all, 230,000 tons of sand and gravel and 40,000 tons of cement powder will be required to make the ready-mix concrete. Since the start of the project, 18 employees have been operating six days a week to keep it on schedule. As the region is subject to heavy snowfall from October onwards, the concrete plant has been protected and a system set up to keep the water and aggregates at the required temperature.

Kitimat: the concrete contract of the century!
Following a call for bids by the Automobile Club de l’Ouest, Aximum was chosen to oversee the closing, re-opening and safety operations at various sites along the route of the Le Mans 24 Hour race. The Hunaudières straight, located in a suburban area, has permanent guardrails erected over a distance of 5,600 meters. To protect local residents, the company opted for a high-security solution for a particularly vulnerable 450-meter section: 3-meter high barriers capable of withstanding a vehicle travelling at a speed of 150 km/h! In the month leading up the race, Aximum prepared the course, including road markings and the yellow and blue marking of the rumble strips. For test days as well as for the actual race, the company was permanently on call for all aspects related to safety. Several teams, i.e. 40 people in all, worked shifts, ready to intervene in the event of an accident, as occurred on the first day when a car left the road at the Mulsanne corner. In July, the same approach was applied for the Le Mans Classic race. Having been responsible for traffic control equipment at Le Mans every year since 1985, Aximum has now firmly established its position as European leader in the field of racing circuit safety.
The city of Poznán now boasts a brand new 7.7-km western bypass. Built by a consortium made up of Colas Polska, majority stakeholder, and Strabag, an Austrian company, this new 4-lane bypass provides access to two major national routes, the S11 and the S6. More than 500 people worked on the project as it reached its peak. Two interchanges and twelve civil engineering structures, including eight freeway bridges, a railroad bridge and a tunnel, were built. The teams also created rest and service areas, erected 20,000 m² of noise barriers and renovated the gas, water and drainage networks. The Active Joint pre-cracking process was used for the project, with the support of the Colas Campus for Science and Techniques (CST).
In December last year, Smac began roofing and cladding work at the Mazurelle specialist hospital in La Roche-sur-Yon (Vendée region of western France). Cladding of the outside walls of the building housing the kitchens and self-service restaurant was completed in the Spring. The Ecoflor® green roofing process will be used on 4,000 m² of the hospital’s total roof area.

The town of Mont-de-Marsan in the Landes region of south-west France commissioned Colas Sud-Ouest’s Landes profit center to embellish and improve the safety of its western approach: narrowing of roadways and creation of pedestrian and bike zones. As a fine example of synergizing the Group’s expertise, the profit center turned to Aximum’s Aquitaine center for road marking operations and Sacer Atlantique’s Pau profit center for the treatment of the mineral surfaces. 3,300 m² of paving stones were cleaned and protected using the Sacerlift® process. The original color and skid resistance of the stones will be preserved; they will be easier to maintain and will last longer. The work was completed just in time for the French National Music Festival!

*Sacerlift® won the Innovation Prize at the French Mayors’ and Local Authorities’ Convention in 2011.
In June, just before summer vacation traffic hit the roads, teams from Screg Ouest were given only 48 hours to resurface a 5-km section of the 4-lane Rennes bypass in the Ille-et-Vilaine area of north-west France, originally built more than thirty years ago. Working six hours a night, the teams planed the surface before applying a 6-cm thick layer of asphalt mix. The success of the project depended on its impeccable organization, combining speed of execution, team safety and anticipation of any potential hitches. For example, weather information was provided by satellite on each of the two afternoons prior to the night work so that teams knew what the conditions would be to the nearest quarter of an hour and could therefore plan the work on the basis of any expected rainfall. Backup materials, equipment and vehicles were on standby to be used in the event of any breakdowns. Around one hundred people were on-site at any given time over the 2 days of the work, including some sixty Screg Ouest employees. ■
In July 2011, Plessentiel, a company made up of three Colas subsidiaries (Screg Ile-de-France - Normandie, Colas Ile-de-France - Normandie and Aximum) and ETDE (Bouygues Construction's Energy and Services division), signed a public-private partnership agreement (PPP) with the town of Le Plessis-Robinson lying just to the south-west of Paris in the Hauts-de-Seine area. Established for a period of 20 years, the PPP relates to the financing, renovation, repair and maintenance of roads and street lighting in part of the town and is the first of its kind in France. Launched in November of last year, initial upgrading work designed to improve user safety and comfort is set to last for a total of 30 months.
Using sea water to cool air conditioning units in public buildings? This eco-friendly solution is all the rage in urban areas along the coastline, one example being the Principality of Monaco where the decision was taken to use it for the hospital’s air conditioning system. Spac secured the contract following a call for bids and the pipeline that will be used to collect the seawater at 14°C and divert it to the building’s air conditioning system was built and assembled in La Seyne-sur-Mer, further west along the coast in the Var region. It was then towed to Monaco and moored to a pontoon 800 meters off the coast. The immersion process was managed from the sea using GPS markers on the seabed. It took just five hours to gently lower the one meter-diameter pipeline to a depth of 120 meters. It will be operational in September. Following a first underwater pipeline project – 900 meters in length – in Fos-sur-Mer, in the Bouches-du-Rhône area of the Mediterranean coast, Spac has asserted its credentials working in deepwater environments.
Highway A63: stepping up the pace

FRANCE In 2010, a consortium including Colas secured the concession contract for a 104-km section of Highway A63 in the Landes region of southwestern France, including the design, financing, construction, maintenance and operation of the infrastructure until 2051. Spotlight on one of the biggest highway projects currently underway in France.
SAFETY AND SERVICES

Work to bring the road up to highway standards primarily involves widening the hard shoulder and upgrading rest and service areas.
Following a two-month summer break, excavators, graders and rollers are once again hard at work on the former Route RN10 in southwestern France. For the past year, a 104-km section of the road between Salles (Gironde region) and Saint-Geours-de-Maremne (Landes region) has been the focus of a vast construction project led by Atlandes, a company comprising, among others, Colas Sud-Ouest and Screg Sud-Ouest. On the agenda: upgrading of the section to highway and environmental standards, as well as widening of the route (6 lanes), with a view to improving user safety and services. And all this has to be achieved with the road open to traffic throughout the duration of the project. Located on a major European route linking the Iberian Peninsula to the rest of Europe, it is used by some 30,000 vehicles per day, 30% of which are heavy trucks. Between 800 and 1,200 people have been working on-site at any given time since the project was launched in September 2011 and the momentum is set to be maintained though to final delivery in June 2014.

Forty-year concession

Upgraded to a 4-lane roadway in the 1980s, the Landes section of Route RN10 has been a notorious accident black spot, with numerous serious accidents occurring in the 1990s and 2000s. Having implemented various safety measures between 2000 and 2005 (removal of direct access points, construction of interchanges, etc.), the French government decided to make it into a concession and turn it into a section of the A63 Highway, the aim being to improve the safety of the infrastructure, enhance traffic flow and increase parking capacity and services for trucks along the route.

In January 2011, Atlandes, a consortium in which Colas holds a 15.57% stake, was awarded a 40-year concession for the design, development, widening (6 lanes), servicing, maintenance, operation and financing of the infrastructure. “We were selected as the preferred bidder at the end of August 2010”, recalls Jacques Walckenaer, Atlandes’ Financial Director. “Financial negotiations were finalized between September 2010 and January 2011 against the backdrop of a particularly strained banking environment. Financing arrangements had to be reviewed on a daily basis to make sure that interest rate volatility would not undermine the financial package.” The project, worth 1.1 billion euros, comprises an initial entrance fee of 400 million euros paid to the French government by the concession holder relating to the transfer of the existing infrastructure. The work itself is valued at 500 million euros.

“This is an unusual project since the operation of the concession, subcontracted to Egis Exploitation, is unusual project since the operation of the concession, subcontracted to Egis Exploitation, ...
Aquitaine, began in May 2011, six months prior to the work being launched, explains Patrice Dessiaume, CEO of Atlandes.

The project design and project implementation are the responsibility of the A63 Highway economic interest group (EIG), comprising Colas Sud-Ouest (project leader), Screg Sud-Ouest, Spie batignolles, Valérian and NGE. The program is an ambitious one, including upgrading of the hard shoulder, creation of a third lane on the central reservation, construction of two toll plazas, extension of rest and service areas, and more, all to be completed in 41 months.

Organization and coordination
“A simple project technically-speaking”, observes Alain Desvaux, Director of the A63 Constructors EIG, “but one that requires precise timing and a rigorous approach to management of risks as well as the constraints associated with keeping traffic flowing.”

Given the magnitude of the task and the absolute need to stay on schedule, the project has been split into three 30-km sections (north, center and south) and two phases. The first phase, set to run until June 2013 and upon which the authorization for the introduction of tolls depends, comprises widening of the hard shoulder to 3 meters along the entire length of the project, enclosure of the infrastructure, construction of traffic circles at interchanges, road surfacing and construction of civil engineering structures.

To keep traffic disruption to a minimum, work is being carried out in manageable 6-km sections with reduced lanes and speed limits. Each 6-km section is separated by a distance of between 10 and 15 km. At the same time, work has begun on the construction of a third lane on two 15-km sections, north of Labouheyre and close to Castets, along with installation of lateral drainage,
redevelopment of rest and service areas (there will be 1,200 parking spaces available for trucks) and the re-routing of a 2.3-km section close to Labouheyre. Work on the toll plazas is also underway. “The sheer range of individual construction projects ongoing at any given time demands considerable coordination between the different batches and people involved”, underlines Alain Desvaux. “It is also a matter of getting people from different backgrounds and companies to work effectively together with the same shared objectives: to stay on schedule and make safety a priority.”

Safety objective

When work is being carried out on the roadway, the scenario is always the same: at ground level, yellow bands are used to identify the temporary lanes, which are narrower than usual, and the speed limit is reduced from 110 to 90 km/h. A strict system is in place to protect teams: modular concrete lane barriers and reinforced signing (information signs at each entry point to the network along the entire route and in three languages). “The main challenge with this project is to guarantee the safety of both personnel and road users”, stresses Alain Desvaux. Safety patrols are sent out by the A63 EIG to monitor and maintain the temporary signing. These patrols operate 24 hours per day, even on weekends. Safety considerations also extend to the choice of products and techniques used in the project. For example, “a total of 500,000 m² of Coletanche® waterproof geomembrane, developed by Axter (Smac), will be used to line the ditches alongside the hard shoulder. The advantage of this solution is that it is very wind-resistant and so it will not fly off as heavy trucks go by when it is being laid”, explains Didier Ulrich, project engineer with Axter. Finally, the existence of roads running alongside most of the length of Route RN10 provides external access to the work sites.

Protected environment

“Environmental aspects play a very important role in the project since the natural heritage of the Landes region needs to be protected”, explains Patrice Dessiaume. It is absolutely imperative that the region’s biodiversity – water resources, flora and fauna – be protected. The 1.6 million m³ of cut will be re-used during the project. 500,000 tons of planed materials will be recycled to be incorporated into new asphalt mixes to the tune of 30%. A number of solutions have also been developed to help wildlife cross safely, including the creation of a passageway over the highway for large animals and hydraulic structures for small mammals such as the European mink, for example. More than 200 km of barriers, adapted to the species encountered, have also been erected along the route to prevent animals from crossing the highway. Water law requires the creation of a drainage...
network and the installation of new hydraulic structures and the renovation of some of them beneath the road will re-establish hydraulic continuity. Rainwater that falls on the highway will also be collected via 50 catchment basin. “The infrastructure must be entirely waterproof”, explains Patrice Dessiaume, “with shallow reservoirs since water table levels are high.” As far as local residents are concerned, the project is set to significantly cut noise pollution thanks to the introduction of embankments, noise barriers, noise-reducing road surfacing and the insulation of house façades.

On schedule
“So far we’ve enjoyed favorable weather conditions”, underlines Patrice Dessiaume. “The project is still on schedule.” Tolls will be introduced in June 2013 and the entire project is due for completion in June 2014. The project to create the future A63 Highway has reached cruising speed.

ARNAUD GEREMIA
A FANTASTIC HUMAN EXPERIENCE
Arnaud Geremia’s adventure started in 2008 with Sacer Atlantique, as Operations Manager at the Alençon profit center. Three years later, his desire to return to the major projects sector took him to the A63 Highway project as Assistant Production Manager, North section. “The main difficulty lies in the fact that the work is being carried out under traffic conditions. This demands the involvement of a large number of people.” His advice? “Projects on this scale involve the circulation of massive amounts of information. To make sure communication channels work properly, you have to be ready to go out into the field every day.” For Arnaud, the simultaneous presence of several of the Group’s subsidiaries and other companies isn’t a problem: “Working with people from a variety of backgrounds whose working methods are all different is what makes our business so rewarding. It’s a fantastic human experience.”
INTRODUCTION OF TOLLS JUNE 2013
To build the Liposthey toll plaza, the trajectory of the 4-lane Route RN10 has been temporarily altered.
A rural America... with not a skyscraper in sight! Charming wooden houses and old farms line the long straight roads that crisscross a vast green landscape. Welcome to Watertown, in northern New York State. It’s in this small city of 65,000 people, located some 60 kilometers from the Canadian border and close to the Fort Drum military base, that Barrett Paving Materials set up offices to cover its New York North operations in 1984.

With six quarries and six asphalt plants, spread over four sites, the operation illustrates Colas' strategy of vertical integration: production of aggregates in quarries, manufacture of asphalt mixes in mixing plants and, using the materials produced, road construction and maintenance. A perfect example of being present at every link in the value chain.

Barrett Paving Materials, which became a subsidiary of the Colas Group in 1979, has been operating in New York State since 1927, as well as in five other States: Ohio, Kentucky, Indiana, Michigan and Pennsylvania. "Like Colas’ other operations,"
WATERTOWN,
NEW YORK STATE
New York North is a local small business that benefits from the financial, technical and human support of a major Group*, observes Sylvain Gross, Regional Manager with Barrett Paving Materials. “Each site boasts a quarry and one or two asphalt plants. The aggregates extracted from the quarries are sold to customers outside the company or used internally. We use them to manufacture asphalt mixes in our plants, with these then being either sent out to teams working on our own road construction projects or sold to third parties for their projects. The biggest difficulty is production scheduling: we have to be able to supply both our customers and our own teams.” This optimized organizational structure helps keep costs down, something that is crucial to the performance of the company, which also enjoys the support of an extremely dense network across the territory and the unfailing commitment of its employees.

Local roots

Here we are in Norwood, one of Barrett Paving Materials’ first sites in the New York North sector, just a few kilometers from the Canadian border. On the road leading to the quarry and mixing plant, a horse-drawn carriage from the Amish community can be seen rubbing shoulders with trucks and other motor vehicles. The Norwood quarry, operational since the 1920s, plays a central role in the company’s activities. Through its four sites (Watertown, Norwood, Boonville and Westville), the company covers a vast region, extending from Lake Ontario in the west to the Adirondack Mountains in the east and the border with Quebec to the north. Asphalt mixes are sold and transported within a range of 100 km around each site. “We have a number of competitors of varying sizes but we stand out because of our organization and the services, prices and quality we offer our customers”, explains Sylvain Gross. The other
differentiating factor is the solid market knowledge afforded by the presence, on the ground and alongside customers, of two sales representatives and a sales manager.

Materials production
Along Route 37, the constant stream of trucks going back and forth from the Watertown site reflects the intense activity there. As soon as you enter, an imposing sign sets the tone: “Think safety”. The focus is on ensuring the safety of employees and visitors alike: marked routes, signs reminding people of safety rules and procedures, etc. Every day, more than 50 trucks move around the site between the quarry and asphalt plant, to take delivery of aggregates or asphalt mixes. The customers of Barrett Paving Materials New York North are many.

ROAD CONSTRUCTION
The company’s road construction operations are supported by its materials production operations. Here, the taxiway at Watertown International Airport is under construction.

BOB MOULTON
QUARRY SUPERINTENDENT
Amidst the rocks and machines, 60 meters below ground level, Bob Moulton is in his element. Superintendent of the Norwood quarry for the past six years, he has actually been working there for twelve. He knows all his men, their jobs and every technical cog in the works inside out. “When something needs to be repaired, I’m more than ready to get my hands dirty to help. But I don’t do everything because it’s by working together that the job gets done properly. I explain methods but, generally speaking, everyone knows what they’ve got to do.” Able to talk forever about “his” quarry and particularly informative, Bob is always eager to conduct site tours, during which he regales visitors with explanations about the geological origins of various aggregates… much to the delight of students from neighboring schools.
Forty-six years. Charles Moore proudly proclaims his seniority with Barrett Paving Materials. Proof, if proof were needed, is the number displayed on his hard hat, in accordance with company tradition.

“Chicky”, as he is affectionately known by his colleagues, started out as a dump truck driver. Having travelled the same routes inside Norwood quarry for many years, he was looking for a change. Now Charles drives a different truck and spends his days watering the site’s roads, tracking down the dust generated by operations there. At 66 years old, he has suffered from back and heart problems in the past but thanks to the health insurance provided by Barrett Paving Materials, they are now just a distant memory: “Barrett is keeping me on!”

and varied and include New York State Agencies, Counties, Towns, private companies and individuals. “Public customers account for around 70% of our business”, confides Sylvain Gross. “But a significant proportion of our output is destined for private projects, particularly residential driveways: these projects alone account for 10% of our annual production.” On top of recurrent business, the company also secured the contract to supply materials for the Fort Drum connector road, the region’s biggest construction project, following a call for bids. By the end of the year, a 10-km road will link Highway 81 to the military base, the aim being to relieve traffic on Routes 11 and 342. Close to the Watertown asphalt plant, an access road has been specifically created to transport the 650,000 tons of aggregates and 250,000 tons of asphalt mix required to build the connector road.

Construction and maintenance work
In addition to its materials production activities, the company is also active in the road construction sector. Projects recently carried out by its teams include the construction of the taxiway at Watertown International Airport.
Airport and the resurfacing of parking lots and school access roads. “All these projects help our business grow”, comments Sylvain Gross.

**Family spirit**

Without a doubt, one of the major strengths of Barrett Paving Materials New York North, is the motivation of its employees, many of whom are seasonal workers. Due to the tough winters in this region of the United States, activities only start in April and need to be suspended again in November. Men and women return year after year, because they like the team spirit, friendly atmosphere and good humor that reign within the company. Employees are unanimous: “Barrett is one big happy family”. So the company can count on the experience and commitment of its 110 employees, as well as their involvement in community life. “We’re always someone’s neighbor”, emphasizes Sue Ann Messick, Human Resources Coordinator. “We have to give back to the community what it has given us.” For example, in Watertown, employees are taking part in the “Adopt a highway” program, which involves volunteering to clean a 3-km section of Route 37 that runs alongside the site. And as part of operation “Home for our troops”, Barrett Paving Materials New York North, donated the asphalt mix for the driveway of a seriously injured soldier from the Fort Drum base.

**Dialogue with local residents**

Quarries and asphalt plants can often be the focus of heated discussions with their neighbors, especially those who live just a few hundred meters away, which is sometimes the case. Aware that industrial operations may be considered by some to be more of a nuisance than a local asset, the company has set up and developed constructive dialogue with residents living alongside sites. Open House events are held to explain the business, remind people of its benefits, discuss environmental and safety concerns and communicate about initiatives implemented in these areas. Every year, Norwood quarry opens its doors to school children accompanied by their teachers for site tours.

**Vertical integration of activities, local presence and committed employees, incorporating a responsible development approach: a winning combination for Barrett Paving Materials!**

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**PUTTING QUALITY TO THE TEST**

Having joined Barrett Paving Materials in Watertown in 1993, Bonnie started out as a Flagger, responsible for controlling traffic movements near jobsites. After completing a two-year training program, she is now responsible for measuring the density of road surface layers and checking the compaction of materials using a nuleodensimeter. Bonnie goes out and about with the device using a wagon to transport it. Her latest major project? Watertown Airport, where quality requirements are extremely strict. “We achieved a quality target of 100%, while the objective set had been 98%. Because we exceeded the quality targets set by the customer and we delivered the work ahead of schedule we were given a bonus.”

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**Colas in the United States**


Today, Colas operates in 30 American States, from Alaska to Florida via Maine and California.
Design draftsmen, site supervisors, engineers... They all do their jobs with enthusiasm and have decided to share their daily routine and projects with us.

Aurore Juston opted to study in France. She began by heading to Orléans, where she studied at an engineering school, before moving on to work for a four-year stint in the Gironde region of western France. But she missed the island of flowers and jumped at the opportunity to go back in April 2011 when Colas offered her a position as site supervisor in the Caribbean-French Guiana zone. She liaises directly with contracting clients and is responsible for 14 people making up the asphalt, planing and ground-marking teams. And they’re all men. “Being the only female site supervisor for the Caribbean-French Guiana department doesn’t change a thing. As long as you enjoy what you’re doing, have the technical knowledge required and listen to those around you, you are respected. And it’s a recipe that is valid for everyone!”

Man or woman, respect has to be earned
A career spent on the railroad

TONY STEVENARD
PROSPECTING AND DEVELOPMENT MANAGER COLAS RAIL FRANCE

Tony Stévenard was born to be a railroad worker: his childhood home was right next to a grade crossing, his father drove shuttlewagons and his grandmother worked as a ticket clerk for the French rail operator Compagnie du Nord. He has dedicated his entire career to the railways. He spent 36 years carrying out logistics, administrative and humanitarian missions all around the globe while serving in the French army, before conducting further missions for the French Ministry of Defense and NATO. Throughout his military career, he learned all the core railroad trades. In 2004, Tony returned to civilian life, joining Seco-Rail (now Colas Rail) in Dourges, in the Pas-de-Calais region of northern France. Two years later, he was put in charge of designing the logistics operation for the newly created freight profit center. Initially limited to the transportation of aggregates from the Group’s quarries to the subsidiaries’ mixing plants, the freight activity has now been extended to include the shipment of other goods on behalf of a variety of companies. “As a Prospecting and Development Manager, I look for new markets to make sure we have a full order book at all times!” Tony, who has received two medals from the French President for his military achievements, is due to retire in a year’s time. He will then be able to devote himself to a brand new challenge: the restoration of an old house.
It was a Thursday: August 8, 1957, to be exact. Claude Laroche remembers it as though it were yesterday. Then aged 16 and still at school studying to become an electrician, the young man joined Modern Paving (later to become Sintra, in 1974, following a merger with Fabi & Fils), in Saint-Jean-Chrysostome, in the province of Quebec to work for a few months as a seasonal worker. “In the end, I never did become an electrician… I really enjoyed my experience at Modern Paving and I went back there in April 1958 to become a welder. I’ve been working for the company for 55 years now!” Claude mainly works in the BML Quebec workshop, one of Sintra’s many regional centers. He is responsible for the maintenance of heavy equipment. Always on the lookout for new solutions to tackle day-to-day problems, he thrives on the diversity of tasks handed to him. The longest-serving employee of BML Quebec and the winner of many awards for his outstanding loyalty to the company, he was promoted to the North American Skilled Workers Guild in 2009. “It’s an honor, and real recognition of my investment and hard work.”
Anticipating needs to optimize costs

LAURENT HELIOT
PURCHASING COORDINATOR
COLAS CENTRE-OUEST
FRANCE

After 15 years working in the purchasing department of ETDE, Laurent Héliot joined Colas Centre-Ouest in 2010 as purchasing coordinator. The scope of his new job is broader and more diverse. He was given the chance to create the role from scratch. Laurent thrives on that sort of challenge. His major strength is a passion for negotiating, be it with suppliers, site supervisors… or even, in his spare time, champagne cap collectors who are as knowledgeable as he is on the subject! And he strives to ensure that everything he does has merit. “I go out into the field a lot, mostly to ascertain what end users really need. As a result, habits have changed over the past two years. Suppliers are reducing their prices, the subsidiary’s various sites are pooling their needs so that greater quantities can be purchased at once, etc.

All these factors have generated savings for the Group.” So what are his current projects? “To audit invoices relating to the past four years, to make greater use of the protected sector*, to launch a Purchasing newsletter and a ‘checklist’ to spread good practices, etc. In short, to move purchasing forward by developing service.”

*ESAT: in France, assistance and service centers helping disabled people into work.
Working abroad is an opportunity

Mireille Rafamantanantsoa, from Madagascar, and Thai-born Kanjana Yindee began working at Colas upon completion of their studies, Mireille joining Colas Madagascar in 2005 and Kanjana joining the Thai subsidiary Tasco in 1995. Passionate about their work, full of curiosity and open to mobility, both jumped at the opportunity to work in Mauritius, where Colas is involved in some major projects. “At Colas Madagascar I learned the work of the quality assurance engineer”, explains Mireille. “In Mauritius, I’m involved in the first phase of the freeway bypass construction project, around the capital, Port-Louis. I’m responsible for ensuring the effective implementation of internal and external quality control. The job demands solid people skills.”

As for Kanjana, she is sharing her expertise with the team responsible for the construction of the taxiway at SSR International Airport, in the south-east of the island. “I run the laboratory as part of a team of eight. We test all the materials required for the pavement. It’s a very rewarding role and a concrete one too since we often go out to the site to verify the quality of our work. So there is no set routine and there are some benefits too… I’m going to be able to learn French!”
Guaranteeing exemplary know-how

JEAN-BAPTISTE HANTON
PLESSENTIEL PROJECT MANAGER
SCREG ILE-DE-FRANCE
NORMANDIE
FRANCE

A graduate of the prestigious French ESTP civil engineering school, Jean-Baptiste Hanton joined Screg Ile-de-France Normandie as a site supervisor having first worked all over France with Screg’s “Tour de France” training program. He stayed in the same job for ten years before becoming operations assistant. In 2010, Jean-Baptiste was part of the team that put together the public-private partnership (PPP) bid for the renovation and maintenance of the roads and street lighting in Le Plessis-Robinson, in the Hauts-de-Seine area of Greater Paris. With the contract in the bag, he was appointed project manager for the Plessentiel consortium. “My tasks are commercial, technical, financial and legal. I wear three hats: project owner, project manager and administrator for the construction consortium.

The work is being carried out by Screg Ile-de-France Normandie, Colas Ile-de-France Normandie, Aximum and ETDE (Bouygues Construction’s Energy and Service division), all shareholders.”

The project represents a personal challenge for Jean-Baptiste: “It’s the first PPP in France of this type, a showcase for our know-how. It has to be exemplary! I was the skipper on a yacht for the Screg Regatta for 10 years. For adventures like that, you have to set a course and stick to it.”
“Turning a passion into a job”

CHRISTOPHE RAKOTOARIVELO
DESIGN DRAFTSMAN
COLAS MADAGASCAR
MADAGASCAR

Christophe Rakotoarivelo joined the civil engineering and construction sector thanks to his love of drawing. His teenage passion? Sketching futuristic modes of transport! Little did he know at the time that his hobby would lead to a career opportunity! At the end of 2004, less than a month after obtaining his qualification as a building technician, he joined Colas Madagascar’s design and methods department. A total of 22 draftsmen and nine engineers work there on behalf of Colas entities in the Indian Ocean and beyond, to design all types of structures – buildings, bridges, ports, dams, etc. – either in pre-stressed concrete or metal. “The construction plans I put together are like jigsaw puzzles: you have to be able to see the whole picture before you put in the first piece. We also need to communicate with every profession involved – architects, engineers, site supervisors, etc. – to make sure we have all the data to hand. And it goes without saying that we have to be methodical and meticulous so that nothing is forgotten!” Christophe is an experienced design draftsman, putting together increasingly complex construction plans. He is currently working on the design for a school, made up of seven buildings in the form of a “snail”. 
These adaptations have changed my day-to-day life.

BERNADETTE MARTEL  
PROFIT CENTER  
ADMINISTRATIVE SUPERVISOR  
SACER SUD-EST  
FRANCE

Having joined Sacer Sud-Est in 1977, Bernadette Martel has been responsible for contract administration for 30 years. Does a consortium have to be formed? It’s her job to draw up an agreement and open a joint account. Do sub-contractors have to be brought in? It’s her job to inform the client and prepare the contracts. Bernadette has to consult and archive numerous documents as part of her job and this involves handling some extremely heavy files. And this repeated handling over the years has taken its toll on her health: Bernadette has suffered from several slipped disks. Two years after surgery, she had a relapse in 2010. “With the help of the occupational health officer and Sameth* 07, I obtained disabled worker status with the MDPH**, which entitled me to the support of an ergonomist. Today, a specially adapted chair and a rotating cabinet that allows me to slide files in and out on a tray mean I don’t get half as tired and the pain isn’t nearly as bad! Sacer Sud-Est supported what I was doing straight away and covered 30% of the cost of adapting my work station. Without their support, I wouldn’t have been able to keep my job.”

* Support services to help disabled workers remain in employment.  
** French regional center for disabled people.
There was nothing to suggest that Geoffrey Crinière, a second-year Master’s student in chemistry, specializing in polymers, would end up working in the road business… until he discovered that these substances were used to modify bitumen. It was at that point that he decided to do his end-of-studies internship at the Colas’ Campus for Science and Techniques, in the Paris region. A motorcycle enthusiast and fan of the Le Mans 24 Hour Race (he is a native of the town), Geoffrey is sensitive to the quality of road surfaces: another reason to continue the Colas adventure! In September 2011, he started an internal training program, the Screg “Tour de France”. First stage: Screg Ouest, where he learned about designing and formulating asphalt mixes, project monitoring, etc. Six months later, he joined Screg Sud-Est where he trained to be a technical assistant, a post he now holds at the Vénissieux laboratory, in the southern suburbs of Lyon. He is currently responsible for managing the technical aspects of projects. “Universities don’t offer programs in applied chemistry for the civil engineering sector. So this ‘Tour de France’ is a great opportunity. It’s an extremely rewarding experience, I’m learning all the time and acquiring the skills to deal with a wide variety of situations!”
Colas promotes the development of expertise

ILHAM MARDANIS KHOTO
VP, DIRECTOR
ASPHALT BANGUN SARANA (ABS)
INDONESIA

Now aged 47, Ilham Mardanis Khoto joined Sapta Sarana Aspalindo in 1995. Four years later, the company became part of the Colas Group under the name Asphalt Bangun Sarana (ABS). Initially appointed Vice-President, Operations and Sales, Ilham moved on to head up logistics and commercial development. “The Group constantly gives me the opportunity to broaden my expertise and discover innovative technologies. I’m very proud of the fact that it has put its trust in me right from the start.” Ilham also appreciates the human nature of the Group. “Colas makes the well-being of its employees central to everything it does. I experienced this for myself after being involved in an accident while on business in France. My French colleagues took me to the nearest hospital where I was treated quickly. I really appreciated the solidarity shown.” A keen sportsman and traveler, the environment is an issue that is also dear to his heart. “I’m particularly impressed with the Group’s focus on protecting the environment around the world.”
WARM MIX ASPHALTS
Here, a “green” section created using 3E® warm mix, between Villeneuve-sur-Lot and Casseneuil, in southwestern France.
Bitumen fumes: Colas remains vigilant

The World Health Organization has updated its classification of bitumen and bitumen fumes. A reassuring result in terms of the cancer risk, but the Group remains vigilant when it comes to preventing other risks.

Last October, the International Agency for Research on Cancer (IARC) published the conclusions of its evaluation of bitumen: there is no apparent link between exposure to road bitumen fumes and cancer, but the scientific studies conducted do not totally eliminate the possibility of such a link (category 2B classification). This opinion, issued by a body dependent on the World Health Organization, is based on the studies currently available throughout the world and contradicts alarmist interpretations and the unfortunate confusion with tar, which is indeed carcinogenic but, unlike bitumen, is produced from coal. “IARC’s conclusion is reassuring news for everyone, particularly employees working out in the field who may have had legitimate concerns given the onslaught of rumors and exaggerations”, observes Thierry Genestar, Managing Director, Roads France.

Reducing other risks: burns and irritation

“The fact that studies are carried out on a regular basis doesn’t imply the existence of a genuine danger but rather the existence of scientific doubt”, explains Henri Molleron, Corporate Environment Director and Responsible Development Officer at Colas. “As things stand, we are confident that while the possibility of a potential risk remains, that risk can only be extremely slight: in accordance with French and European regulations, we have classified it as ‘low and sufficiently reduced’. The Group has long since supported the work of researchers as our skilled workers, who have been asked to participate in major studies in France, the United States and Denmark, in particular, can testify.”

DOCUMENTATION

The websites of professional unions such as Usirf (in France) and Napa (in the USA) detail references of the major studies conducted on bitumen.
Today, Colas continues to monitor the exposure of its employees and is actively involved in research being carried out by institutions on all aspects of health and safety at work in the road construction sector. “The Group has always been a driving force within the profession,” continues Henri Molleron. “What’s more, chemical risk is one of the major priorities of our responsible development policy.” And Louis Gabanna, Managing Director, North America, adds: “Although bitumen fumes may not be carcinogenic, they can irritate the eyes and airways. So the Group continues to implement measures designed to reduce employee exposure, particularly via the increasing use of warm mix asphalts.”

**Warm mix asphalt: a product to be favored**

“Reducing the application temperature of asphalt mixes by 12°C cuts the amount of bitumen fumes given off in half,” explains Philippe Raffin, Techniques, Research and Development Director at Colas. “And reducing the same temperature by 25°C quarters the amount of fumes released, to the point that they are almost non-existent.”

**TESTIMONIAL**

According to Doctor Jim Melius*, who has a PhD in public health and is Director ofOccupational Medicine with the LIUNA (Laborers International Union of North America), “the people who work with bitumen in the road construction sector should not be worried about the new IARC classification. The two key studies conducted in animals on road bitumen have demonstrated no cancer risk, and the large-scale study conducted by IARC in people working with bitumen in the road surfacing sector in Europe revealed no additional cancer risk; in conclusion, a possible hazard** exists, but no indication of a risk of any sort.”

* After working for the NIOSH, and in a number of National Academy of Sciences committees, Dr. Melius joined the LIUNA (affiliated to the AFL-CIO), and is now an administrator. He is currently Chair of the Steering Committee for the World Trade Center Medical Monitoring and Treatment Program. He also helped draw up the IARC’s bitumen monograph in October 2011.

** A product can represent a hazard without giving rise to exposure leading to a risk. In the case of bitumen, the absence of risk as referred to by Doctor Melius results from the application temperatures in use.
developed by the North American subsidiaries, or 3E® mixes, developed by the Group’s Campus for Science and Techniques (CST), warm mix asphalts fit squarely with this approach. Today, Colas is determined to make greater use of these products. In France, however, there are three hurdles that need to be overcome: firstly, customers have to be convinced that warm mix asphalts are of an equivalent quality to traditional asphalt mixes. There is then the issue of price, which is often higher. And thirdly, they are more difficult in terms of workability. “Reducing the use temperature by 40°C – the target in France – means that manual application is possible but this is more difficult using a rake”, continues Philippe Raffin. “To improve the product’s workability, tests have been carried out, demonstrating that a 25°C reduction in the temperature of the mixes with liquid additives is compatible with manual application. But Colas is continuing its research, determined to further reduce the application temperature of asphalt mixes while maintaining satisfactory workability. Colas is also working to adapt warm foamed bitumen technology in Europe. The process is already widely used by North American subsidiaries and has recently been introduced in Morocco.”

Finishers with fume extractors are on the increase
To reduce exposure to bitumen fumes, Colas has also turned its...
Long-since used by North American subsidiaries, finishers with factory-fitted extractors are now available in the rest of the world, particularly in Europe.

attention to the equipment itself: all finishers purchased by the Group since October 2011 must be fitted with fume extractors wherever possible. These finishers, used for many years by Colas’ North American subsidiaries, were not available in Europe prior to last year. “Since this type of equipment was unavailable to us, we had decided to test two finishers subsequently fitted with extractor systems, at Sceg Ouest and Colas Midi-Méditerranée, as part of efficacy trials conducted with the INRS*”, explains Philippe Brissonneau, Colas’ Equipment Manager. “Since the results were inconclusive, we put pressure on manufacturers to encourage them to fit the fume extractors in the factory from the outset. A manufacturer submitted a

QUESTIONS-ANSWERS

• How can we say for certain that bitumen is not carcinogenic? It is not classified as such in either the European Union or North America.

• Why was there a trial in France if it isn’t dangerous? Because a lawyer who was convinced there must be a scandal surrounding bitumen tried to make a link between three cancer deaths within the profession: one victim had skin cancer, probably due to sun exposure, another had leukemia due to benzene-based solvents long-since prohibited and the third case had mouth cancer, but was a smoker with long-term exposure to tar.

• So cancers do exist that are associated with road sector professions? No more so than in the population as a whole, as has recently been demonstrated by the study conducted by IARC, which depends on the World Health Organization.

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prototype in 2011 and the results were comparable to those seen in the United States, i.e. a 50% reduction in fumes at finisher table level and a 20% reduction in fumes reaching employees handling the equipment.”

**Prevention always and forever**

While the Group is taking the necessary steps to minimize exposure to bitumen fumes, employees themselves must adhere to preventive measures aimed at reducing the known risks associated with the application of asphalt mixes: burns on contact with the skin, together with eye and airway irritation due to the fumes. “The application of these measures is not only a requirement on the part of the company. First and foremost, employees owe it to themselves. Health and safety are daily priorities for each and every one of us,” recalls Hugues Decoudun, Colas’ Occupational Prevention, Health and Work Environment Manager. “The Group will never drop its guard in this area.”

* French National Research and Safety Institute, the joint reference body in the field of occupational health and safety, attached to Cnam-TS (division of the Social Security system responsible for insuring workplace accidents and occupational diseases).

**REMINDER OF PREVENTIVE MEASURES**

- **Organization**
  - for work in enclosed environments: risk studies;
  - for work in the open air: implementation of good asphalt mix application practices;
  - ensuring occupational health officers bear in mind the respiratory irritant aspect when assessing the aptitude of employees for jobs involving exposure to bitumen fumes.

- **Behavior**
  - training in physical hygiene measures;
  - daily changing of clothing worn next to the skin;
  - regular washing of work clothes;
  - wearing of clothing that covers up the skin (to protect from splashes, as well as the sun);
  - use of non-toxic cleaners;
  - encouraging people to stop smoking.

- **Techniques**
  - reducing the temperature of materials where possible, in compliance with quality rules;
  - ban on the use of fuel oil for cleaning the skin and tools.
Colas pursues its **acquisitions policy**

At the end of 2011, the family-owned group Servant et Fils, made up of a number of companies based in the Hérault region of southern France, including three quarries and five concrete plants, producing 900,000 tons of aggregates and 180,000 m³ of concrete per year respectively, joined Colas Midi-Méditerranée. The acquisition fits squarely with the Group’s external growth strategy, which is focusing on the production of construction materials as a complement to construction activities themselves.

In May 2012 in the United Kingdom, Colas Rail Ltd, Colas Rail’s British subsidiary, acquired Pullman Rail Ltd, a company based in Cardiff specializing in rail vehicle maintenance. The acquisition significantly advances Colas Rail Ltd’s current capability to maintain its rail fleet and enables it to further expand into the rail vehicle maintenance market for train owners and operators.

In June, Smac took over the Aguilar Group in Chile, a company specialized in the building envelope sector (insulation, roofing, cladding and waterproofing). A partner of Axter (Smac) for more than ten years, Aguilar comprises two construction companies, one based in Santiago, Chile and the other in Lima, Peru, as well as an industrial profiling company, whose site is in the Chilean capital.
The 16 quarries operated by subsidiaries in western France have been grouped together to improve performance.

Above: the Lotodé quarry in the Morbihan region.

**CMGO:** a new regional materials entity

In 2011, the 16 quarries operated by Colas, Sacer and Screg subsidiaries in Brittany and the Pays de la Loire regions of France were brought together into a single new entity called Carrières et Matériaux du Grand Ouest (CMGO). Operational since January 1, 2012, CMGO represents an annual production of 5 million tons. “The entity has been created with a view to developing greater synergies between the extraction sites of the three subsidiaries Colas Centre-Ouest, Sacer Atlantique and Screg Ouest, in western France,” explains Dominique Billon, Materials and Industries Manager at Echangeur Nantes and CMGO Director. “The pooling of expertise and good practices will further enhance the professionalism of the business against a background of increasingly strict requirements in terms of the environment, social acceptability and regulations.” Thanks to this new organization, customers, be they subsidiary profit centers or outside companies, will enjoy an even better level of service.
In June, 70 of the Group’s environment coordinators attended a conference in Cincinnati, in the United States. Objective: to share good practices in the field of responsible development.

For the very first time, the Group’s environment conference, which is held every two years, took place in the USA, in the city of Cincinnati. Over the course of two days, from June 20 to 21, 70 environment coordinators and a dozen or so managers came together to form working groups and visit sites. “While almost all aspects of corporate social responsibility were tackled, some issues were of particular relevance. In North America, the production of warm mix asphalt is more widespread and it was interesting to share our experiences with respect to emissions from asphalt plants”, explains Henri Molleron, Colas’ Corporate Environment Director and Responsible Development Officer. Other important themes included energy and biodiversity. “To protect biodiversity, we ask every quarry and gravel pit to host a protected species or install beehives. Around 60 sites around the world have won awards regarding protected species.” Ultimately, the conference provided an ideal platform for environment coordinators to see that their work and priorities are very similar on both sides of the Atlantic.
Launched at the end of 2011, the cLeanergie project is designed to generate substantial energy savings for the Group. Already, test phases have led to the identification of good practices in the field and optimization techniques have been tried out. Above: measuring the temperature during an asphalt mix workability test.

At the end of 2011, the Colas management committee launched a strategic project dubbed cLeanergie, targeting three objectives: to make significant and sustainable energy savings across the Group’s activities, to act as a responsible company in terms of the environment and to achieve a competitive edge. The diagnostic phase in 2012 is dedicated to identifying good practices in the field and trying out optimization techniques. In January, for example, 150 employees and 40 sites (works centers, quarries, mixing plants) were mobilized in western France, the United States and Morocco to analyze problem areas regarding energy. Launched in March, phase 2 consisted in trying out optimization levers in “test” subsidiaries: increase in the production of warm mix asphalt (which requires less energy than traditional hot mix solutions), adaptation of quarry and gravel pit production to energy pricing, etc. The roll-out phase will be launched in 2013. To ensure the changes can be effectively implemented, day-to-day behavior also needs to evolve and investments will be required in terms of expertise and equipment. The ultimate goals are to reduce the Group’s energy bill by 15% by 2015 and optimize maintenance and operations.

**cLeanergie project: targeting energy savings**
Activeskin® is an aerothermal process that heats the air inside a building by harnessing solar energy from the façade, resulting in substantial energy savings.

In just two years’ time, Activeskin®, the aerothermal solar façade developed as a result of a partnership between Opaly, the design patent holder, and Smac, Colas’ subsidiary specializing in building envelope design and waterproofing, has revolutionized building heating. The system consists of solar sensors and an 8-centimeter thick airflow jacket allowing air to circulate freely. The air penetrates through openings located at the foot of the façade and flows over the solar sensors. It is then heated, collected and incorporated into the ventilation system, from where it is distributed throughout the building.

In this way, Activeskin® helps significantly cut a building’s energy consumption. In addition, the wall is covered with a high-tech textile making it possible to customize the façade and turn it into a communication medium. This detachable system can be changed depending on requirements. “A sustainable technology, Activeskin® is also associated with a number of definite economic benefits”, observes Dominique Royer, Smac’s Technical Director. “The energy savings measured after just one year using the system have demonstrated the accuracy of forecasts: the return-on-investment time is between five and six years.”

Activeskin®, the heat-producing façade
On the modernization project concerning the railroad between Bergerac and Sarlat, Colas Rail used the in-situ flash welding technique to assemble the rails, thanks to a mobile plant.

**Techniques**

Colas Rail inaugurate the mobile electric welder

Colas Rail’s Major Projects profit center has come up with yet another innovation. Holder of the closed-line track modernization contract* for the rail line linking Bergerac to Sarlat, in the Dordogne area of southwestern France, the profit center decided to promote the technique of in-situ flash welding to assemble the rails. Traditionally, long welded rails (LWR) are delivered in 400-meter sections that have been pre-assembled in the factory by aluminothermic welding. With this project, Colas Rail opted to transport sections measuring 80 and 100 meters to the site, where they were then assembled into 400-meter lengths using mobile equipment. Consisting of a rail/road truck equipped with an arm fitted with a welding head, this specialized equipment meant 40 welding operations could be carried out per day, resulting in significant time savings and reduced costs!

* Closed-line track modernization projects cover studies, the supply of tracks and the track work, with the contracting authority delegated by RFF (The French Rail Network) for the management of rail traffic.
To meet the needs of the rapidly-growing North American emulsion market, Colas Inc. has developed mobile production units. The e-Col Pack kit consists of an easily-transportable mixing unit, a heating unit and mobile storage tanks for the finished product and additives. Its component parts are equipped with quick disconnect systems, facilitating the assembly and disassembly process. This flexible solution enables subsidiaries to mobilize the unit on demand and in record time. Another benefit with the unit is that it helps overcome supply problems at jobsites located in difficult-to-access areas such as Nevada and Alaska. The concept has already proved to be a hit: in 2011, the first e-Col Pack produced 1,100 tons of slow-setting cationic emulsion at a jobsite in Juneau, Alaska. Transported and re-assembled in just one day, it then produced 900 tons of emulsion on a second site in Yakutat, also in Alaska. Today, American subsidiaries have five e-Col Pack mobile units, including one currently being assembled in Nevada.
Work on the future emulsion plant attached to Colas’ Campus for Science and Techniques (CST) is underway. Located in Trappes, the facility will be operational from December and will meet the needs of the entire Group.

Trappes: cutting-edge facility for the CST

Work is underway to build an emulsion plant in Trappes, in the Yvelines area just west of Paris, which will be attached to the Colas Campus for Science and Techniques (CST). This cutting-edge facility will be used for the industrial development of the new clear bitumen-based emulsions that have emerged from the CST as well as new additives. “Experimental technologies have been integrated into the plant, such as the capacity to inject fluxing agents at every stage of the manufacturing process or to produce concentrated emulsions”, explains Dominique Tresal, head of Equipment and Products at CST. A fine example of synergy within the Group, this unit has been designed by CST’s engineers, drafted by the Plant Department of Colas’ Equipment Division and assembled in the workshops of Colas Rail. Operational from December, it will have a flexible production capacity, ranging from a few hundred liters to several tons, meaning it will be able to meet the needs of the entire Group.
The mobile crusher at Colas Est’s Meurthe-et-Moselle profit center combines technical qualities with environmental performance thanks to the in-situ production of materials that can be directly re-used on site.

At the start of 2012, Colas Est’s Meurthe-et-Moselle profit center, in Heillecourt, northeastern France, took delivery of a new crusher that combines technical qualities with environmental performance. The ultra-mobile R700S impact crusher, the lightest of the Rockster range, enables on-site demolition and recycling of asphalt, pavement structures, curbstones and concrete from pre-existing infrastructures undergoing renovation. Teams using the machine have the added benefit that it produces no more noise than an excavator, making it comfortable to work with. The other advantage is that it is flexible to operate and controlled remotely. Versatile and suitable for use in urban environments, this new equipment generates a daily output (depending on the type of products to be crushed) of 200 tons of 0/30 materials and 500 tons of 0/60. But in addition to productivity gains, the equipment boasts enhanced environmental performance. The in-situ production of materials that can be reused on the jobsite reduces the amount of raw materials consumed, as well as transport between quarry and jobsite. “So we’re saving fuel and reducing landfill costs associated with dumping the materials”, observes Thierry Lartisant, manager of the Meurthe-et-Moselle profit center.
Colas Ile-de-France - Normandie was the first French subsidiary to appoint “field trainers” to pass on their expertise and know-how to younger employees. Above: Michel Miel, former site foreman and today field trainer, and Filipe Domingues, builder and now team leader (Paris Est profit center), on a road project in Montreuil (93).

It’s important to make sure that expertise and know-how are passed on to employees. The role of the “field trainer” is to do just that. In 2008, Colas Ile-de-France - Normandie, the first French subsidiary to introduce the initiative, created a skills group to identify the experienced personnel who would be appointed to train and accompany young foremen and site supervisors. Their profile? “Recognized experience in one or more areas and, above all, a desire to pass on knowledge”, explains Luc Nogrix, Technical Expertise Development Supervisor in the training arm of the Group’s Human Resources Department. So, for the past four years, Michel Miel has been travelling around the Greater Paris region as a field trainer: “In my 42-year career, I’ve been a rod man, a surveyor and a foreman. Today, I’m giving others the benefit of my experience.” His approach? “I let the person get on with the job. I’m there to answer their questions and guide them. I’m not there to do it all for them.” The qualities required for the role are approachability and an ability to teach. The field trainer is there to support the role of the Training Department. Good practice which Colas aims to extend to all subsidiaries.

Field trainer: a fascinating job
By signing up to the 5th road safety charter, Colas has committed to continuing its prevention initiatives in this area.

From left to right: Jean-Luc Névache, Inter-ministerial Representative for Road Safety, Hervé Le Bouc, Chairman and CEO of Colas, and Thierry Fassenot, Consultant with the French Employees National Sickness Fund (CNAMTS).

On March 7, Colas signed up to the 5th road safety charter for a period of four years, with the French government and the French Employees National Sickness Fund (CNAMTS). Objectives: to pursue prevention initiatives and improve on the results already obtained by the Group in the field of road safety. Since 1997, while Colas’ fleet in France has almost doubled (+ 98%), the number of road accidents involving the Group’s 35,700 employees in France has fallen by 62%*. “We implement a proactive risk prevention policy, based, in particular, on sharing initiatives already in place at some subsidiaries and which, for the good of us all, should be extended throughout the whole Group”, explains Jean-Yves Bignon, Risk and Insurance Manager. More than 400 road safety officers run the prevention program on the ground and transmit good practices. 35,000 driving manuals put together for machine operators and drivers of heavy trucks and light commercial vehicles were circulated in 2010 and 2011. The energy campaign has also proved useful in reminding employees of the benefits of smooth driving when it comes to road safety.

* Source: Axa, Colas fleet insurer.
In the week of March 12 to 16, a prevention campaign was run focusing on the danger of crush injuries and aimed at all the Group’s employees around the globe.

Preventing crush injuries

Despite vigilance, despite safety training for employees and despite the presence of driver assistance systems in vehicles, the risk of crush injuries on jobsites is still high, accounting for around 16% of accidents. It is this observation that led to the introduction of further prevention initiatives. “Since 2006, a think-tank has been working to identify the most effective methods of prevention”, says Hugues Decoudun, Occupational Prevention, Health and Work Environment Manager at Colas. “This year, we have gone further, targeting all employees, including management, with an awareness campaign focusing on the risk of crush injuries and relayed by our 300 risk prevention correspondents around the world.” During the week of March 12 to 16, every subsidiary, establishment, jobsite, plant and workshop within the Group organized a fifteen-minute safety session on the theme, using three new supports: a four-minute film featuring three victims, a poster reminding people of the measures to be implemented to avoid crush injuries – which should be displayed at every site as well as on the intranet homepage – and an educational document on the “toolbox safety talks”. The initiative has received wide-spread support.
1- The day before the conference, site supervisors based in five cities got together for a relaxed gathering. Here, near Nancy, Meurthe-et-Moselle, northeastern France.

2- In Paris, the conference is opened by Thierry Genestar, Managing Director, Roads France, and Isabelle Quenin, journalist with Europe 1.

3- First round table on the theme of “Customer evolution”, in Nantes.

4- Game sequence in Bordeaux: a rugby ball was passed around the room 25 times before a try was scored on stage.

5- Fabien Galthié, a former rugby player and management consultant, illustrated the concept of team performance using anecdotes from matches he had played in.

6- Conclusion by Hervé Le Bouc.

7- In Lyon, a Djembe drum session for an upbeat finale, with a live link-up to the other cities.
For the first time in the Group, a conference has been held bringing together all road subsidiary site supervisors in France. More than 1,200 people took part in the conference, held on June 15, in the cities of Nantes, Nancy, Lyon, Bordeaux and Paris. The feat was made possible thanks to a live-link system allowing the five cities to communicate in real-time and by video throughout the day. The event was an opportunity for site supervisors to discuss how their profession and customers have evolved, the importance of teamwork, the passion that drives them and their future. On the agenda: five round tables – one in each city – illustrated by video testimonies from six site supervisors filmed during their day-to-day work. Game sequences were interspersed throughout the conference.

Band leaders

“The role of the site supervisor is crucial: they are band leaders”, recalled Thierry Genestar, Managing Director, Roads France. “Their role has evolved significantly which is why we decided to turn the spotlight on their profession. For our Group, their presence across the country forms the roots that give us the strength to grow. It is they who help differentiate us from the others.” The topics discussed included the problems of reconciling responsibilities in the field with administrative tasks, the use of IT tools (Siroco and Jokari), work/life balance, mobility, career development opportunities, and many more. The discussions were extremely fruitful, with participants also able to share their good practices. At the end, Hervé Le Bouc made a point of thanking and congratulating the site supervisors: “You are the company’s keystones, the interface between customers, teams and entity managers. For all these reasons, you are central to the company’s performance.” He also reiterated the Colas values: “Entrepreneurial, Pioneering & Innovative, Responsible: these three values give meaning to your day-to-day work. They reflect the spirit of the company and contribute to its influence. It is they that set it apart.”
Conferences, trade shows, awards ceremonies... Some images of the Group's events, in France and around the world.

A GIANT EGG IN COVENT GARDEN
Colas Rail Ltd. supported the Big Egg hunt organized in February in London in aid of the charities Action for Children and Elephant Family.
DEPARTMENT OF HIGHWAYS CELEBRATES ITS CENTENARY
The Thai highways department celebrated its centenary with an international conference in Bangkok. Colas was represented by E. Le Bouteiller, International Technical Manager.

“ON THE ROAD TO SCHOOL” IN MOROCCO
The Tirguioute bio-climatic school (read article on p. 82) opened its doors on June 7, in the presence, among others, of Thierry Le Roch', Deputy Managing Director Colas.
JOBS FORUM IN NEW CALEDONIA
For this event – the first of its kind – Colas New Caledonia was the only company from the civil engineering sector represented, with 26 employees taking turns to man the stand over the two days.

AXIMUM IN AMSTERDAM
In March, Aximum took part in the biennial Intertraffic Amsterdam trade show, the not-to-be-missed European event for professionals in the road safety/signing and traffic management sectors.
At the start of June, the Group’s three road brands in France and Colas Rail presented their complete range of transport and urban planning systems.

In May, the 23 vice presidents of the Colas Skilled Workers Guild attended an information day at the head office in Boulogne.
NAPA AWARDS: AMERICAN COMPANIES SINGLED OUT

The awards ceremony of the National Asphalt Pavement Association (Napa) was held in January in Palm Springs, California (United States). Colas’ American companies won 17 awards in various categories, including the Environment. Seen here, from left to right: Kim Snyder, President of Napa, Collin Douglas (Reeves Construction) and Neal Andrews (Baker).

THE INTERNATIONAL PIVERT CRISTAL AWARD HEADS TO CANADA

In March in Toronto (Ontario), Louis R. Gabanna, Managing Director, North America, handed over Colas’ International Pivert Cristal Award to Chris Greenwood, President of Standard General Inc. – Edmonton.
SFEL THESIS PRIZE 2012
Myriam Desroches, a chemist based at the Colas Campus for Science and Techniques (CST), was awarded the thesis prize of the French Society for Lipid Research (Sfel) for her work on the use of vegetable oils in new road-surfacing product formulations, conducted in partnership with Résipoly Chrysor (Smac).

ENVIRONMENT CONFERENCE IN CINCINNATI
The Group’s Environment Conference was held from June 20 to 21 in Cincinnati, Ohio (United States). Awards were handed out in recognition of initiatives implemented by Colas’ quarries and gravel pits around the world in support of biodiversity.
On June 2, Hervé Le Bouc, Chairman and CEO of Colas, went to Egletons (southwestern France) to meet the “Jean Fréret” class of 2012 students from EATP (French civil engineering school).

Gabriel Bossert (Sacer Paris Nord-Est) and Diogo Veloso Da Cunha (Screg Ile-de-France – Normandie) won the regional event, in the “road builder” category.
THE “SCREG TOUR DE FRANCE” GETS TO WORK
In June, the class of 2012 came together in Fort-Mahon (northern France). The objectives for the 21 civil engineers: to lift the totem in a challenge full of surprises.

WASCO AT COALTRANS ASIA 2012 IN BALI
Wasco, Colas’ Indonesian subsidiary, was at the Coaltrans mining industry forum to present the Group’s offers in the field of mining road maintenance.
“ON THE ROAD TO SCHOOL” IN MOROCCO
Colas Life supported the construction of a bio-climatic school in Tiriguoute, in southern Morocco. In the center of the photo (from left to right), surrounded by pupils: Yves Bounéou (Colas), mission sponsor, Cécile Cros and Yann Arthus-Bertrand (GoodPlanet Foundation).
Colas Circle
Jean-Christophe Victor
“Demographics and growth rate differentials are the two contributing factors to the global shift.”

The road through the eyes of...
Philippe Starck
“The road is a universe with its own logic, its own color, its own smell and its own emotion.”

Colas Life
Morocco
“On the road to school” helps the children of Tiriguoute.

France
Colas Life supports sick children.

Colas Foundation
Carlo Cosentino
“The road gives the artist considerable latitude.”
What are the possible futures for the world? Jean-Christophe Victor, a geopolitical expert, attempts to provide answers to this vast area of forecasting through in-depth analyses, based primarily on mapping. Here we interview him about the parameters underlying the changes of the 21st century.

When it comes to forecasting, what are the most relevant research parameters?

Jean-Christophe Victor: Demographics and education systems are particularly important. In the medium and long terms, demography determines a certain number of data. Let’s take the example of the ex-Soviet Union or the Arab Spring, for instance: demographers were the only people capable of predicting what was going to happen. Similarly, a study of education systems is crucial, explaining, for example, the strong economic growth of South Korea, thanks to the country’s massive large-scale investment in education over the past thirty
years. But forecasting also relies on a range of other parameters, such as mobility, urbanization, the demand for energy, transport, the human footprint, etc.

Let’s go back to demographics. Recently the idea of an overpopulated planet has reared its head again. What’s your opinion?

J.-C. V.: Since the global population crossed the 7-billion threshold, some people have been concerned about the imbalance that demographic pressure may cause. This is a recurring argument that crops up to explain all the problems facing the world, be they energy-related or otherwise. But a more thorough analysis points to the type of economic model used. Between 1960 and 2005, high-income countries saw their populations rise by 44% and their ecological footprint by 156%. Over the same period, low-income countries, whose population grew by 172%, only increased their ecological footprint by 110%. So the impact of the human footprint cannot simply be linked to global population figures alone.

Is the world population set to continue to grow at the same rate as it did during the last century?

J.-C. V.: The 21st century will be quite different from the last one. Progress in the field of public health and hygiene triggered an explosion in the global population. But, with birth control, a balance between birth and death rates will be achieved at some point during the period 2030-2040. The other major change is population ageing, across the world, including in China. By 2050, Europe’s contribution to the world’s population will have fallen – the same is true of China – while Africa and India will see their population rise as a share of the global population.

What are the trends in terms of global mobility and migration?

J.-C. V.: A few figures put these movements into perspective. Migration concerns between 2 and 2.5% of the world’s population. And, contrary to what people often believe, 75% of migratory movements around the world take place within a radius of 75 km of the departure point.

The theme of migration also encompasses the rural exodus and urbanization of the planet…

J.-C. V.: Today, half of the planet’s population lives in cities. In 2020, the figure will be 60%. Of the 3.5 billion urban dwellers, between 1 and 1.2 billion live in shanty towns! The increase in major metropolitan areas concerns mainly Africa and Asia. The map of these areas tallies with that of global economic, commercial and financial flows. It clearly highlights the global shift, between the “West” and emerging countries, driven by two factors: demographics and growth rate differentials.

Energy factors also lie at the heart of geopolitics…

J.-C. V.: In terms of crude oil production, North Africa and the Middle-East are set to remain on a steady trajectory up until 2035. Elsewhere, considerable resources are being invested in North America, which is particularly rich in shale gas and oil. A field has also recently been discovered off the coast of Brazil. In terms of global reserves, the future lies in heavy crude, the Alberta oil sands and regions or countries that remain under-produced or under-explored due to political instability, such as Iraq, for example. Over the course of the next 10 to 20 years, Arctic reserves will play an increasing role: Greenland is likely to move rapidly from exploration to production.

And what about the “peak oil” theory?

J.-C. V.: There has been much debate about this somewhat opaque issue. Oil companies and producing countries are constantly pointing to the discovery of new fields while independent associations claim that we will reach peak oil in the period 2010-2015, i.e. now.

How is the energy mix evolving today and what are the forecasts for the period up until 2030?

J.-C. V.: The share of oil is gradually falling, while coal and gas are increasing; things do not appear to have changed since the Fukushima accident. Renewable energies have seen a significant rise in absolute value terms, but their share remains low compared with fossil energies. The picture is likely to remain much the same for the next 20 years.

What would you like to say in conclusion?

J.-C. V.: Democratic, economic and environmental calendars are out of synch. Yet the environmental dimension is crucial for future generations. There is a lack of international organization, which would have powers to impose sanctions, as is the case for atomic energy. ■
Designer and architect Philippe Starck describes how he perceives the road.

Understanding what makes a road comes down to typology. The road isn’t what we think it is and it isn’t what we see. We think of the road as being flat and finite whereas, in reality, it’s a perpetual tube. The road is a complete continuum, in other words the road isn’t something you’re on but rather something you’re in. It’s a fluid moving through a pipe. We think we’re masters of the road but in fact we’re simply particles being swept along in the fluid, and this fluid has its own rules and carries you, imprisons you, compels you. There is very little leakage to the outside world and very little communication.

When you’re on the road, you never see verticals because of retinal persistence. Instead, you see an accumulation of horizontals, like the fibers of a rope twisting around you to form this tube through which you will move from one world to another.
Because that's what the road is, it's the image we may have of depictions of black holes, which today are known to be passageways from one multiverse to another. It isn't something that is flat.

The road is a universe with its own logic, its own color, its own smell and its own emotion. The road has its own smell, the smell of hot engine oil, the smell of leather, vinyl, carbon dioxide, gasoline. It's also a color. And since the elements we may see become fluid in the horizontal plane, the intensity of the colors disappears and the density of what we perceive is reduced. Hence the color of the road is a multitude of tinted grays. This is a universe in which perspective is different due to the distortion of verticals. And it's an almost unique situation because when you're immobile verticals are always verticals from the point of perspective. Only speed can distort verticals. The road is also a space-time concept because we don't say we're going to drive 200 km but rather we're going to drive for two hours. It's actually space-time in a nutshell.

Let's talk about bitumen because, above all, the road is bitumen. What's more, I really liked the concrete roads built under the Occupation in Italy, France and Germany. You also find them on military air bases. They are enormous concrete slabs that become distorted. You even have the impression – and it's rare – that you're moving from one great flat monolith to another, like a polar bear moving between icebergs. It's quite poetic actually. Moving on, I also like the way German troops made their concrete roads skid resistant: they poured the concrete and before it had time to set they had the troops walk over it with their shoes, boots and carts. The marks they left behind are indelibly etched into the concrete. Sixty years later, it's amazing to be able to move within an invisible troop, a phantom troop. They are absent and yet they're so very present. It's one of the most symbolic things I've ever seen, those phantom armies imprinted on those roads.

But back to bitumen: I love bitumen, it's like a chocolate topping on the earth. It is sensual in form, changing its state from hard to soft. It almost becomes liquid again on really hot days and you get the same phenomenon I've just described with prints left by tires, footsteps, high heels. And it too is poetic because people are stealing a march on the substance, both literally and figuratively.

But what I really love is the thought of the mythical amorphous paste long since used in science-fiction. An amorphous paste that you can do anything with. Very few such substances have ever existed but bitumen is one of them. Macadam, created by Mr. McAdam in 1810, was one of the earliest amorphous pastes that would provide a link with future similar substances and the future of the materiality of our civilization since they are programmable substances.
Fourth project for Colas Life: Morocco. In Skoura, in the south of the country, Tiriguioute school has been refurbished to improve the children’s learning environment.
June 7, 2012. Tiriguioute is buzzing with excitement. One of the country’s first bio-climatic schools has just opened its doors in the hamlet, located a few miles from the lush Skoura palm grove, in Morocco’s High Atlas mountains. People are crowding into a huge tent that has been put up in the middle of the playground. Pupils, parents, teachers and village residents are all eager to see inside the new premises… and forget the prefabricated concrete blocks with their tin roofs that stood in their place just a few months ago.

Bio-climatic school

Since July 2011, the GoodPlanet Foundation and Colas, via its “On the road to school” corporate sponsorship program, have been leading the Tiriguioute school refurbishment project. “The town of Skoura was selected as the location for the project because school dropout rates in the area are the highest in the country, due to its rural mountain setting, its run-down state and the distances people have to travel to get to school”, explains Cécile Cros, Project Manager for the GoodPlanet foundation. Tiriguioute school was dilapidated and unfit for purpose, with pupils having to put up with uncomfortable surroundings and temperature extremes, winter and summer.

The first stage of the project was to construct a perimeter wall to keep pupils safe. Next, three classrooms, a room for pre-school children and cloakrooms were built in adobe (mud bricks or rammed earth), using traditional local methods. The new buildings provide thermal and acoustic comfort thanks to a system of natural ventilation as well as their orientation. The entire project took six months to complete from beginning to end. LRM, Colas’ Moroccan subsidiary, also supported the project by helping to build a sports field in the school grounds.

The project’s progress has been followed with interest by the mission sponsor, Yves Bounéou, Operations Manager at Aximum Sud-Est, and his daughter Léa. “I was lucky enough to spend three years living and working in Morocco with my family”, recounts Yves. “While there I discovered a country with a different culture, where the modern rubs shoulders with the archaic, where there is extreme wealth and extreme poverty. When I came back to France, I read about the experience of Jean-Pierre Demollière, a former colleague who had gone out to Togo with the ‘On the road to school’ program. It encouraged me to sign up with my daughter. And by chance, the road led us to… Morocco!”

Involving the community

“The smooth running and success of the project, building permits issued by the Moroccan government for the construction of the school walls… Everything was down to community involvement”, observes Cécile Cros. For six months, the site echoed to the voices of the mâalems (local master craftsmen specializing in the use of the adobe technique) as they worked their wooden pestles. “In the region of Ouarzazate, it has become a matter of urgency to give a new lease on life to this traditional building method which is gradually dying out”, says Virginie Pauchet, the project’s architect. “For this project, therefore, young workers were trained alongside mâalems. Today, everyone is proud to have constructed a public building using adobe.”

A local association, made up of parents, teachers and representatives from the Moroccan education ministry, is responsible for managing the school. Yves Bounéou is a founder member of the association. “Léa and I don’t want to be just sponsors and onlookers”, explains Yves. “We want to play an active role so that the ‘On the road to school’ program can give hope to families and children.” And his daughter Léa adds: “We plan to raise awareness among my dad’s colleagues, my friends and classmates so that we can raise funds, send books, etc.”

The construction plans and method used for the Tiriguioute school pilot project have been sent to the Moroccan Education Ministry so that they can be reproduced at other sites. So that the kingdom’s schools go green!

MOROCCO

OBJECTIVE EDUCATION

As part of the eight Millennium Development Goals (MDGs)*, set by the United Nations and signed up to by the 191 Member States, the Moroccan government has initiated the “Najah” (Succeed) program, designed to revamp the country’s education system and guarantee access to education for everyone. Among other measures, there are plans to build 2,500 new classrooms, including 1,700 in rural areas, by 2015. A new community school model will also be developed.

*The eight Millennium Development Goals are designed to combat in particular poverty, hunger, disease, illiteracy, environmental damage and discrimination against women, etc.

To find out more

www.ontheroadtoschool.com
Following projects carried out in Vietnam, Togo, Croatia and Morocco, the “On the road to school” program has arrived in France. Objective: to support the work of the “Ecole à l’Hôpital” (School in Hospital) charity set up to help sick children continue with their schooling.
It’s 11 o’clock in the morning at Necker Hospital for Sick Children in Paris. Propped up on his bed, a 15-year old boy in his first year of high school is coming to the end of a dialysis session… and his math lesson. Effortlessly and to the delight of his teacher standing next to the bed, he rattles off Pythagoras’ theorem. Between three 3-hour dialysis sessions per week, his various treatments and fatigue, it is very difficult to maintain a normal school life.

Caring for the mind

Created in 1929 by Marie-Louise Imbert, a professor of philosophy, the Ecole à l’Hôpital association was tasked with “providing the same level of care to the mind as others give to the body.” More than 80 years on, the charity is still providing sick youngsters between the ages of 5 and 25 with free one-to-one tuition, in partnership with the French Department of Education.

“In the midst of this tidal wave of illness, schooling is an important anchor point”, explains Muriel de Courrèges, the charity’s director. Either in hospital or at home, pupils can continue with their studies, catch up and even take their exams. Qualified teachers – all volunteers – are on hand to deliver lessons in every subject. In 2011, in the Greater Paris region, 600 volunteer teachers delivered 20,000 lessons to 5,000 pupils, from pre-school to higher education level. This year, Colas is supporting the charity’s work via Colas Life and the “On the road to school” program. “Our partnership with Colas concerns children who are in hospital in the Seine-et-Marne and Essonne regions, east and south of Paris, as well as children who, back home after a hospital stay in the Paris region, are unable to return to a normal school life”, specifies Muriel de Courrèges. As in previous initiatives conducted as part of Colas Life, a Colas employee, accompanied by their child, volunteered to sponsor the project. In this case, Saïd Atif, Director of Human Resources for Colas’ Moroccan subsidiary, and his 13-year old daughter Majda, got the chance to discover the charity’s actions.

The fact that Saïd and his daughter have seen for themselves what we do here is great for the project. They will go away and tell people about it well beyond the confines of the hospital”, continues Anne. “We’re contacted by hospital medical teams who ask us to put together a team of volunteer teachers adapted to the wishes, capacity and availability of the pupil in question.” Whether retired, working or still students, these teachers are all genuine professionals who are available for the kids. Very often, a real sense of complicity develops between teacher and pupil.

From hospital to home

Welcome to Coutevroult, in the Seine-et-Marne area, where we meet Mathéo and his mother. For the past four years, this particularly mischievous teenager has been living with a brain tumor that affects his health, day-to-day life and schooling. Today, Mathéo does the same lessons as his classmates in 9th grade, but he is only able to attend school for a few hours a day. So volunteer teachers working with the “Ecole à l’Hôpital” program give him extra lessons at home. “It’s quite a relief”, admits his mother Alix. “Mathéo has someone with him who listens and understands, and he’s getting one-to-one tutoring, tailor-made for him, at home, in his own environment.” Every year, Anne Mérand, the charity’s Coordinator responsible for the Essonne and Seine-et-Marne areas, travels between 12,000 and 15,000 kilometers meeting pupils and their families so that they can draw up individual teaching programs together. “Every child is unique”, emphasizes Anne. “We’re contacted by hospital medical teams who ask us to put together a team of volunteer teachers adapted to the wishes, capacity and availability of the pupil in question.” Whether retired, working or still students, these teachers are all genuine professionals who are available for the kids. Very often, a real sense of complicity develops between teacher and pupil.

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To find out more

www.ontheroadtoschool.com
How have you tackled the theme of the road?

Carlo Cosentino: I liked this theme straight away, because it’s vast and gives the artist considerable latitude. It can be approached from both a spiritual and technical angle. To do it justice, I wanted to get a better understanding of the profession and the various skills involved by meeting employees of Sintra, Colas’ subsidiary in Quebec.

You’ve called your painting: “Lever du jour sur le port de Montréal”. What made you choose that particular location at that particular time of day?

C. C.: I opted for a scene in Montreal that brought together all aspects associated with the road. Looking towards the Molson brewery from Jacques-Cartier Bridge, you can see the river, railroads, distant bridges and the road that runs alongside the port. The morning light gives the Port of Montreal a unique atmosphere. Through this play of lights, the painting becomes a play of colors. It’s a place I know well and it epitomizes Quebec. As a realist painter, I’m a sort of ambassador for my city. Montreal inspires me and so it was a natural choice of subject.

What are you working on at the moment?

C. C.: The “Lumières de Paris”.* At a private viewing of paintings held by the Colas Foundation in Paris last October, I got the chance to chat with other winning artists. I was inspired by the experience and my work is all the better for it. **

* “Sunrise over the port of Montreal”
** “Lights of Paris”