“Our challenge: to be both a leader and a model, to meet the demand for profitable growth while setting an example.”

‘Responsible development’ was the theme of the Group Convention held in March. But what exactly does this new term in Colas’ vocabulary mean?

Responsible development is based on an ethical principle. It means that the company’s profitable growth strategy must be delivered within a social and environmental framework. In other words, we need to measure the consequences of any economic decision in advance. So responsible development isn’t a stand-alone theme but rather a global concept – one that is cross-functional and central, one that is crucial for Colas’ future. That’s why I decided to gather together all our managers to discuss the issues involved at our last convention. Naturally, the Group’s responsible development approach needs to be taken on board and put into practice by all Colas’ employees, regardless of the country, subsidiary or entity they work in.

How would you differentiate between ‘responsible development’ and ‘sustainable development’?

For me, the expression ‘sustainable development’ refers more to the planet than a company. What’s more, it is too often reduced to purely environmental issues. The concept of ‘responsible development’ is more appropriate when we’re thinking about the corporate environment as a whole. It more accurately reflects the need for this environment to be structured within an ethical framework that incorporates all the relevant dimensions: social, environmental and economic.
In concrete terms, Colas hasn’t waited until now to sign up to the approach…

We all know that the responsible development dynamic has been very much in evidence at Colas for many years. Just think about our prevention and safety policy, our training policy, our internal promotion policy, our materials recycling policy, our silent, highly adherent, plant-based, low-temperature products, our safety products, our photovoltaic roofs, our sponsorship initiatives and the many other local initiatives that we’re involved in. We already have a solid track record in terms of responsible development and are seen as a benchmark in a number of areas. What has changed is the fact that we’ve now formalized the approach, structuring these commitments, avenues for progress and actions within a coherent concept, within a strategic – indeed dialectic – logic, by which there can be no long-term profitable growth without social progress and consideration for the environment.

So does this mean that managers and employees need to embrace a new Group vision?

Yes. We need this vision for both ethical and economic reasons. What’s more, the fact that we are leaders in our sectors and intend to remain so makes it even more essential. Our challenge is to be both a leader and a model, to meet the demand for profitable growth while setting an example.

What are the challenges associated with responsible development at Colas?

Some are strategic and the long-term future of the company depends on them. I’m talking here, for example, about ethics, the renewal and enrichment of human resources, the acceptance of our production sites by neighboring residents. But other issues are also very important: road safety and safety at work, citizenship initiatives in developing countries, saving energy and reducing greenhouse gas emissions, recycling and the management of risks associated with the use of chemicals.

Colas’ responsible development pyramid* reflects this hierarchy of challenges and the importance of local initiatives…

It does indeed. Strategic challenges are placed at the top of the pyramid that depicts our approach in diagrammatic form. The other major challenges are placed halfway up. The base of the pyramid is made up of the many responsible development initiatives deployed in the field by the various subsidiaries and entities throughout the world. The incredible variety of local actions being implemented within a dynamic of continuous progress forms the very bedrock of responsible development at Colas. Their sheer abundance speaks volumes for the commitment of our teams to these crucial issues.

Of all the avenues you’ve mentioned, are there any that you would like to focus on?

As I’ve said, they’re all important and some of them are strategic. However, I’d like to see efforts stepped up in five notable areas. Firstly, the diversity of recruitment, which represents a source of enrichment for Colas’ human resources and forms its ‘collective intelligence’. I’m thinking here about the cultural mix so essential to keeping a finger on the pulse around the globe, about the diversity of profiles enabling us to steer clear of ‘formatting’ and about achieving an equal male-female split in our businesses, something we absolutely need to improve. The second avenue is employee safety, both in the workplace and on the road. This is something we need to be ‘obsessed’ about and make an absolute priority. The third area of focus relates to corporate citizenship initiatives, especially in the developing countries in which we operate; we cannot remain indifferent to their economic and health situation. The fourth area of focus concerns the environmental management of our production sites and dialogue with residents. Setting

“...Our responsible development strategy will enable us to anticipate and conquer new markets, while remaining on good terms with our environment in the broadest sense...”

residents, Setting an example in these areas is crucial, not only in its own right but also to guarantee better acceptance by people, something that is essential if we are to effectively continue our activities. And finally, last but not least, we need to look at ethics. This issue transcends all responsible development requirements. We’re not talking here about simply staying within the law and the company’s own rules. We’re talking about how we behave towards others and the world around us in general.

Doesn’t responsible development also represent an asset in terms of image?

As long as we convert our commitments into concrete and effective actions that match the promises we’ve made, there is no doubt that responsible development reinforces the Group’s image and the feeling of pride employees have in belonging to it. It also enhances our appeal in the eyes of customers, elected representatives, residents and younger generations. It sets us apart and generates a preference. Likewise, it should make our activities more acceptable to society as a whole.

Between road works and the production of construction materials, some of the Group’s activities are increasingly being met with hostility…

In some settings and some countries, accusing our businesses – particularly road building – of all the ills of the planet is seen as being politically correct. And yet we have nothing to be ashamed of, particularly since our operations are carried out within a framework of responsible development. Road, rail and, here, Colas, involved in all types of infrastructure, symbolizes the reconciliation and complementarity between different modes of transport – signaling, transport of fluids, drainage, waterproofing and building all meet society’s expectations by bringing improved living standards and greater well-being: they contribute to the development of economic and cultural exchange, better living environments, enhanced road safety and traffic flow, industrial waste recycling, etc. Traditional welfare-promoting sectors for the men and women working in them, our businesses also generate employment. It’s no coincidence that the economic recovery plans adopted in many countries are all primarily geared towards transport infrastructure, particularly roads. Our core business has many advantages in that it cannot be relocated, it employs a lot of people and can be mobilized quickly, with a positive impact on the economy since the investments generate future growth.

Colas celebrates its 80th birthday this year. What message would you like to pass on to mark the occasion?

I want to pay tribute to the 73,600 men and women who work for the Group across all five continents of the world. They are our most important strategic resource. If the talent within the company continues to be deployed in the same exemplary and creative manner, at the right time and in the right place, to serve the Group’s responsible development strategy then, irrespective of the problems encountered, the Colas road – Colas roads even – will continue to pave the way forward.

* Please see page 7.

** WHAT ROLE FOR INNOVATION? **

*Innovation has been a driving force behind Colas’ development since it was first created in 1929! Today, as part of our responsible development process, research and development efforts are being channeled towards developing and improving products and techniques that will help us make savings in terms of materials and energy and reduce greenhouse gas emissions. And we want to use our eco-software to persuade customers to increasingly select eco-products. It’s clear, therefore, that responsible development is associated with numerous opportunities for future growth.*
Colas’ responsible development logo is ‘Athena’s owl’, the Greek symbol of wisdom. Greece is the cradle of Western culture (sharing echoes with Indian culture). Humanism can be traced back to its Greek roots and even today the philosophical thinking that prevailed in Ancient Greece continues to shape our reasoning. In Greek mythology, Athena (who the Romans called Minerva) was the patron goddess of Athens. She was the daughter of Zeus, King of the Gods, having sprung from his skull, fully grown and fully armed and helmeted. She had independent power and her chief quality was intelligence, manifested in two forms:

- war, in terms of strategy rather than heroism and destructive force. Athena is depicted in armor as ‘Athena Nike’, the Goddess of Victory;
- wisdom, as well as science and technology (making her the Goddess of Engineers), and peace, with the symbol of the olive tree which she gave as an emblem to the city of Athens, the city she founded. She is ‘Athena with the bright blue eyes’, depicted with her owl, the bird whose gaze can pierce the darkness and whose head swivels to look both ways, forming a vision of the future from lessons of the past. This is the ‘wise owl’ character used by Disney. Athena’s owl is a strong symbol that embraces an almost universal field of cultural reference, the temporal challenge of sustainable and responsible development (future generations), the role of women in society and the conviction that in order to meet these challenges, the human race will never find a better tool than wisdom, which, in spite of everything, is responsible for humanistic hope focusing on action and the future.

As a world leader in the construction and maintenance of transport infrastructure, Colas has a duty to meet society’s needs in a responsible manner, throughout every one of its businesses worldwide. Economic, social and environmental initiatives are undertaken in the field to support the Group’s responsible development approach. This approach can be depicted by a pyramid, with the many local initiatives deployed by the Group’s subsidiaries and entities forming its base. These diverse initiatives – implemented within a dynamic of continual improvement – are hinged around challenges in three areas of key strategic importance, as well as five other major targets. The three key strategic targets (at the top of the pyramid) are as follows: ethics, the renewal and enrichment of human resources, and better acceptance of production sites. The five other major targets can be found in the middle of the pyramid: road safety and safety at work; corporate citizenship initiatives in developing countries; fossil fuel energy savings and greenhouse gas emission reduction; recycling of materials; controlling chemical risks.
Ethics are a key strategic point that transcends all the issues associated with responsible development. Ethics and integrity have long represented an intangible management principle throughout the Group. As well as an absolute duty to comply with the law and the company’s own rules, ethics are also about how we behave towards others in terms of listening and solidarity. We need to apply this approach in our dealings with all stakeholders, and, more specifically, with customers, employees, neighboring residents and society as a whole.
“In its broadest sense – and that’s very much how I see it – ethics are a behavioral requirement based on consideration for Others and placing the general interest above all personal interests.

By Others, I’m referring to the law, the environment, local residents, users and society as a whole, customers, co-workers, service providers and the whole Group.

It goes without saying that we all need to comply with the law and the company’s own rules. I’m talking here about free trade laws, anti-discrimination principles, social laws, accounting rules, etc., and all our principles and rules of conduct and management. Any breach of these principles would be inconceivable. […]

But we have to go further still. An awareness of ethics is a state of mind that governs every aspect of our behavior. How we behave towards others shapes human relationships. Expertise alone is not enough.

Let’s take listening first of all. The desire to listen reflects a willingness to conduct dialogue and to recognize people for their aspirations and differences (origin, language, culture, age, gender, hierarchy, career path, opinion, etc.). […]

Communicating, doing what you say you’re going to do, being willing to ask questions of yourself, being obsessed with safety […] All these things are what I mean by how we behave towards others.

In terms of relations between co-workers, it’s all about promoting and creating a social link and cultivating two specific – and fairly unique – features of Colas: happiness at work and the social elevator. […]

Behavior towards others also has a solidarity element – solidarity that must prevail inside and outside the company.

Solidarity with customers, neighboring residents and local populations takes the form of partnerships, corporate citizenship initiatives and sponsorship.

Between co-workers, it can take many forms, including peer tutoring.

At Group level, solidarity is reflected in synergies developed between profit centers, subsidiaries, businesses, countries where we operate; sharing teams, expertise, techniques, equipment and material; pooling and sharing experience in every field.

Each and every one of us must think and act in an across-the-board manner, placing the general interest above personal interests at all times.

Solidarity must be a priority reflex. It must prevail at all costs. […]”
The diversity of the men and women working at Colas represents a source of enrichment for the company’s human resources, forming its ‘collective intelligence’: diversity in terms of culture, career path, profile, views, origin, gender, age, appearance, etc. Promoting diversity means giving opportunities to everyone, without discrimination, when they are hired and throughout their careers via internal promotion. The Group’s commitments together with the recruitment, integration and redeployment initiatives undertaken by the subsidiaries to reinforce diversity within the company target a variety of issues: gender equality, people in difficulty, older employees and the disabled.
Key figures, commitments, initiatives for progress

More than 110 nationalities worldwide, including 70 in France

/// MEN-WOMEN
Increase in number of women in management posts: 20% in France 23% internationally (figures 2008).

/// 2nd CHANCE
Numerous partnerships with organizations working with young people in difficulty and the long-term unemployed.

/// OLDER EMPLOYEES
Initiatives to encourage hiring and reconversion.

/// DISABILITY

Present in more than 40 countries on all 5 continents

25 languages
Farida Garcia // OSE officer // Screg Sud-Est
Going out to meet people, communicating, raising awareness... As safety supervisor on Screg Sud-Est’s job sites, Farida Garcia has been able to impose her style, expertise and temperament in what is an extremely male-dominated world. Is being a woman an advantage? “We’re here to work and make sure people are safe, not for a fashion show,” she points out. However, she underlines the virtues of listening, dialogue and diplomacy when it comes to issuing instructions. Her approach has won the respect of her co-workers and helped promote good practices on sites when it comes to quality, safety and the environment.

“Dialogue is more straightforward with customers”

Angélique Ardaen-Ollin // machine operator // Colas Est
Angélique Ardaen-Ollin, 27, is a woman who enjoys a challenge. She started out as a waitress but soon demonstrated a flair and a taste for manual work. So it came as no surprise when she turned to construction work, which had the added bonus of allowing her to be outside. Following a placement in a small company, she was hired by Colas Est. Although she freely admits that it was far from easy to fit in at the very start, it didn’t take her too long to win over her male co-workers and put her professional qualities and versatility to good use on the job sites. This young woman is made of strong stuff and has proved that she is just as capable as her male counterparts, if not more so. According to Angélique, being a woman in public works isn’t necessarily a disadvantage. In fact, quite the contrary: “My dealings with customers are more straightforward.” Currently a machine operator in Dijon, Angélique is working towards her truck driver’s license and plans to go on to do further driving training programs. She is definitely going places!
Jean-Pierre Brard was 56 when he was hired by Aximum Centre-Ouest as a warehouseman. Jean-Pierre has a broad range of experience under his belt, gained over the course of his working life, but had never previously worked in the public works sector. From IT to safety, truck driving to machine operating, it was his versatility that most appealed to the company. “I was hired because of two things: my adaptability and my reactivity,” reckons Jean-Pierre Brard. We seniors have built up a lot of experience over the years and bring real added value to the company.” And don’t even think about mentioning the word retirement to Jean-Pierre: “I’ve still got a long road ahead of me at Aximum!”

Pascal Gauthier works for Colas Sud-Ouest and has a very different background. “After over thirty years working in the lab with test-tubes and emulsions, I got to the point where I felt I was going round in circles. I wanted to end my career doing something different.” So Pascal spoke to the Human Resources department and it was agreed that he could work as a trainer on asphalt mix projects. “I go out to job sites and identify anomalies. Armed with the information, I design training programs aimed at helping teams make the necessary adjustments.” His knowledge of asphalt mixes combined with the years spent in the Group’s labs make him a natural authority on the subject. So what does Pascal think of his role as a trainer? “I see myself not so much as a trainer but more as an integrator of good practices. My aim is to help teams improve their working conditions on sites.” One last challenge before a well-deserved retirement!

“Older employees have the specific expertise and experience so crucial to the development of the company and the people who work there.”

Philippe Christain, HR Manager Colas Sud-Ouest

“...it’s especially rewarding to be able to end your career training teams out in the field when you’ve spent your working life at a company like Colas.”

Pascal Gauthier, trainer, Colas Sud-Ouest
Hiring unqualified people: Yes, we can!

In 2007, Colas signed a partnership agreement in Mainland France with Epide (a French state social integration body) aimed at giving struggling young people access to construction jobs. Epide’s mission is to facilitate the social and professional integration of young unqualified and unemployed people who have dropped out of school. Its motto: ‘Let’s give them a second chance’. Prior to the signing of this national partnership agreement, Colas Nord-Picardie had been working closely with Epide’s center in Doullens, culminating in a dozen or so young people being hired on permanent contracts.

In 2005 in Reunion Island, GTOI set up specific recruitment tests for people without qualifications, in partnership with the National Employment Agency, Reunion Region and local missions in the North and East. “We needed to strengthen our teams but with such a tight job market we had to broaden our search,” explains Béatrice Potier, Human Resources manager at GTOI. “So we worked with the National Building Federation and the ANPE (the French Employment Agency) to develop tests that could be used to identify people with the greatest capacity to work on our job sites.”

The method applied to find the Group’s future employees is quite simple. “We devised a simulation-based recruitment technique that allows us to measure a job seeker’s capacity to work on job sites and adapt,” explains Barnabé Proudhom, an officer in the Employment division. Qualifications are not taken into account. The entire process is designed to remove the mystique surrounding an interview and put applicants at ease.

At the end of the tests, ten people were selected to attend a ten-week training program at the Reunion chamber of trade before going out to work in the field.

Giving people a second chance

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Franck Tsilavo Rakotomalala // woodworker // Colas Madagascar

Born deaf and dumb, Franck Tsilavo Rakotomalala might live in a world of total silence but that has never stopped him from communicating. Franck's hands do all the talking. In 2007, he obtained his carpentry certificate and in the same year, at the age of just 18, he started work in Colas Madagascar’s carpentry workshop. Franck is a quick learner and tries his hand on anything from building wooden frames to workshop activities. He uses pen and paper to communicate with his co-workers, as well as his own personal form of sign language. “People say I’m a good carpenter. I don’t know if that’s true or not. But what I do know is that I love my work and I’m proud to be part of Colas.”

Patrick Gérard // surveyor // Screg Ouest

On October 11, 2006, the van driven by Patrick Gérard – foreman at the time with Screg Ouest – was involved in a head-on collision with a car on a country road. The verdict was a hard blow: he had suffered serious injuries to his legs. “Your whole life gets turned upside down by a car wreck,” explains Patrick. “I had two long years of surgery, physical therapy and hospital tests.” Two years during which Patrick’s working life was put on hold. “I hoped I'd be able to go back to what I was doing before. But when I emerged from physical therapy, I realized my career would never be the same again.” Down, but not out, Patrick kept in touch with his co-workers at the Rennes profit center. He listened to their advice and with the support of the Human Resources department went on an internal training course to become a land surveyor. Having successfully completed the course, he started his new job in September 2008. “In hindsight, I realize that I’ve emerged from the whole ordeal a much stronger person. What is it that motivates me? A determination to constantly forge ahead.”

“Keep forging ahead!”

“Love my job!”

FRANCE

ROUTES Special issue on responsible development – September 2009
Employee safety, both at work and on the road, has long been a top priority at Colas. The target: a zero accident rate. Safety managers, supervisors and road safety officers are the driving force behind the Group’s proactive safety policy in the field, supported by a broad range of constantly updated tools and initiatives. Each is tailored to a specific activity and population: safety awareness and safe, eco-driving training, toolbox talks, full-day safety sessions, job site audits, equipment upgrading, experience sharing, inter-profit center safety competitions, etc. And extending its focus beyond safety, Colas is committed to a global health protection program for its employees.
Key figures, commitments, initiatives for progress

The ultimate target: 0 accidents

/// WORKPLACE ACCIDENT FREQUENCY RATE IN 2008
In France: 11.6
2010 target: < 10
Internationally: 7

/// NUMBER OF PROFIT CENTERS WITH ‘0 ACCIDENTS’ IN 2008
In France: 209
i.e., 44% of entities
2010 target: 50%

/// NUMBER OF COMPANY FIRST AIDERS IN 2008
17,000
i.e., 24% of workforce
2010 target: 30%

36% of training hours dedicated to safety in France in 2008

ROAD SAFETY

/// CHARTERS
2005: European road safety charter renewed in 2009

/// ROAD SAFETY OFFICERS
500 in France

/// GROUP ROAD ACCIDENT RATE
– 60% in 11 years
(vehicle fleet doubled in size over the same period)

36% of training hours dedicated to safety in France in 2008
Road safety: Colas renews its commitment

For the third time, Colas has just renewed its road safety charter with the French government and the Caisse nationale d’assurance maladie des travailleurs salariés (CNAMTS or Employees’ health insurance fund). First signed in 1997, the charter was renewed in 2001 and 2004. On April 2, the Group undertook to maintain and improve the results achieved so far and to promote responsible eco-driving. Colas’ proactive road safety policy is hinged around several themes: safe driving training courses, which now include a module on eco-driving and schedule audits for newly qualified drivers; rationalization of the way work is organized, both on-site and on the road; regular vehicle checks and the fitting of safety equipment (ABS braking, reversing sensors, cameras, alcohol testing kit). Factory-fitted engine speed limiters are soon going to be tested on crew vans and utility vans. Overseen by a network of 500 employees, these initiatives are implemented alongside experience-sharing sessions as well as other initiatives designed to promote best practices, in the form, for example, of inter-subsidiary road safety challenges run every year. The road safety approach adopted by Colas in France is being used as the basis for similar initiatives being introduced at the Group’s other subsidiaries and profit centers around the world, adapted to local cultures and regulations.

Signed in 2005, the European road safety charter covering all Colas’ European subsidiaries was also renewed this year.

SCREG NORD-PICARDIE: TOP OF THE CLASS IN FRANCE IN 2008!

Following a strong performance in terms of results and progress, SCREG Nord-Picardie won the Group’s 2008 inter-subsidiary road safety challenge. Its road accident frequency rate fell from 0.242 in 1997 to 0.059 in 2008, i.e., a drop of 76% in the space of eleven years.
Chemical risks concern both human health (employees, customers and users) and environmental protection.

Protecting health
There is always a health risk associated with the use of any chemical and Colas was very quick to take this fact on board. The Group was a pioneer in terms of replacing the most indesirable ingredients in road products. For instance, alternatives have been found for solvents and heavy metals in paints. And where bitumen fumes are concerned, the company encouraged the industry to fund independent research: “In June, the World Health Organization (WHO), via the International Agency for Research on Cancer (IARC), published a study demonstrating that there is no link between lung cancer and exposure to bitumen fumes,” says Henri Molleron, Corporate Environment Director, who is keeping a close eye on this issue for the Group. Colas is also focusing its efforts on eliminating solvents from its workshops (they can be replaced by detergent and bio-degreasing fountains), its labs (they can be used in closed system machines to avoid any danger of employee contamination) and to clean machines and tools (fuel oil can be replaced by products derived from agriculture, formulated using processed vegetable oil bases).

Preventing pollution
Environmental protection is also a top priority. Systems to contain and recover liquid products have been installed on most of the Group’s sites to control leaks. Liquid waste is also recycled: “Just one liter of waste oil is enough to pollute thousands of cubic meters of water and contaminate groundwater systems. So we operate a proactive policy to recover these oils and pass them on to recycling units, where they are transformed into fuel,” explains Henri Molleron. All these initiatives fit into the Group’s environmental management system, designed to ensure that each site is fully able to control risks.

REACH
Adopted in 2006, the aim of European REACH (Registration, Evaluation, Authorization and Restriction of Chemical substances) regulations governing industrial chemicals is to improve the protection of human health and the environment. All chemicals manufactured and imported in Europe are now subject to rigorous checks prior to market launch. A large number of chemical products currently in use could be taken off the market in the wake of this new regulatory framework. The European Commission hopes that the result will be a drop in the number of cancer deaths of between 2,000 and 4,000 per year and a reduction in state health spending of around 50 billion Euros over thirty years.
Colas companies in the USA regularly achieve outstanding results when it comes to safety. Chris Kirby, Risk Director at Colas Inc., explains what lies behind this success, some of which can also be chalked up to the good health of its employees.

**From safety and prevention...**

“Because safety isn’t something we should take lightly, we’ve implemented several new prevention initiatives, including Job Safety Assessments (JSAs). This safety program is specifically designed for job sites. Small groups of workers get together to analyze the risks associated with their jobs. A report is then written up listing all potentially dangerous situations. JSAs thereby enable each skilled worker to identify and avoid risky situations on the site and for teams as a whole to take greater personal responsibility for safety.

**… to a global approach to health protection**

Where health is concerned, we’ve set up an information program known as the ‘Disease Management and Wellness Program’. As part of this, we organize regular meetings to raise awareness among employees of the problems associated with high cholesterol and high blood pressure. Employees affected by these conditions can contact an advisor who will explain the medical and administrative steps they need to take to get treatment. People suffering from a chronic disease are directed towards specialist clinics dealing with the condition in question.

Lastly, we have a telephone hotline to help with alcohol and drug issues, as well as stressful and difficult personal problems. Employees can speak anonymously to someone who will help them work through the situation they’re facing. All these initiatives are important: employees’ health must be considered from every angle, in terms not only of personal well-being, but also the quality of their work and their safety on site.”

**“Health and safety: our priorities”**
The camera sees all! The ‘Safety on film’ program was launched three years ago to film skilled workers going about their daily activities on job sites. The films are then taken into video workshops where habits and behavior are closely analyzed and discussed. Safety shortcomings stick out a mile: “Here we can see that you’re wearing just one ear plug. Why is that?” asks Francis Thuriez, a trainer running a workshop at the Colas Midi-Méditerranée Côte d’Azur subsidiary. “I’d just been speaking to one of the workers and I forgot to put it back on,” replies a grader operator. This is a typical example of what not to do, as the trainer explains: “With noise like that all day long, you’ll end up with a headache. Fatigue + loss of concentration = accident.”

An obvious point really, but one worth repeating. “Over the course of the last three years, real improvements have been seen in the behavior of the teams being filmed. Serious positioning errors are now a thing of the past,” notes Thierry Méline, profit center manager. Solutions to safety issues are developed and discussed in groups and, as a result, teams accept them more readily. Tarek Trabelsi, a loader operator, was won over by the video workshop: “It’s easy to see what’s wrong and where improvements need to be made. You realize just how serious something is when you see it on film…”

Marijuana and alcohol: an explosive cocktail

According to Professor Constantin, author of *Halte au cannabis!* (“Stop marijuana”), “a combination of marijuana and alcohol increases the risk of a fatal road accident by a factor of 14!”

Marijuana, cocaine, heroin… These are dangerous products which are becoming increasingly commonplace in France. According to the French monitoring center for drugs and drug addiction (OFDT), 12.4 million French people have tried marijuana at least once in their life. Of these, 1.2 million people use it at least ten times a month. Yet, it does have harmful effects on health: feelings of inebriation, delusions, hallucinations, depression, anxiety… Where hard drugs are concerned, there are fewer users (among people aged between 15 and 65, 2.6% take cocaine and crack and 2% take ecstasy and amphetamines) but the risks are even greater. Mindful of the potential dangers associated with taking drugs and operating machinery, for example, the Group has been implementing a range of prevention initiatives for a number of years. Be it alcohol or drugs, the process is the same: “The workers I come across in information meetings are usually in denial,” reports Marc Elie, a trainer for the last ten years who works regularly with the Group. “They know it’s dangerous to drink or take drugs at work or before getting behind the wheel. But when they’re at home or out with friends, they might party too hard one night and not realize that the next morning they could still be under the influence.” Generally speaking, employees are surprised at how long it takes for drugs to be processed by the body. “If you smoke one joint, you will be positive for one week. If you smoke a joint every night, you will still be positive between thirty and forty days after you stop,” continues Marc Elie.

A year after the information meeting, the trainer appears back on site for a ‘toolbox safety talk.’ A salutary booster shot!
Every two years, Philippe Leclere, a trainer with Colas Ile-de-France – Normandy spends a whole day with an employee to assess driving skills. The aim of the exercise is to improve drivers’ behavior, train them in social regulations in the transport sector and reduce fuel consumption. “The drivers are very enthusiastic about their assessment day because they realize that it’s an opportunity for them to update their knowledge of traffic law,” reports Philippe Leclere. In the truck, comments come thick and fast: “Watch your speed, you were doing nearly 50 km/h and the limit is only 30 km/h; you're in the red on your tachograph because you didn’t stop for lunch; that means that you worked more than six hours without a break; that’s against the law!” But the trainer also offers praise where it’s due: “You clearly know what you’re doing. You lift and lower the excavator well. Your load is well slowed and your signaling is good too.” The lesson is not intended to annoy: “I make mistakes and he’s there to remind me of that. It’s a pretty good idea to have someone show you what’s wrong every once in a while,” explains Gilles Gibaud, a truck driver with the Devaux profit center in Rouen. The training initiative has helped reduce fuel consumption: 60,000 liters have been saved in the space of just a year in the subsidiary. A smart way to help cut pollution.

On-the-job training for safe, economical driving

As part of their road safety and accident prevention policy, which applies at work as well as for private journeys, subsidiaries have been using SCOPE3 software developed by the Axa insurance company to provide employees with training in safe driving. The tool also contains an eco-driving module. “The primary objective is to avoid accidents where the driver is to blame as well as accidents where the driver is not to blame – for example where someone doesn’t yield – by ensuring drivers remain vigilant at all times and are always ready to react,” explains Philippe Leloup, prevention manager with Sacer Paris-Nord-Est. Employees are formed into groups of between 5 and 20 to learn about the eleven golden rules that need to be followed for safer driving. The first three rules are hinged around vision and knowledge of the driving environment: use rear-view mirrors, think about blind spots, always watch the road just in case a child should step out suddenly, etc. The next area of focus is the space around the vehicle: maintain safe distances, slow down to force a vehicle that is too close behind either to reduce speed or pass, be aware of distances at the side of the vehicle just in case a door should open unexpectedly, etc. Finally, the last few rules concern vehicle control: make sure headlights and tires are properly maintained, stay within recommended driving times to avoid fatigue, be comfortable behind the wheel, etc. Employees soon realize the relevance of the training courses: “When I give them concrete examples, they can relate to them. They all have a story to tell. They go away full of good intentions,” reports Philippe Leloup. And to make sure these good intentions remain, Sacer Paris-Nord-Est plans to put all its employees - one thousand or so people - through the same training course again by the end of 2011.
Cold Chon: prevention for teens

The Irish subsidiary Cold Chon works tirelessly to constantly improve the safety of its vehicles and train its employees in safer driving. Alcohol, speed, ensuring the application of basic safety rules... For Cold Chon, road safety awareness is a top priority. The first targets are the drivers themselves. “The first things we check in the morning are oil levels, tire pressures and safety equipment,” explains Gerry Duffy, a driver. “These are basic checks that need to be carried out before we go out on the road.” Reversing cameras have been fitted to all vehicles to make driving easier and avoid accidents during reversing maneuvers. The company also offers its employees free eye tests with an ophthalmologist to check their vision.

Finally, to instill good habits right from the teenage years, the subsidiary has been working with the region’s high schools since 2006, organizing road safety awareness days and poster competitions. These types of initiatives are now being adopted by many of the Group’s other subsidiaries around the globe. In Europe in particular, poster competitions are proving to be a big hit in schools. Prevention amongst European teenagers is gaining ground!

Site preparation: sheeting up safety

Traffic, lifting operations, managing job sites in the urban setting, handling hazardous products, machine checks, safety training… Just some of the topics that need to be incorporated in any health and safety improvement program applied to job sites. Special sheets have been drawn up for this very purpose by the CSTPP (the civil engineering employers’ federation for Paris and adjoining areas) and the OPPBTP (French professional body for preventive practices in the building industry). Collated on a CD-Rom, these sheets are in the form of checklists. A generic sheet provides an overview of the job site as a whole and lists all the information required to ensure that work runs smoothly. Themed sheets then cover specific technical areas and safety in particular. Since the latter is a top priority for the Group, it is a stipulation that these sheets should always be consulted, in order to ensure, for example, that personal protective gear and hard hats are worn correctly and to prevent specific risks associated with individual job sites.
When it comes to safety, the Canadian subsidiary Works Alberta is a Grade A student. In 2008, it won no fewer than 8 Vanguard awards. What’s more, Shell Oil Canada Ltd has just confirmed one million accident-free kilometers. In addition, the Workers Compensation Board, a federal body that manages workers’ compensation insurance in the event of workplace injuries, actually paid money back to Works Alberta in recognition of the very small number of accident-related claims. And last but not least, in June, Martin Bouygues, Chairman of the Bouygues Group, and Hervé Le Bouc handed the company the International Crystal Woodpecker award in recognition of 3 million man hours without an accident (see photo above: from left to right, Hervé Le Bouc, Garry Walker, Safety Manager at Works Alberta, Martin Bouygues, Jacques Michel, President of Works Alberta). Hervé Le Bouc congratulated staff for this outstanding performance, particularly remarkable given that it was achieved on a multitude of small work sites. “Zero accidents, zero injuries. Our target is an ambitious one,” explains Garry Walker. “To get as close as we can to meeting this objective we focus on training and motivating all employees to share the same commitment.” To this end, for example, each team on-site includes at least one person qualified to deliver first aid, representing around 560 people or one employee out of three at the height of the season. Each year, dedicated training courses are organized covering risk prevention and first aid. Good practice awareness programs are also in place for managers, who regularly take part in safety committees and information meetings. And since health and safety are one and the same, the company also encourages its employees to do warm-up and stretching exercises before starting work to prevent potential musculoskeletal injuries.

Colas Rail Ltd: safety serving solidarity

No more badges, signs, bonuses and other rewards… to mark accident-free days and weeks, Colas Rail Ltd has instead set up a charity “kitty”: 500 days without an accident are worth £15,000. The man behind this initiative was Paul Brown, Project Manager: “The idea came to us a few years ago during a project meeting. We thought it would be more useful and a greater incentive to put aside a sum of money for charity.” The first funds collected were given to a school for disabled children in Wilmslow, Cheshire. “First we supplied the sand for a building project, then we kitted out an IT room”, says Paul. After eight years spent in Northwest England, working in Trafford, near Manchester, he has now moved north to Edinburgh, where he has exported his good practices to the Waverley station project (cf. photo below: Paul Brown hands over a check to Ann Maxwell, President of Muir Maxwell Trust, an association that helps young epilepsy-sufferers and their families, watched by Muir and Connor Maxwell). Good practices that illustrate just how deep-rooted the link between safety and solidarity is.

Works Alberta: 3 million man hours without an accident!
The corporate citizenship initiatives undertaken by Colas and its subsidiaries, wherever they operate throughout the world, are the true reflection of a genuine spirit of solidarity. These humanitarian, cultural, sports and environmental initiatives are all tailor-made to fit specific local requirements. In particular, Colas has been active in countries such as Madagascar, Morocco, Benin, Gabon, Djibouti and South Africa for many years, with subsidiaries there contributing to economic, sanitary and social development as well as environmental protection: public health programs, the construction of schools and housing, training, humanitarian partnerships, the supplying of equipment, the loan of machinery, reforestation, biodiversity awareness-raising programs, etc.
Braille books for visually-impaired children

It’s all in the name. The Touch’ à Tout (‘Touchy Feely’) games library in Casablanca is designed to stimulate and develop the sense of touch of blind and visually-impaired children. Opened in 2005 by Amandex (Moroccan association for the visually impaired), it helps these children to communicate and interact in a social setting, arousing their curiosity and preparing them for school. In addition to play activities, the association promotes the importance of learning to read using Braille. When it first started, however, the association came up against a few obstacles: “In Morocco, Braille books for children didn’t exist. And it was difficult to get any published: it cost more than 100 Euros for the smallest of books,” explains Rachid Rafai, President of Amandex. But with the financial support received from the foundations of the Colas Moroccan subsidiaries, they were able to buy specific equipment to produce embossed books (embossing machine, a special computer and a thermal embossing oven). This has proved invaluable, as Rachid Rafai underlines: “By learning Braille children acquire a degree of independence from a very young age. It helps them in their daily lives and, later on, in their working lives.”

450,000
The number of visually-impaired people in Morocco.

Scrums, line-outs, tries…: not exactly the kind of sporting terminology normally associated with Morocco! And yet, 150 children between the ages of 6 and 17, from both deprived and affluent backgrounds, play rugby together at the Club olympique de Casablanca (COC). A successful social mix that would have been impossible without financial assistance. The foundations of the Colas Moroccan subsidiaries decided to get involved in the adventure by paying the membership fees of children from disadvantaged homes, as well as their gear and transport and accommodation costs for tournaments played away from home.
Djibouti. April 13, 2004. Torrential rain fell through the night and poured into the Ambouli Oued. The banks and plains of this normally dry river bed are home to many people and crops. The sudden rise in water levels spared neither houses nor those living in them: around fifty people died and hundreds were left homeless. The Ministry for Housing and Urban Development appealed to economic players to help re-house the flood victims: “Rather than give money, we decided instead to build houses,” explains Karim Hamdan, Manager of Colas Djibouti. Ten houses were built on the hills of the town, 12 km from the port, in a flood-free zone. “These houses are built around an inner courtyard surrounded by a protective wall. With a living area of around 100 m², a little over 1,000 sq ft, they have two bedrooms, a kitchen and bathroom. The important thing is that they have been built as permanent structures. Most houses in Djibouti are made of either wood or metal sheeting,” points out Karim Hamdan. In the wake of this project, other companies in the region decided to copy the Colas Djibouti initiative. Families received, at an official ceremony, the keys to their new homes, called C1, C2, C3, etc. (C for Colas). The new village was named Gargaar. In Somali, Gargaar means ‘aid’.

Access to drinking water is a major problem in Djibouti. The government has made tackling thirst one of its priorities. It is against this backdrop that during the construction of the Route RN1, a 40-km section of which crosses the desert, Colas Djibouti decided to contribute to the provision of water supplies to local and nomadic populations living close to the site. Tanker trucks were employed to make daily water deliveries throughout the drought period, using the 130-meter deep well dug by teams to meet the needs of the project. Barrels were also set up on the roadside, and two storage basins - 120 m³ and 150 m³ respectively – were built to allow livestock to drink. "The RN1 project is a perfect example of what can be done to improve the living conditions of surrounding populations," explains Karim Hamdan, Manager of Colas Djibouti. "This type of support is also a great way of forging a good relationship with these populations, who are then more willing to accept the construction work and the people involved in it." And finally, employees themselves are even prouder to belong to a company that backs this type of initiative.

Water for projects and people

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A TOUGH CLIMATE
The average rainfall in Djibouti amounts to around 178 mm per year, while average temperatures throughout the year range from 27 to 41°C (80-106°F). The effects of these tough climatic conditions are compounded by a low water table, which is inadequate to meet all the city’s needs. In Djibouti, water really is a precious commodity...

Gargaar: Colas Djibouti helps flood victims

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Helping single mothers regain their dignity

The situation single mothers find themselves in is particularly difficult in many countries. In Morocco, for example, Insaf (the national institute of solidarity for marginalized women), created in 1999, helps these women to keep their babies and rejoin society through work. Over the last few years, the foundations of Colas Moroccan subsidiaries have been providing Insaf with financial support. Young mothers are looked after by the association: they are housed in a dedicated hostel, given administrative and financial assistance, etc. But emancipation can only come through work. Since most of these women tend to be illiterate they are offered simple training programs in areas where there is a strong demand: catering, sewing, hairdressing, child care, etc. “Between two and three months’ training are enough for those taking part to find a job. The most important aspect of the whole process is that the women regain a little self-confidence and want to keep their baby,” explains Mériem Othmani, Insaf President. The association works closely with the women as they integrate back into their working and social lives. It helps them find daycare and a place to live and provides them with medicine and milk for their child. Everything is geared up to helping single mothers overcome their material difficulties and regain their dignity.

4,000
The number of single mothers helped by the Insaf association since it was founded in 1999. The majority have found a job.
On the edge of the Monts de Cristal national park is the Kingué quarry, operated by Colas Gabon since 2006. To protect this special environment, the subsidiary is working in partnership with the WCS (Wildlife Conservation Society): “Only one other country in the world has a greater surface area of protected land than Gabon. This initiative to protect the flora and fauna was made possible thanks to the WCS,” explains David Morin, Manager of Colas Gabon. However, a recent WCS report revealed an alarming situation in terms of the biodiversity of the Congo basin: destruction of habitats, protected species under threat, etc. “The biggest problem is poaching,” explains Martin Hega, WCS project manager.

Putting a stop to forest destruction

“Local people need to realize just how important it is to protect their forest. That’s why we’re conducting awareness-raising initiatives aimed at both schoolchildren and adults. We’re also trying to persuade companies to incorporate the legal ban on hunting into their internal regulations.” The Director General of the WCS, Joe Walston, believes that the involvement of Colas Gabon through this partnership is crucial given the number of people the subsidiary employs in the country: “The company plays a key role: it has a strong presence in rural environments and is helping to open up some remote areas. We’re working hand-in-hand to ensure that the initiatives undertaken are always appropriate and beneficial.”

An infirmary open to all

When Colas Gabon set up an infirmary near the Kingué quarry, it was primarily intended to treat employees and their families. “The most common problems we deal with are malaria, diarrhea and minor injuries, like bruises and sprains,” explains Annie Nziengu, a nurse with Colas Gabon (pictured below). “When I can’t treat them myself, I write an evacuation letter, signed by the quarry manager, so that the patient can be sent to the company’s doctor, based in Libreville.” Both doctor and nurse also have to deal with serious diseases, particularly Aids, which is rife in Gabon: “When employees come for a check-up, we ask them to take an HIV test,” explains Colas Gabon’s Doctor Alex Armand Makauaka. “The biggest problem we face is ignorance. That’s why we organize training courses.” But health and prevention don’t stop with the company’s employees. The infirmary and information meetings are open to all villagers: “We have a duty to treat and inform native populations. We must never forget that we’re guests in their country,” underlines the doctor. And, adds Annie Nziengu: “We never turn anyone away from the infirmary because health is a service to humanity.”
Planting trees to save the lemurs

The lemur is an emblem of Madagascar. Unfortunately, this mammal is under threat due to deforestation: every day on the island, five hectares of forest vanish. Since 2006, however, Colas Madagascar has been supporting the Lemurs’ Park initiative – a botanic park of 6,000 trees – where nine species of lemur can be observed in their natural environment. The company lends its trucks to the park so that trees characteristic of the island’s various regions can be transplanted there. Between 2007 and 2009, for example, some 800 trees were uprooted and transported more than 1,000 kilometers to be carefully replanted in the park. All this is done as quickly as possible to make sure that the ‘transplant’ works. By supporting Lemurs’ Park, Colas Madagascar is also helping to promote the research being carried out by naturalists working to recreate a biotope: new insects, chameleons and birds are being born in this protected habitat.

Lastly, awareness-raising programs focusing on the biodiversity of Madagascar are regularly organized for primary schools in the island’s capital, Antananarivo. And a comic illustrating the need to reduce deforestation and describing how trees are planted has been distributed to 5,000 children and 6,000 Colas Madagascar workers.

5,000 schoolchildren have already visited Lemurs’ Park. The aim is to include 35,000 children in the experience.

Aids: reaching and teaching

In 2006, Colas Madagascar organized a large-scale Aids awareness and HIV screening program for its employees. 1,500 people – one-third of the workforce – benefited from voluntary and completely anonymous HIV tests. This far-reaching program preceded the partnership signed in 2007 with the National Aids Control Commission (CNLS) and a local NGO (GTZ). As a result of this agreement, 2,500 employees were tested in 2008 and 7 doctors employed by Colas Madagascar were given training in caring for HIV-positive patients. Around 10% of staff also received training so that they could then raise awareness about the dangers of the virus among family, friends and colleagues. Employees testing positive are given confidential assistance and psychological support.
A brand new school, harder working kids...

The day’s date is up on the blackboard. Pupils are sitting quietly behind their wooden desks. Welcome to Gosso school (commune of Djougou), recently built and donated by Colas Benin. It wasn’t so long ago that children would regularly abandon the benches set up in a dilapidated shelter, particularly during the rainy season when the chances of getting soaked were high. Today, though, they are taught in three classrooms and an office has also been built for the school’s headmaster. “When you have a proper teaching and learning environment the effects on the pupils’ results are immediate,” enthuses headmaster Séïbou Dramane. The building of the school in Gosso isn’t an isolated case. For every project carried out by Colas Benin as part of its regular operations, the subsidiary also supports a social initiative. In this instance, the subsidiary decided to lend its assistance to a destitute school located alongside the Djougou-N’Dali road construction project, a 125-km route in the Northern-Central part of the country. “We focus on investing in the environment in which we work day to day,” explains Pascal Guidi, project manager. “I don’t think I’ve ever witnessed so many happy people in all my life! It fills me with immense satisfaction to be able to help tackle poverty in my own country.” The village chief sees the assistance as a “gift from heaven.” And the chief of Djougou, Moussa Akpna, asserts: “When they grow up, the children will never forget that their school was built by Colas Benin.”

60%
This is the percentage of illiterate adults in Benin. There are marked disparities between regions as well as between boys and girls. Generally speaking, fewer girls go to school.
With the support of Unesco, Colas Madagascar is rebuilding the Manjakamiadana or ‘Queen’s Palace’ in Antananarivo. This national symbol of Madagascar’s historic and cultural heritage was destroyed by fire in 1995. In addition to a substantial donation to top up funding for the project, the subsidiary has also been actively involved in training its local employees in the specific skills required for the restoration of historic monuments. The site also staged a spectacular event with the traveling pianist Marc Vella giving a concert for Colas Madagascar workers as part of a tour supported by Colas Indian Ocean.
Making sure production sites are accepted by local residents is a strategic priority as far as Colas is concerned. Their future depends on it. The fact is that local communities are often hostile to quarries, gravel pits, asphalt and emulsion plants, etc., fearing that these types of operations will be detrimental to their living environment. Against this background, subsidiaries are progressively committing to the implementation of an exemplary environmental management system at their production sites, covering everything from biodiversity to emissions, pollution and prevention. Likewise, they strive to promote and increase dialogue with local residents. In 2008, 50% of the Group’s revenue in the materials production sector was ISO 14001 certified and 23% had implemented a local dialogue system.
The Tállya quarry, operated by Colas Hungária, is involved in a national park project. Located right in the heart of the Tokaj wine region – a Unesco World Heritage site and part of the Natura 2000 network – the quarry manages its business in utmost compliance with environmental standards and has been awarded ISO 14001 certification. A constructive dialogue platform has been set up with those in charge of the national park project, as well as a partnership with the local bird protection league.
Making sure production sites — particularly quarries and gravel pits — are well accepted depends first and foremost on the quality of the dialogue that exists between operators and neighboring residents (individuals and local authorities). Regular, formally structured dialogue provides an opportunity to listen to the expectations of local stakeholders, explain exactly how the site operates and work together to find solutions acceptable to everyone. Ultimately, it leads to greater satisfaction and a better understanding on all sides. In North America, for example, as well as in France and many other countries, subsidiaries generally favor public meetings in order to preempt a potential crisis.

Defusing an inflammable situation
At Pleasant Lake, Michigan, Barrett’s gravel pit extension project initially aroused some strong reactions: local residents feared that it would lead to groundwater contamination. So the company set up a public meeting. “The dialogue with Barrett led to us getting more control wells,” enthuses Larry Liendemann, a city councilman. “Neighboring residents also wanted us to constantly monitor operations to make sure there was no impact on groundwater systems,” recalls Nelson Wesenberg, then Assistant Manager at Barrett Michigan.

Getting things moving with a conveyor
In Ohio, James Meckstroth, Regional Manager with Barrett Mid-Ohio, was faced with a different problem: local residents were fiercely opposed to a quarry where trucks had to drive back and forth across a road. “People were very upset. So the quarry manager came up with the idea of having the tube and conveyor set up above the road so that trucks wouldn’t have to cross. The idea was such a hit with the city council that our competitors were forced to adopt the same solution!” In California, conveyors are also seen as an ideal solution when it comes to environmental and road safety issues: “We process between 1.5 and 2 million metric tons of aggregates every year,” explains Russell Caruso, Manager of United Rock Products. “That involves a lot of coming and going of trucks between the quarry and the crusher. The conveyor belt system dramatically cuts the number of journeys that need to be made.”

Listening to local residents
Most of the time, a few simple measures are all it needs to stay on good terms between the company and its neighbors. In Ohio, for example, a local resident complained about blasting at a quarry operated by Barrett: “The company acknowledged that the blasts were too loud and they solved the problem by switching to a different service provider.” In Quebec (Canada), local residents in Saint-Jacques complained about the dust generated by a crusher operated by Sintra: “So we moved it right to the bottom of the quarry, thereby reducing both noise and dust, much to the delight of our neighbors,” explains Robert Boudreau, Regional Manager. More often than not, it takes only a few little adjustments to restore harmony between company and local residents…

CLOSE-UP
NO EXPENSE SPARED!
How do you avoid causing inconvenience to local residents and users when the access to a gravel pit is directly off a main highway? This was exactly the problem facing the Canadian subsidiary Works Alberta when it took over the Wapiti River site in Grande Prairie. So it opted to build a 180-meter long bridge (photo above). “We now have our own access to the gravel pit and no-one is being inconvenienced. This solution cost us and our partner 4 million dollars,” points out François Vachon, Operations Manager.
The La Croix-Gibat quarry, in Trégueux, Brittany, was threatened with closure when its operating permit ran out in 2007. Keen to continue operating the site, Hélary Granulats (Colas Centre-Ouest) decided to open negotiations with the city council and various associations. “We signed an agreement which required us to change some of our working methods, such as blasting for example. Our objective was to reduce noise pollution to a minimum, cutting the regulatory threshold limit for vibrations in two,” explains Dominique Billon, Hélary Granulats’ Manager. An active defender of the environment (water, air and ground protection, biodiversity, reforestation, etc.), Trégueux city council took some persuading. But, in the end, the quarry was kept open – saving its jobs – and the dialogue proved so positive that the council and the company took part together in the 2007 sustainable development awards, organized by the Brittany Region and Ademe (French Environment and Energy Management Agency).

La Croix-Gibat: the quarry lives on!

What sort of complaints do you have to deal with from local residents in your sector?
The most common complaints concern the transport of aggregates, dust and vibrations generated by blasting operations.

How do you go about setting up a dialogue?
We set up local consultation committees, to which all stakeholders are invited: elected officials, State representatives, local residents, environmental protection associations, etc.

And is there genuine dialogue?
Dialogue is possible provided that all parties are willing to listen and that there is a genuine discussion platform. It hasn’t always been the case and it isn’t always easy. We have to remain vigilant: transparency and empathy are the keys to success.

Can you give us an example of a success story?
In the Landes region in southwest France, a local resident complained about excessive truck traffic outside his house. We got together with him to agree a few adjustments and he has since become the spokesman for ‘satisfied’ neighbors.

You also organize open house days…
We try to invite as many people as possible to these events that take the form of buffets, workshops and games for children (photo above: open house at the Saint-Martin-d’Oney quarry). The aims are to take the mystery out of what we do and make people aware of how they benefit from quarries: in France, for example, the per capita requirement for aggregates is 7 metric tons every year. These open house days have always been useful because they make our guests realize just how hard we’re working to cause as little inconvenience as possible.
The former Laurons gravel pit in the Alpes-de-Haute-Provence region was reclaimed after it closed. The aim was to rebuild an ecosystem in harmony with the region’s natural heritage. A year on, nature has re-conquered this wetland area close to the Durance river: beavers, red-crested pochards, grebes, ospreys and kingfishers are just some of the species that have made it their home.
A shining example: Colas CZ’s asphalt plant in Bašnice has exemplary credentials when it comes to responsible development. “The ISO 14001 certified site is a genuine model of its kind, if only in terms of how clean it is. The whole area has been paved, eliminating the problem of dust clouds from the trucks,” explains Henri Molleron, Corporate Environment Director. “But in addition to that, the plant has been designed to preempt any problems that could be caused by leaks. A decanter-oil removal system is in place to prevent any potential contamination of the natural environment.” On the Bašnice site, protection of the environment is ‘top priority’. Sand, for example, is sheltered from bad weather, meaning that it no longer needs to be dried and thereby saving energy. Emissions are regularly monitored to make sure that readings are in line with the reduction targets set by the company. And to top it all off, the site operates an ambitious waste sorting and recycling policy. What’s more, all these good practices are shared by the subsidiary’s other units. In the Czech Republic, asphalt plants are coordinated in groups of three and regularly come together to share initiatives. “This type of field coordination is a way of sharing excellence and making sure plant managers feel less isolated; often, it’s a guarantee of success,” comments Henri Molleron.

Bašnice: a responsible site from A to Z

Czech Republic

Routes Special Issue on Responsible Development – September 2009
Tipco’s plant in Phitsanulok, northern Thailand, has been operating for more than fifteen years. With annual production figures for bitumen emulsion and modified bitumen totaling 24,000 metric tons, the plant’s approach to responsible development is a shining example for others to follow. Over the years, the company has set up a system of good practices covering cleanliness, safety (particularly fire prevention), environment (oil recycling, retention systems, waste sorting, etc.) and local integration (partnerships with schools, open house events, etc.). ISO 9001 certified (quality) since 1994, ISO 14001 certified (environment) since 2001 and ISO 18001 certified (health-safety) since 2002, the Phitsanulok plant has been given numerous awards by the Thai government.

Proactive management
The proactive policy implemented by the plant’s managers is particularly crucial since it is located in a flood zone, among paddy fields. In the past, it has had to deal with a waste storage basin overflowing onto surrounding crops: “We consulted the owners and helped with the clean-up operation. Fortunately, there was little damage and the rice crop was unaffected,” recalls Panu Jittrepol, Director of the Phitsanulok plant. Following this incident, we built a separation unit for oil and waste products, not only to prevent flooding but also to recycle and reuse them in our emulsion production.” Today, the plant can be qualified as a ‘green’ site, credentials that even extend to the grounds outside: fruit trees have been planted, much to the delight of the mango lovers working there! Significant improvements have also been made to tools and equipment: a gun to tighten nuts and bolts was developed to reduce cylinder noise and oil fumes; an innovative jack that slips under the wheels and truck maintenance accessories have been introduced to prevent back pain and reduce ground pollution caused by lubricants.

Tipco’s sites compete to outdo each other
While the Phitsanulok plant is a shining example, there’s no question of Tipco’s other production sites resting on their laurels. The subsidiary’s six emulsion plants throughout the country compete to outdo each other and share experiences to improve practices at each of them. Once a month, the managers get together – at a different site each time – to identify areas for improvement. Sites must therefore be clean and operate efficiently at all times with a common target in mind: even greater quality!
Innovation has been a priority at Colas since it was first founded in 1929. The company's responsible development philosophy, built on the principle of continual improvement, together with global issues surrounding sustainable development are the driving force behind its research efforts in areas such as safety, silence and environmental protection. Today, throughout the Group's different businesses, R&D teams are focusing on the creation and development of products and techniques that will make it possible to save both materials and energy as well as reduce greenhouse gas emissions: plant-based binder and bio-fluxes, eco-design road marking products, warm mixes and low-temperature mastic asphalt, cold in-place recycling, photovoltaic and green roofing solutions, etc.
To be ahead of its time and to win bids: this is the dual objective driving research and development at Colas. The world’s leading private research center in the road building sector, the Group’s Campus for Science and Techniques in Magny-les-Hameaux, near Paris, employs 75 people. Engineers and technicians work on new road product ideas designed to meet the needs of the future. Colas’ R&D teams have long since eliminated toxic ingredients from products and techniques that may be harmful to users. But in addition to this, boosted by the constant drive to make roads safer and quieter, today all R&D work incorporates environmental considerations: “We’re focusing particularly on plant-based products, using renewable materials which, during their development life cycle, generate fewer greenhouse gas emissions and require less energy,” explains Michel Chappat, Group Research and Development Manager. All non petroleum-based liquid green binders meet this objective. The significant progress made in the field of bitumen substitutes hasn’t stopped teams focusing on the composition of bitumen itself and the results are extremely promising: “We’re now capable of making all our emulsions without additives, whatever the bitumen. These are less sensitive to ageing and have excellent mechanical properties. They are also less acid and hence less aggressive towards equipment and the environment. As a result, they’re also more cost-effective,” points out Michel Chappat.

Inventiveness right across the board

Pioneers need to constantly make sure they have new products up their sleeves, ready to launch onto the market at any time. By the start of 2010, the Campus for Science and Techniques will have launched a road risk detection system: “The development of vehicles fitted with increasingly sophisticated technology got us thinking. Integrated systems exist that are capable of detecting the risk of black ice as soon as the outside temperature drops below three degrees Celsius. But in five cases out of six, there are none! So we intend to present a number of energy-autonomous prototypes that inform the user of risks of this type, but in a more reliable and original way,” announces Michel Chappat. The Campus is also due to launch a system for assessing road surface ageing aimed at highway network management companies. Until now, it has been necessary to take samples under traffic, or test the road surface at a reduced speed to determine its condition; in the future, a truck travelling at high speed (80 km/h) with two laser eyes will be able to assess the structural condition of most road surfaces.

Researchers are also proving just how inventive they are when it comes to ‘intelligent’ road markings. New night-vision wet weather road markings are currently being fine-tuned, for example.

All these examples provide ample demonstration that Colas’ Campus for Science and Techniques is by no means short of ideas to keep a step ahead of market demand: since 2005, more than 200 innovative projects have been examined.
How can we encourage customers to choose the most environmentally-friendly road solutions? By offering them eco-friendly alternative technical solutions, thanks to the comparative tool developed by the Group’s Campus for Science and Techniques (CST): EcologicieL®. This tool can be used to calculate the energy consumption and greenhouse gas emissions associated with the various available options. “In 2002, we carried out a study dubbed ‘The ecological road of the future’, with fixed entry parameters. It was the first time these types of issues had been examined in relation to roads in France. Following the study, more and more of our co-workers came to us seeking tailored results for their customers. It was in 2006 that the Campus came up with a new tool for that very purpose, “ explains Jean-Luc Gautier, Manager of the CST’s Expertise and Documentation Center.

Today, more than 400 employees have access to EcologicieL® enabling them to provide customers with a basic study and two alternatives, with parameters adapted to their specific requirements: course thickness, composition of materials, modes of transport, etc.

Helping to change mentalities
“In most cases, customers always focus on cost. So we have our work cut out to persuade them to go for the more expensive, albeit more environmentally-friendly option. The example of low-temperature 3E® mixes is a perfect illustration: initially, this technique was more expensive and as a result it was slow to take off. But the higher price due to the additives needed for the process to work is partially or entirely offset by savings in fuel costs because little heating is required, meaning that it can be used on a wider basis.” EcologicieL® is helping to change the way people think. Its use is already required on some bids. Other eco-comparative tools using the same principle and the same base figures are in the pipeline – the USIRF (French Public Works and Road Contractors Union), the IRF (International Road Federation) and some government departments are all developing their own versions. There are numerous advantages associated with EcologicieL® including precedence, practicality and transparency. What’s more, it is adapted to the Group’s products. The software, set to be officially recognized by a critical analysis conducted by an outside party, has already won over some of the Group’s non-road subsidiaries: Aximum (signaling), Colas Rail (railways) and Spac (pipes) (see below) have all adapted the tool to their businesses.

15,000
15,000 metric tons of CO₂ equivalent were saved in 2008 as a result of the choices made by customers using EcologicieL® (40,000 tons were offered in eco-alternative form).

EcoCana: Spac jumps on the bandwagon!

EcoCana is a version of EcologicieL®, adapted by Spac to calculate greenhouse gas emissions associated with the laying of underground pipes. “We try to find the most environmentally-friendly solution for the project and specifications in question,” explains Michel Thomas, Spac’s Technical Manager. Would it be better to create an open trench with an excavator or to opt instead for a solution using a micro tunnel boring machine? What should we choose for the equivalent performance: steel, cast-iron, concrete or PVC pipes? Should we backfill using materials from surrounding quarries or reuse the materials found on site? Spac has been using EcoCana for more than six months and some customers now request it: “As long as the price range is reasonable, the customer will opt for the most environmentally-friendly solution. If the price difference is too great, however, economic considerations still prevail,” explains Michel Thomas. For the time being, this software is used for projects requiring specific techniques or with a contract value in excess of 200,000 Euros.
Among the ‘green’ products developed at the Group’s Campus for Science and Techniques, there are two kings of the road: Vegecol® and Vegeflux®.

**Vegecol®**: a revolutionary binder
Vegecol®, a plant-based binder containing neither petrochemical derivatives nor bitumen, can be used in numerous road and construction applications as a substitute for bitumen. Its technical performance and other inherent advantages compare favorably with bitumen, but Vegecol® is produced exclusively from renewable agricultural resources. Tested for the first time in 2002, Vegecol®-based mixes have better mechanical properties than asphalt mixes. Requiring lower manufacturing and application temperatures – 40°C lower than conventional mixes – the product leads to significant savings in terms of energy and the environment, in particular reduced greenhouse gas emissions. Vegecol® even acts as a veritable carbon sink. What’s more, the product’s transparency means that natural aggregates can be highlighted. On the other hand, any color can be added for a specific look.

**Vegeflux®**: an environmental feat
An alternative to petroleum-derived fluxing agents, Vegeflux® is a bio-flux agent for cold techniques. This plant-based product is fully biodegradable. Used in the same way as a standard fluxing agent in the manufacture of spraying binders and coating binders, Vegeflux® offers a number of advantages. Unlike conventional fluxing agents, it doesn’t evaporate and doesn’t give off VOCs (volatile organic compounds). It also improves some bitumen properties. In 2006, within the context of an Innovation Charter contract, we tested this plant-based bio-flux in the Manche area of northern France, explains Eric Godard, Technical Manager with Colas Ile-de-France-Normandie. “The feedback was very positive so we extended the trials throughout the entire county. In total, Vegeflux® was used to apply some 700,000 m² of surfacing last year in Normandy.” In addition to cutting the quantities of fluxing agent employed by 50%, the use of Vegeflux® led to energy savings of 5,400 gigajoules and prevented 160 metric tons of CO₂ from being emitted into the atmosphere, i.e., the amount produced on average by 60 light vehicles per year. Quite an environmental feat!

500,000
The number of m² of Vegecol®-based mixes applied every year by subsidiaries in France. They are also being used elsewhere in the world (Switzerland, United Kingdom, Hungary, etc.).
3E = Environmentally-friendly, Energy Efficient. A genuine alternative to conventional mixes, 3E® asphalt mixes (or warm mixes) are the result of innovative mixing processes developed by Colas’ Campus for Science and Techniques and used in construction projects in France (see photo: RN88 in Lozère) and abroad. Follow-up analyses carried out on a variety of sections have shown that these mixes perform just as well as traditional hot mixes. What’s more, they are associated with improved durability since the binder undergoes little ageing during the manufacturing process. So what’s the secret? The principle involves applying asphalt mixes (precise proportions of aggregate and bitumen mixed at high temperatures at the plant) at a temperature 40°C lower than the usual temperature. Ultimately, the technique generates energy savings and reduces greenhouse gas emissions to the tune of around 20%. R&D teams have developed two processes: with 3E® LT, the binder is modified using additives prior to mixing with the aggregates. 3E® DB consists in designing a sequential coating process using two selected binders. Whichever process is chosen, 3E® asphalt concrete’s excellent handling capacity ensures easy application and compaction. The temperature reduction has no effect on handling capacity, mechanical performance or skid-resistance.

For the renovation of Anfa Boulevard in Casablanca, one of the city’s busiest streets, a low-temperature mastic asphalt was applied to the sidewalk. Teams from Smac (the Group’s waterproofing subsidiary) and Urbis Signalétique (a Colas subsidiary based in Morocco) spent two years developing this latest generation mastic asphalt. Normally, mastic asphalt is applied to sidewalks at temperatures of between 200°C and 240°C. In this case, however, the application temperature was just 170°C. A technological success for this 7,000 m² project, completed in just 17 days.
Recycling asphalt mix is a win-win deal: non-renewable raw materials are reused, greenhouse gas emissions are reduced and money is saved. But the idea hasn’t yet caught on everywhere. The United States and Belgium are way ahead of the pack with a RAP (reclaimed asphalt pavement) rate in new mixes close to 20%. France is lagging behind, with just 3%; the target for 2010 is 10%. “When it comes to recycling asphalt mixes, France has a lot of ground to make up in comparison with other developed countries due to foot-dragging as far as changing technical standards is concerned. We’re beginning to catch up a little, but the biggest challenge often lies in persuading our customers,” notes Henri Molleron, Corporate Environment Director. To help achieve the objectives set, a progress charter has been signed with the French Ministry for Ecology, Energy, Sustainable Development and Town and Country Planning.

On the other hand, France is far quicker off the mark when it comes to the production of recycled gravel-sand mixes. For example, French subsidiaries are recycling waste and debris from the construction sector and other industries as well (slag, melting sands, mining waste, glass mirror waste, cables, tires, wood, etc.). Sereg Ile-de-France/Normandie’s Ecosol® process even makes it possible to process dirt fill. In the same vein, Colas Rhône-Alpes takes the bottom ash from household waste incineration plants in Greater Lyon and reuses it. In total, the Group’s recycling efforts in France and abroad represent in excess of 10 million metric tons of construction materials, equivalent to annual production from 32 average-sized quarries.

SWITZERLAND: 100% RECYCLED ASPHALT MIX
Valorcol® is the revolutionary cold mix developed by Colas Switzerland. It is, in fact, 100% RAP (reclaimed asphalt pavement)! The innovative cold technique leads to energy savings of 50% and a 40% reduction in greenhouse gas emissions. A performance that has earned the product a number of awards: Valorcol® received a certificate of excellence in the ‘Eco-awareness’ category in Lausanne as well as a Cantonal first prize for sustainable development in Geneva in 2008. The product was used in the reconstruction of the National Highways Maintenance Center in Bursins, on the A1 Lausanne-Geneva highway and for the construction of a new section of Highway A16 (see photo above).

FRANCE: PICHETA SORTS IT OUT
Picheta, a subsidiary of Colas Ile-de-France/Normandie, developed the Eco-Tri® concept to handle debris generated by small construction companies: waste (cardboard, wood, rubble, green waste, worn tires, etc.) is sent there for sorting and processing. Concrete, for example, is crushed for general use and sold on-site, either in bulk or in smaller quantities. Picheta also handles certain products containing asbestos: these products are transported in patented sealed containers to an approved Picheta landfill site.
Green roofing: a fine innovation

The new waste incineration center in Issy-les-Moulineaux, in the suburbs of Paris, blends perfectly into the landscape. And it has to be said that the 8,000 m² of green roofing fitted by Smac has a lot to do with it. In both the public and private sectors, there is now such a demand for these types of solutions that the subsidiary installed 150,000 m² of planted roofs in 2008. "Over the last five years, the market has soared: the surface area installed has been doubling every two years," says Jean-Pierre Dean, Smac’s Technical Manager. Not only do green roofing solutions make towns and cities more attractive, they also help create a healthier environment. They improve air quality, sink CO₂ and control rainwater runoff into sewer systems. "Our technology makes it possible to capture storm water so that the runoff can be staggered over the period of a day or more, which is very important in the south of France. Some local urban development plans in France even make the installation of green roofing solutions compulsory," explains the technical manager. There are numerous other benefits associated with the system: it prolongs the service life of the roof and improves the building’s sound insulation and thermal inertia. Heat penetrates the building far more slowly, thereby reducing the need to use air conditioning.

TECFLOR®: A FLAGSHIP PRODUCT

Tecflor® is a light-weight, low plant maintenance extensive green roofing solution. It consists of several layers that include the base structure, a waterproof root-barrier system, water-retention reservoirs, a substrate and, to top it all, water-retaining succulent plants. With Ecoflor®, the economy version of Tecflor®, porous aggregates replace the water reservoirs.

Photovoltaic technology: yes to positive energy!

Unlimited. The sun continues to be one of the most important sources of renewable energy available to us. Photovoltaic technology allows us to exploit it. "It's a clean and local energy source: it doesn't produce CO₂ and requires no transport. As far as we're concerned, it's a complementary activity that's essential in the context of sustainable development," says Philippe Bouniard, Photovoltaic Development Manager with Smac. The subsidiary has focused its research on solar roof panels and developed two systems: Surfa 5®, which harmoniously covers the roof, and Surfa 5 Solar®, which makes it possible to incorporate crystalline silicon solar panels on shallow-sloping roofs. Smac also worked with EDF-EN to develop Excelflex Solar®, a photovoltaic bituminous membrane. "This technology doesn't require strong sunlight. When the weather is cloudy, the membranes produce more electricity than the panels, making it an ideal solution in northern France," points out Philippe Bouniard. With this type of technological headway, Smac is contributing to the development of positive energy buildings, i.e., buildings that produce more energy than they consume. An example of this can be found at the Solere renewable and environmental energy solutions hub, a group of offices located in Saint-Priest, France. "The hub’s designers focused on the passive contribution of the sun in wintertime, via a large atrium window, on insulation — the most effective possible — and a geothermal heating system. The photovoltaic panels will supply 170,000 kW/h per year and save the equivalent of 56 metric tons of CO₂," concludes Philippe Bouniard.

12 GW/h

This is the annual energy production of the photovoltaic solutions provided by Smac to date. That equates to the annual electricity consumption (excluding heating and hot water production) of around 4,000 French households.
A GREAT SCIENTIFIC PROJECT
Réspoly Chrysor is working on the Greencoat project in partnership with SEG Diélectrique, the Bordeaux Laboratory of Organic Polymer Chemistry and the Montpellier Laboratory of Engineering and Macromolecular Architecture. They submitted the project to the French national research agency (ANR) in 2008 and as a result were awarded funding to the tune of more than one million Euros: a first for the Colas Group.

Everyone remembers the catastrophic Mont-Blanc tunnel fire that killed 39 people. Soon the fear of this type of accident could be a thing of the past thanks to a pioneering smoke control system developed by Colas Rail. The Group’s rail subsidiary has installed the new system in Marseille, on line 1 of the city’s subway as well as line 68 of the tramway. The principle is a simple one: the idea is to trap the smoke against the ceiling by controlling the speed of the air current and using exhaust shafts which allow air to be filtered at train level. Passengers are able to evacuate the scene without being overcome by toxic gases and with a clear view of emergency exits. Thereafter the firefighters are able to approach and confine the fire, taking advantage of the faster air flow. This highly sophisticated safety system far exceeds the requirements of railway regulations: “Today, if a fire breaks out in a subway train, the smoke is vented from one side or another, as stipulated by the regulations. With our new system, the smoke is contained and aspirated” explains Benoît Houseaux, electro-mechanical project manager.