



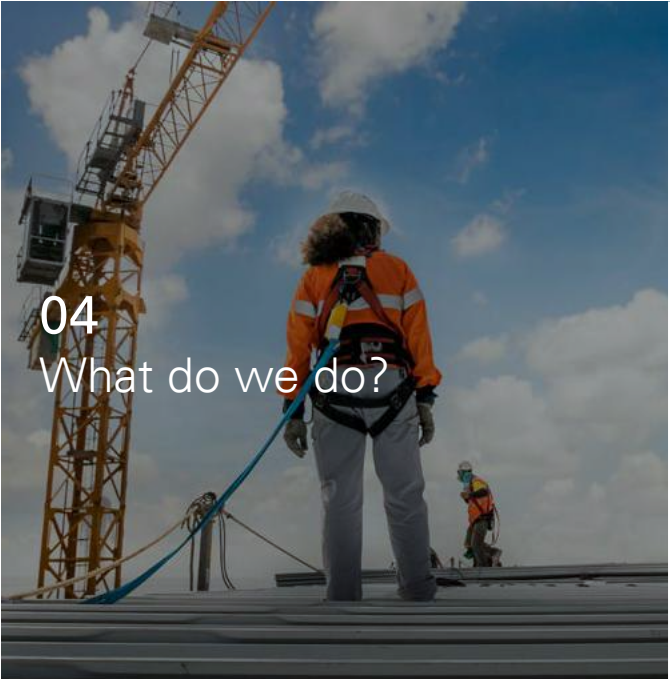
# Roads & Highways services

On the road to success


SAFER  
GREENER  
SMARTER

SGS





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What do we do?



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How do we do it?



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Project management areas



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Environment



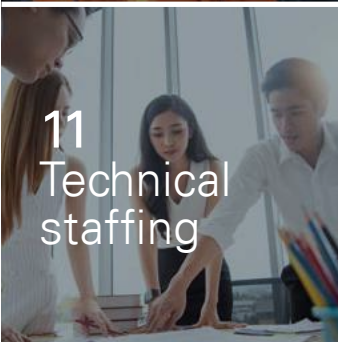
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Project and construction management



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**We are the world's leading testing, inspection and certification company.**

SGS is recognized as the **global benchmark** for sustainability, quality and integrity.

Our 98,000 employees operate a network of 2,650 offices and laboratories around the globe, working together to enable a better, safer and more interconnected world.

With experts worldwide, we provide specialized solutions to make your business safer, simpler, no matter where you are.

**Discover our Road and Highways services today.**





# Sustainability is at the core of SGS

We use our scale and expertise to enable a more responsible, balanced and sustainable future.

As sustainability leaders, we are committed to promoting best-in-class practices in our sector and beyond. And we are committed to the achievement of the UN Sustainable Development Goals.

## Recognitions



Supporting the following







We provide you with the most complete portfolio of monitoring, supervision, inspection, testing and auditing services in the industry.

## What do we do?

Wherever you are, whatever your needs, our experts worldwide provide specialized solutions at every stage in the process, for every road or highway project. We help you ensure construction excellence, guarantee health and safety, and meet your sustainability goals.

When you need to be sure.

### OUR SOLUTIONS:



Protect the **health and safety** of construction workers and end-users



**Enhance sustainability** and contribute to a circular economy



Ensure **asset performance** throughout the lifecycle



**Embrace digital transformation** throughout the construction process



# Highlights

> 50 years'  
experience

> 60 countries

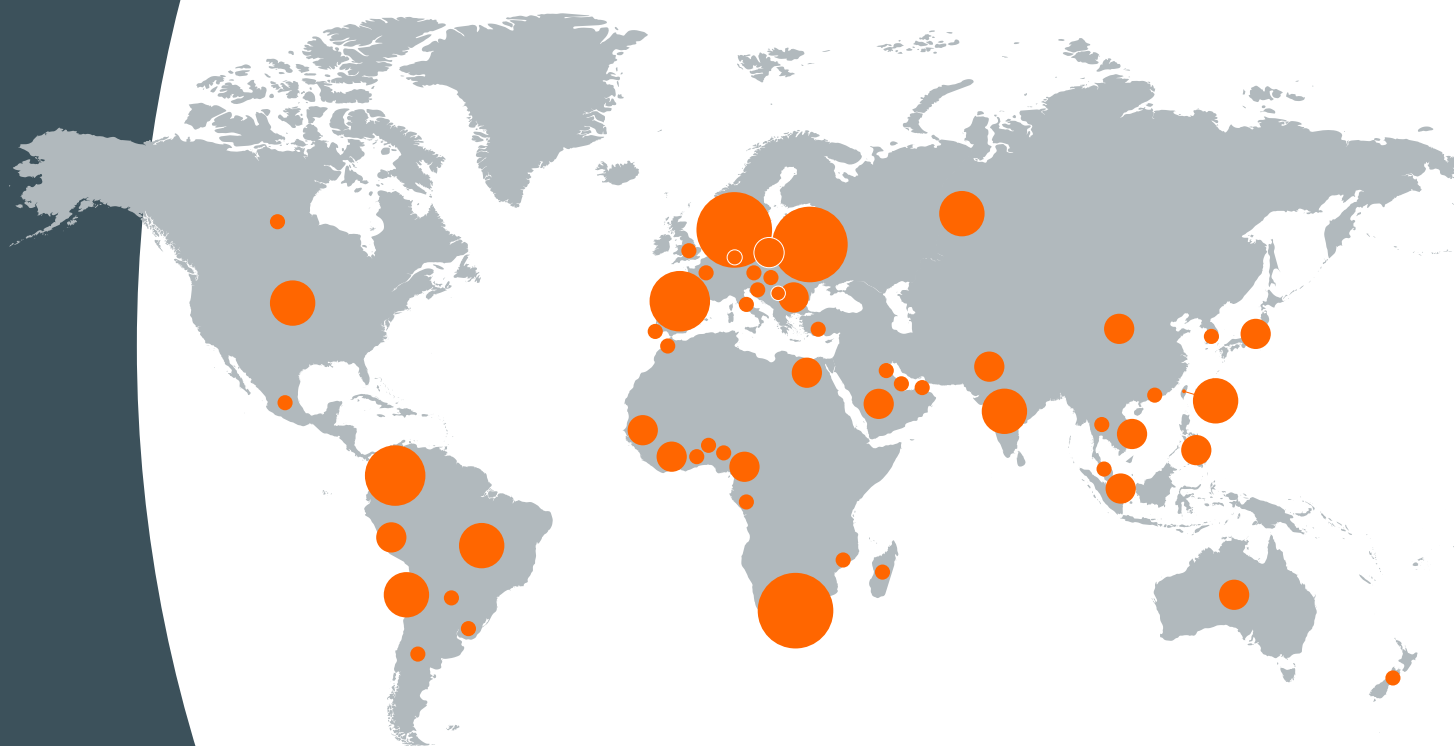
> 10,000 km  
roadways

> 250 clients

> \$25B value\*

\*accumulated construction projects value

The map below represents our global reach and local annual revenue, experience, capabilities, and technical resources in the Roads & Highways sector.

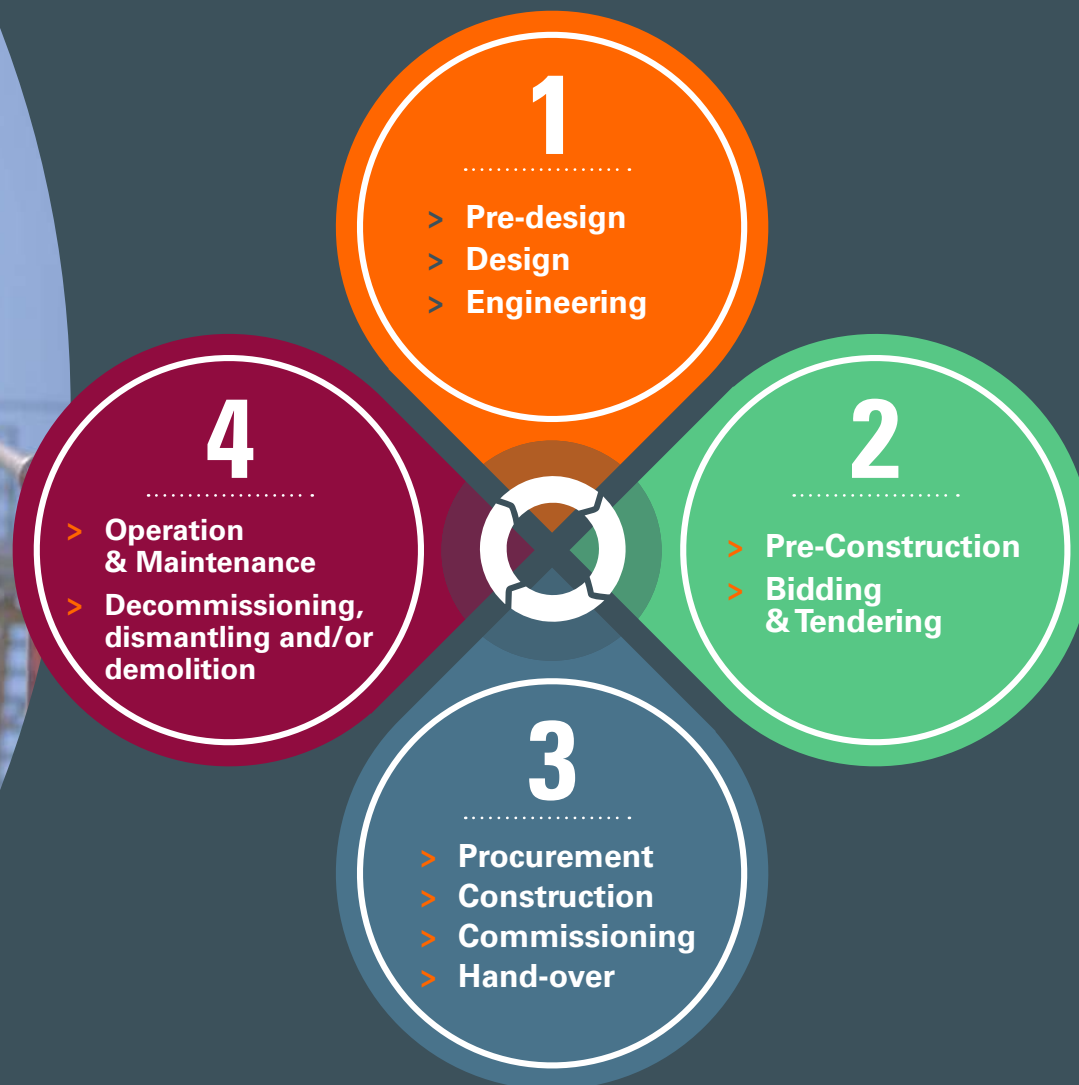


Find out more from our featured projects [here >](#)



# How do we do it?

We offer solutions for all stages in your **project's lifecycle**...







# ...across every project management area



## Environment

By collecting and analyzing soil, air, water, and waste samples, we guarantee that your operations will not have a negative impact on the environment. Our services ensure compliance with the corresponding construction regulations, thus upholding environmental, health, and safety standards.

[EXPLORE MORE >](#)



## Project and construction management

We ensure that the implementation risks you face over a project lifecycle are properly identified, addressed, and controlled. We help you manage safety, cost, and timely delivery.

[EXPLORE MORE >](#)



## Quality assurance

We support you with your inspection, testing and certification obligations while on site, as well as the evaluation, verification and qualification of your supply chain or shipment logistics.

[EXPLORE MORE >](#)



## Health and Safety

We also offer a combination of sampling and monitoring, inspection, testing, and risk assessment services to protect people's safety and safeguard their health.

[EXPLORE MORE >](#)



## Technical staffing

To support you with recruitment, outsourcing and headhunting activities, providing technical assistance on payroll and global mobility solutions.

[EXPLORE MORE >](#)



## SERVICES

### AUDITING & COMPLIANCE

- GHG emission verification
- Carbon and water footprint – greenfield projects
- EHS performance and compliance audits
- Energy consumption saving audits
- Environmental site assessment
- Waste management, reduction & disposal
- Environmental product declarations
- Environmental permitting and follow-up
- Sustainability reports

### FIELD SAMPLING SERVICES & MONITORING

- Environmental noise and vibration
- Water (surface water, groundwater)
- Ambient air (gases, particulate matter)
- Biodiversity studies
- Soil and sediments
- Emission testing from mobile sources

### ENVIRONMENTAL LABORATORY ANALYSIS & DATA MANAGEMENT (both stationary & mobile)

- Soil and sediments
- Air
- Water
- Waste

# Environment



CASE STUDY > BENIN



CASE STUDY > COLOMBIA





## SERVICES

### PROJECT PLANNING

- Design review
- Detailed project report
- Topography & ground utility mapping surveys
- Network survey vehicle

### TENDER SUPPORT

- Preparation of tender documents
- Evaluation and preparation of tender specifications
- Technical assistance during the tender process
- Support in contract negotiation

### PROJECT/CONSTRUCTION SUPERVISION

- Quality management & control
- EHS management
- Independent engineer
- Supervision of project/construction deliverables, including audits
- Project & resource management planning
- Cost & schedule supervision and optimization
- Coordination/Assurance of processes during construction

### PROJECT COMMISSIONING & HANDING-OVER

- As built review and reporting
- Commissioning & final tests procedure approval
- Project handing over

### OPERATION & MAINTENANCE SUPERVISION (O&M)

- Plans and supervision of tasks
- Control of the concessionaire's performance:
  - > KPIs: funding, quality, asphalt material
- Geographic information system management services

### BUILDING INFORMATION MODELLING (BIM)

- Certification
- Training
- Auditing & compliance supervision



# Project and construction management



CASE STUDY > BRAZIL



CASE STUDY > SENEGAL



CASE STUDY > SLOVAKIA



CASE STUDY > COLOMBIA



# Quality assurance



CASE STUDY > S-KOREA



CASE STUDY > S-AFRICA

## SERVICES

### STATUTORY & VOLUNTARY INSPECTIONS

- Machinery certification (new/old)
- Quality management and control
  - > Materials and products inspections
  - > Crane and hoisting & lifting equipment inspections
  - > Mechanical & electrical installations and fire safety inspection

### LABORATORY ANALYSIS & DATA MANAGEMENT (both stationary & mobile)

- Geotechnical testing
- Construction material testing:
  - > Concrete, soils, gravels, aggregates, asphalt mixes, cement, bitumen, bricks, chemical
  - > Others: steel, rubber, paints, membranes, polymers, lubricants, metals

### NON-DESTRUCTIVE TESTING (NDT)

- Civil: concrete, rebars, pavement, paint, signals, coating
- Mechanical: cranes, steel structures

### STRUCTURAL HEALTH MONITORING (SHM)

- SHM Consultancy:
  - > Bridges, roads, tunnels, underpasses, flyovers
- Real-time monitoring services, including supply and installation of IoT devices:
  - > Cracks, vibration, displacement, stress, temperature
- Pavement condition surveys
- Geotechnical field investigation services

### THIRD-PARTY VERIFICATION

- Supplier evaluation and qualification
- Inspection & Supervision at Manufacturer, during transportation and at site
- Pre-shipment inspections
- Progress monitoring / expediting





## SERVICES

### OCCUPATIONAL SAFETY & INDUSTRIAL HYGIENE

- Evaluation and control of workplace conditions and risks:
  - > Sampling, Testing, Risk assessments
- Multiple hazards identification and monitoring:
  - > Physical (noise, ergonomics, lighting, heat stress, vibrations...)
  - > Chemical (metals, volatile compounds...)
  - > Biological (legionella...)
- Building contaminants (including asbestos fibres):
  - > Bulk sample collection, surveys and inventories, assistance during removal

### HEALTH & SAFETY MANAGEMENT

- Analysis & identification of legal requirements
- Advice for compliance with corresponding regulations
- Qualified staffing provision and outsourcing
- Management systems audits (e.g. ISO 45001)

### CONSTRUCTION SAFETY

- H&S Coordinator (only EU's countries)
- Preparation of specific H&S documents:
  - > H&S Plans, safety procedures, risk assessments
- Specific training in H&S of employees and work teams
- Coordination and supervision of H&S matters during project lifecycle

### INDUSTRIAL SAFETY

- Machinery safety, accident investigation
- Statutory & voluntary inspection, testing and certification
- Equipment certification: PED, CPR, MD, CE Marking

### EMERGENCY RESPONSE (ER)

- Safety Data Sheet preparation
- ER planning, preparation and review of ER procedures
- 24/7/365 service (ERS levels 1-2-3)
- Accident investigation and intervention

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# Health and Safety



CASE STUDY > SPAIN



CASE STUDY > CZECH REP.



# Technical staffing



## SERVICES

### PLACEMENT OF SPECIALIZED PERSONNEL

- Engineering, Project & Construction Management, EHSQ, Project controls

### PERMANENT RECRUITMENT (HEAD-HUNTING)

- Market review & analysis, incl. salary survey
- Direct company / candidate targeting:
- Research and shortlisting of candidates
- In-depth screening & interviewing / tests
- Offer negotiation support

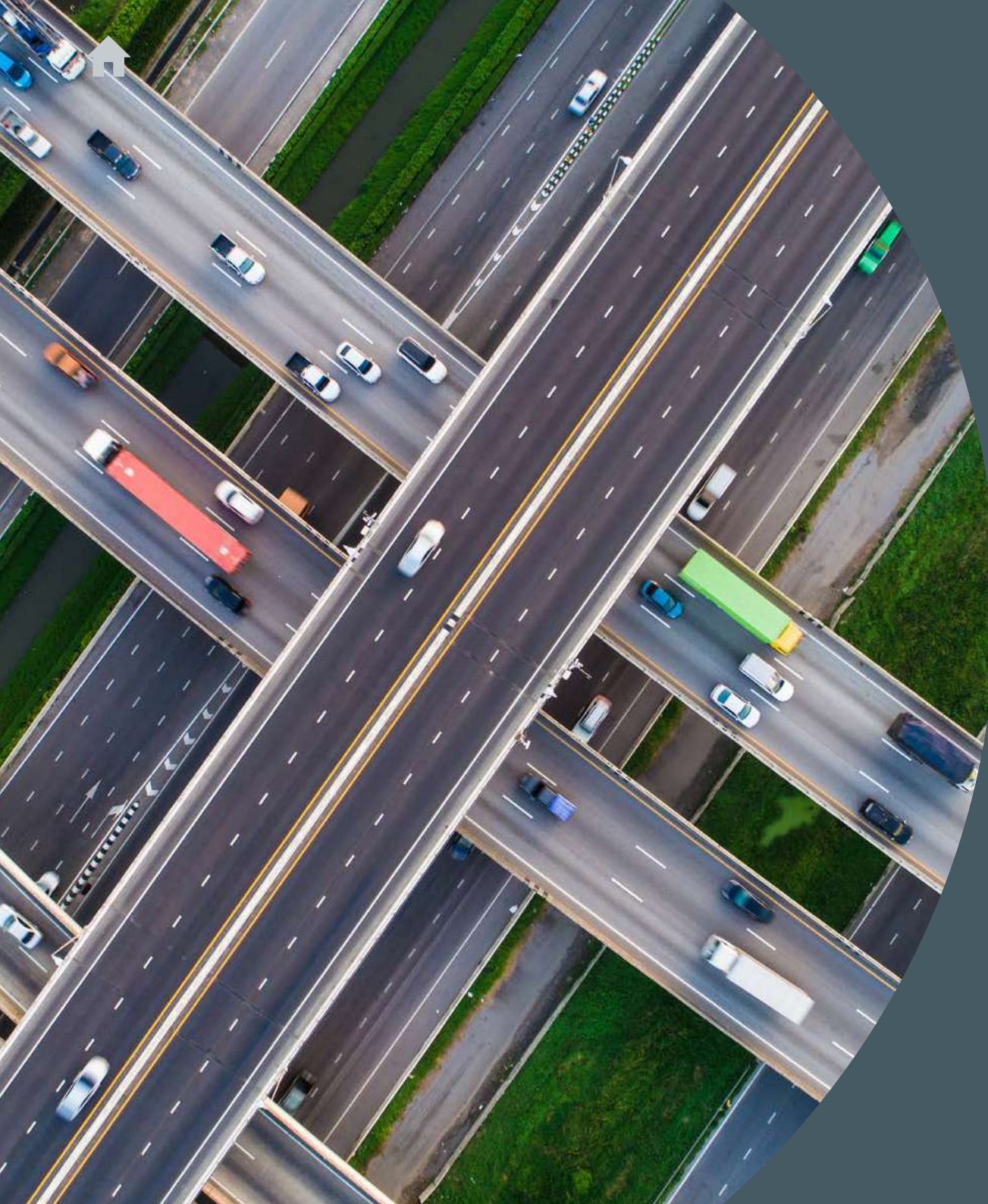
### CONTRACT RECRUITMENT (STAFF OUTSOURCING)

- Market review & analysis
- Workforce planning support
- Global talent pooling (forecasted needs)
- Local & International sourcing
- Mass recruitment
- Interviewing and job offer management
- Transition/Type of existing personnel
- Contract compliance with local legislations
- On-boarding coordination & HSE inductions
- Contractor care & performance monitoring

### GLOBAL MOBILITY SOLUTIONS

- Global mobilization of workforce:
  - > Flights, work permits, visas, transportation, meet & greet, accommodation
  - > Market leading health & travel insurances
- Local & international payroll solutions





# Featured projects

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# Reducing traffic and improving logistics in Cotonou

September - November 2022 | Benin | Banca Engineering



## DESCRIPTION

The Vedoko roundabout is found in the expanding city of Cotonou, the largest city in Benin. Although not the official capital, the government is seated here, and the city provides air, sea, river, and land trade routes with its neighbours.

This roundabout is part of the Abidjan-Lagos corridor project and contributes to the improvement of logistics and infrastructure in Cotonou. This massive transnational road project (approx. 965 km) aims to reform the economic structure of the region by connecting the most economically developed cities on the coast of southern West Africa.

## PROJECT KEY FEATURES

- Construct an 810m long flyover on RNIE 1 national highway, 2 lanes, in both directions East-West
- Upgrade the roundabout to an intersection with signals.

## SERVICES

- Environmental baseline survey for:
  - > Ambient dust (total suspended particulate, PM2.5, PM10)
  - > Noise
  - > Vibration
  - > Emission and effluent testing
- 2 water sampling and testing locations (T, pH, SS, DO, BOD, COD, TDS, TP, TN, Nitrate, Ammonia, Nitrite, Oil, Grease, Escherichia coli bacteria, Mercury, Cadmium, Lead, Chrome VI, Fluoride, Phenol, Arsenic, Selenium, Copper, Zinc and Turbidity)
- 6 air quality sampling locations (CO, NOx, SOx, PM10, and PM2.5)
- 8 noise survey sampling locations

## HIGHLIGHTED SERVICES



Field sampling services & monitoring





# Saving time and increasing efficiency in Córdoba

March 2017 – Feb 2018 | Colombia | Autopistas de la Sabana S.A.A



Source: ANLA



## DESCRIPTION

The Córdoba-Sucre Road project is a public initiative that forms part of the Colombian Government 3rd generation program (3G) and is made up of eight road sections. In total, it has a built length of 25.31 km of single carriageway, 98.40 km of dual carriageway and 264.11 km of rehabilitation, reaching to a total length of 387.82 km

The construction of the second carriageway between Sincelejo and Toluviéjo not only saves 25 minutes of travel time but is also an alternative for traffic coming from Antioquia to quickly connect with the coastal area of Sucre, characterised by its tourism and popular gastronomy.

## PROJECT KEY FEATURES

- Total road length 18km (80km/h)
- Dual carriageway (2 x 1,8+3.6+0.3), including a variable central divider (1.5m-7m wide)
- 1 toll station (La Esperanza)
- 5 bridges

## SERVICES

- Environmental monitoring of:
  - > 3 air quality sampling locations (CO, NOx, SO2, O3, PM10)
  - > 19 noise survey sampling locations (day/night)
  - > 10 water sampling and testing locations (DO, pH, EC, T, BOD5, COD, SS, TDS, TSS, turbidity, total coliforms, faecal coliforms, NKT, NO2, NO3, NH3, alkalinity, hardness, SO4, chlorides, TP, OP, iron / Hydrobiological testing: benthos, periphyton, macrophytes, plankton, zooplankton, ichthyofauna)

## HIGHLIGHTED SERVICES



Field sampling services & monitoring



# Improving the road network in São Paulo

March 2012-15 | Brazil | DERSA - Desenvolvimento Rodoviário, S.A.



Source: FUTURE MOTION



Source: SIKA



Source: TAMOIOS

## DESCRIPTION

The Nova Tamoios Planalto highway serves the municipalities of São José dos Campos, Jacareí, Jambeiro and Paraibuna. The objective of this project was to improve the road network to guarantee greater fluidity and capacity.

This segment passes through rugged terrain and takes a sinuous route with steep slopes in several segments, hence restricting visibility, impairing safety and making it difficult to implement U-turns and at-grade intersections. The new road dual-section adopted provided essential gains in safety and traffic flow.

## PROJECT KEY FEATURES

- Class 1-A dual carriageway (80km/h) with a total length of 49.5km
- Undulating terrain
- Two new bridges (154m and 250m, respectively) and a viaduct (220m)
- New flexible pavement (172,420m<sup>3</sup>) and double simple-concrete rigid barrier (49,200m).

## SERVICES

- Operationalize planning, inspection, and control procedures, with the standardization of formulation, format, placement and recording of information
- Analysis and approval of project technical documentation
- Coordination of Works and Socio-environmental performance
- Preparation of technical-economic, institutional, and financial feasibility studies
- Support in Supervision and Inspection services for projects and works, acquisitions, and services
- Creation, implementation and operation of a monitoring and evaluation plan for the project program

## HIGHLIGHTED SERVICES



Project/Construction Supervision



Health & Safety Management





## CASE STUDY

## PROJECT AND CONSTRUCTION MANAGEMENT



# Rehabilitating national roads and building a bridge in Senegal

October 2012 - May 2015 | Senegal | MCA Senegal



Source: Millenium Challenge Corporation

I&E



### DESCRIPTION

As part of the integrated development programs in the northern and southern areas of Senegal, the Government of Senegal and the Millenium Challenge Corporation decided to rehabilitate 120km of the RN2 from Richard Toll to Ndoum and to build the Ndoum Bridge.

This project was part of the Roads Rehabilitation Project program, and the aim was to contribute, among other things, to reducing travel time, improving the quality of the road network and improving access to regional and sub-regional markets in the North Zone of Senegal.

### PROJECT KEY FEATURES

- Rehabilitation of the RN2 national highway, with an approximate total length of 120km
- Construction of the 160ml Ndoum bridge, including access ramps connecting the Ndoum bridge to the RN 2 (about 750ml) and the regional road n°40 (550ml)



### SERVICES

- SGS project team consisted of 20 technicians, from senior engineers and technical experts to specialized supervisors and H&S coordinators
- Control and supervision of works, including administrative and financial checks, and the preparation of periodic reports
- Quality Control
- Development of the Quality Assurance Plan (QAP) and Environmental and Social Management Plan (ESMP)
- Control of environmental, health, hygiene, and safety aspects

### HIGHLIGHTED SERVICES



Project/Construction Supervision



Health & Safety Management



## CASE STUDY

## PROJECT AND CONSTRUCTION MANAGEMENT



# Building new motorways in northern Slovakia

July 2016 - 2021 | Slovakia | Národná Dialničná Spoločnosť



Source: ŽILINA



Source: ŽILINA



Source: ŽILINA

### DESCRIPTION

Construction of a new stretch of dual-carriage motorway, approximately 13.5 km in length and running past Lietavská Lúčka, Višnové and Dubná Skala in the Žilina region (Žilinský kraj) of northern Slovakia, an important industrial area. The section forms part of the D1 highway, the main highway in Slovakia and the longest and busiest in the country.

### PROJECT KEY FEATURES

- Total Length 13,430m of newly built highway (D26, 5/100)
- Tunnel Višnové: 7,516m (twin-tube tunnel)
- Ventilation and exploration gallery for tunnel draining
- 18 retaining walls (approx. 3km)
- 2 noise protection barriers
- 10 bridges and 5 viaducts (2.5km)

### SERVICES

- SGS project team consisted of 43 technicians, from senior engineers to specialized technicians
- Construction site supervision (under FIDIC Conditions – Yellow book)
- Project management, including cost control and time management
- Inspection of construction site
- Project documentation supervision and controlling
- Quality control
- Geotechnical Supervision
- Bridges and tunnel supervision

### HIGHLIGHTED SERVICES



Project/Construction Supervision



Statutory & Voluntary inspections





## CASE STUDY

## PROJECT AND CONSTRUCTION MANAGEMENT



# Over 1,000 km of roadway in Valle del Cauca

May 2012 - 2017 | Colombia | ANI – Agencia Nacional de Infraestructura



Source: Pavimentos Colombia



Source: Noticias de Colombia



Source: Pavimentos Colombia

### DESCRIPTION

Known for its sugar industry, the region of Valle del Cauca provides sugar to the rest of Colombia and nearby countries. The area also has a thriving paper and cement industry. The port at Buenaventura is Colombia's main port on the Pacific coast, allowing for the import and export of goods, and is important for the local and national economy.

An extensive undertaking, the aim of this project was to build, rehabilitate, improve, and maintain over 1,000 km of roadway, in order to enable safer and more effective transport for local industry and ease of movement for inhabitants of the region.

### PROJECT KEY FEATURES

- The overall project layout was divided into 7 operational stretches
- 236 km of new roads, improvement of 321 km and maintenance of 557 km of roadway including:
  - > 91 vehicular bridges
  - > 54 pedestrian bridges
  - > 29 major at-grade intersections
  - > 23 overpass intersections
- 8 toll stations across the road network

### SERVICES

- Administrative management, including legal and financial activities
- Technical management, measuring, testing, and evaluating procedures
- Environmental management including impact studies, management plans and waste disposal
- Ensuring compliance with social and cultural aspects to minimise and mitigate the impact on the local and indigenous communities
- The design and implementation of a system to identify and forecast risks, and take appropriate action

### HIGHLIGHTED SERVICES



Project/Construction Supervision



Operation & Maintenance Supervision



## CASE STUDY

## QUALITY ASSURANCE



# Marine bridge pavement reconstruction in Incheon

July - October 2018 | South Korea | Incheon Bridge Co., Ltd.



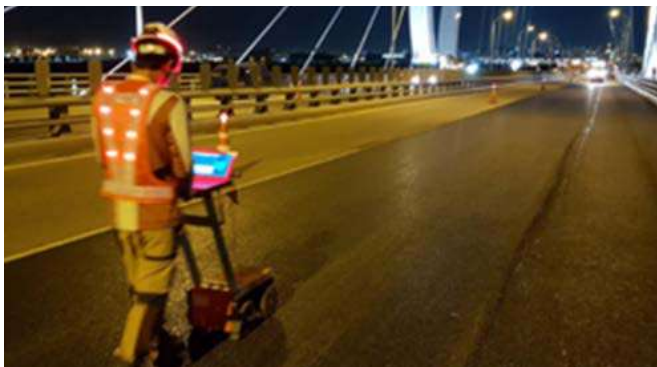
## DESCRIPTION

Incheon is South Korea's third largest city. An expanding coastal metropolis close to the country's capital, the city is a major industrial port, and a domestic and international transport hub for Korea.

The objective of this project was to ensure material quality control and construction inspection services during the pavement re-construction of the large marine Incheon bridge with the goal of improving vehicle driving conditions.

## PROJECT KEY FEATURES

- Steel cable stayed bridge (18.38km)
- Cable-stayed bridge span length: 800m
- Pavement area: 5,152 m<sup>2</sup>
- Pavement type: PSMA (Polymer Stone-Mastic Asphalt) Overlay
- Waterproof layer: Guss asphalt
- Compaction method: Roller compacting (Tandem & Macadam Roller)



## SERVICES

- Temperature control of bituminous mixtures
- Pavements & Bridges & Vehicle driving safety through IRI test (evaluating road flatness)
- Quality Control of used materials for the project (asphalt, filler, aggregates)
- Inspection for the whole re-pavement work process

## HIGHLIGHTED SERVICES



Industrial safety



CMT laboratory analysis



Statutory & Voluntary inspections





# Upgrades and reparations on the N4 toll road

January 2022 – July 2023 | South Africa | TRAC – Trans African Concession



## DESCRIPTION

This project aimed to upgrade and repair the National route N4: a toll road and the major artery linking Gauteng with the east coast of South Africa and the Mozambique border. It forms the South African section of the Trans-Kalahari Corridor linking the east and west coasts of Southern Africa.

As the economic hub of South Africa, Gauteng is the smallest province, but has over 12 million inhabitants and plays an important role in the financial, manufacturing, transport, technology, and telecommunications sectors of the country. Improving the roadways was essential. Part of this road is concrete and therefore took more skill than the norm.



Source: Wallich Residence

## PROJECT KEY FEATURES

- 6.9 KM Road patched using concrete and asphalt
- 1 bridge rehabilitated
- Culverts cleaned and errors corrected
- Testing 15,000 m<sup>2</sup> road layers, 20,000m<sup>2</sup> concrete and 15,000m<sup>2</sup> asphalt layers.

## SERVICES

- Testing of all materials on site to ISO 17025 (aggregate, concrete and soil)
- A dedicated laboratory was established on site to the client's specifications

## HIGHLIGHTED SERVICES



CMT laboratory analysis



## CASE STUDY

## HEALTH AND SAFETY



# The Three Bridges Tunnel in Catalonia

November 2017 – January 2023 | Spain | GENCAT  
– Infraestructures de la Generalitat de Catalunya, SAU



Source: Sunroad



### DESCRIPTION

This project aims to improve the C-14 road on the Organyà-Montañ de Tost section by widening the existing road and constructing a new tunnel through the Tres Ponts gorge, from its entrance at the Grado de Escalas to near the river Lavansa and linking up with the existing Montañ de Tost tunnel, which is set to be widened too.

With this new infrastructure, crossing the entire gorge with speed and safety will be possible in a matter of minutes by avoiding passing through a particularly winding route. Furthermore, it represents a new milestone in the history of communications between the villages in the area.

### PROJECT KEY FEATURES

- Total road length 3.32km
- Road widened from 7m to 10m (1,5+3,5+3,5+1,5)
- New tunnel section with a total length of 1.3km (12.6m wide, 7.9m high)
- Earthworks: 154,000m<sup>3</sup>

### SERVICES

- Review of health and safety plans based on experience, expertise, and specific examples
- Initial meetings to establish work methodology, reporting and monitoring
- Weekly monitoring and coordination on-site of safety, status, and planning
- Monthly meetings to identify areas of improvement, actions, timing and stakeholders

### HIGHLIGHTED SERVICES



Industrial safety



Construction Safety





# Crossroads, bridges, and health and safety in East Bohemia

July 2018 - October 2021 | Czech Republic | Reditelství Silnic a Dálnic CR



Source: Sunroad



## DESCRIPTION

The D35 Motorway between Casy and Ostrov will divert traffic from the I/35 road between Holice and Zámorsk. The need for this project is clear from the load on the Hradec Králové – Holice – Vysoké Mýto I/35 road, which is currently near the limit in terms of capacity, traffic and resident safety, and environmental impact.

The project allows for economic development in the local regions, which together have more than a million inhabitants. The road will divert long-haul traffic away from urban areas, shorten journey times, increase safety, eliminate congestion, and cut operating costs.

When completed, the D35 (28.35km in total) will be an important artery for domestic and international traffic connecting the D1/D47 motorway with the D11, and will connect the north of the Czech Republic with Germany, Poland, and Slovakia.

## PROJECT KEY FEATURES

- The entire length of D35 is a part of the TEN-T (Trans-European Transport Network)
- Total length 14,70km of newly built highway (D26/130)
- Road surface area: 323,000m<sup>2</sup>
- 22 bridges (total length 1,40km)
- 1 viaduct (451m) over the Loučná valley

- 3 off-grade crossings
- 4 noise barriers (total length of 5,46km)

## SERVICES

- Provision of a team of 15 supervisor experts from health and safety and geo-technicians to road, bridge and electrical specialists
- Construction site supervision (under FIDIC Conditions)
- Project management, including cost control and time management
- Inspection of construction site
- Project documentation supervision and controlling
- Quality control
- Geotechnical Supervision
- Bridges supervision

## HIGHLIGHTED SERVICES



Construction Safety



Statutory & Voluntary inspections



Project/Construction Supervision

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