

# Portugal: where the world will meet



Twenty years ago Portugal was bottom of the European league in terms of roads and safety, but since then a series of ambitious plans has seen the country rise to the top. *Patrick Smith* reports on how this was achieved

**Brisa holds the largest road concession granted by the Portuguese government**

**B** few hundred metres from the mighty River Tagus, in the older part of Lisbon, are the palatial, historic town offices of Mário Lino. On our way to meet the Portuguese Minister for Public Works and Communications we pass the river's two great crossings, the 17km long road Vasco de Gama Bridge and the 2.3km road/rail 25 de Abril Bridge, nearer the mouth of the river (at its widest it is almost 20km). The milestone structures link the capital city on the west with the increasingly popular and expensive municipalities to the east.

Passing through the area, covered with designer shops and fine restaurants, work is also going on to rehabilitate its fine old houses, which when completed, must resemble as near as possible the original.

"The container port is here, and the river has to be dredged every day so that the ships can dock safely," observes Ricardo Oliveira, president of COBA, one of Portugal's largest consulting engineering companies, which was founded in 1962.

"Our company has been involved in the development of our motorways from the beginning, and the country's successes here have been in the quality of the roads we have built and the reduction in the number of road accidents and deaths," says Oliveira, who is also president of CRP (Portuguese Road Centre), an independent association that brings together the know-how and expertise of individuals, private companies, public and state-run institutions, for raising the competitiveness of the road sector in Portugal.

He is also one of the people (there are many) helping to organise the 16th International Road Federation (IRF) World Meeting ([www.irf2010.com](http://www.irf2010.com)) to be held in Lisbon next year from 25-28 May when the overall theme will be Sharing the Road.

Along with many other topics, Portugal's two decades of achievements are sure to be highlighted, including its now impressive road safety record. Luxembourg, France and Portugal, already the top three for their progress up to 2007, keep their leading positions with "outstanding" reductions in fatalities of 49%, 48% and 47% respectively up to 2008, according to the European Transport Safety Council (ETSC). Around 39,000 people were killed in road collisions in 2008 in the 27 EU nations, a drop of 15,400 from 2001.

This is in stark contrast to 1985 when Portugal had one of the worst road systems in Europe, and to go with it possibly the worst safety record. Not any more (see panel).

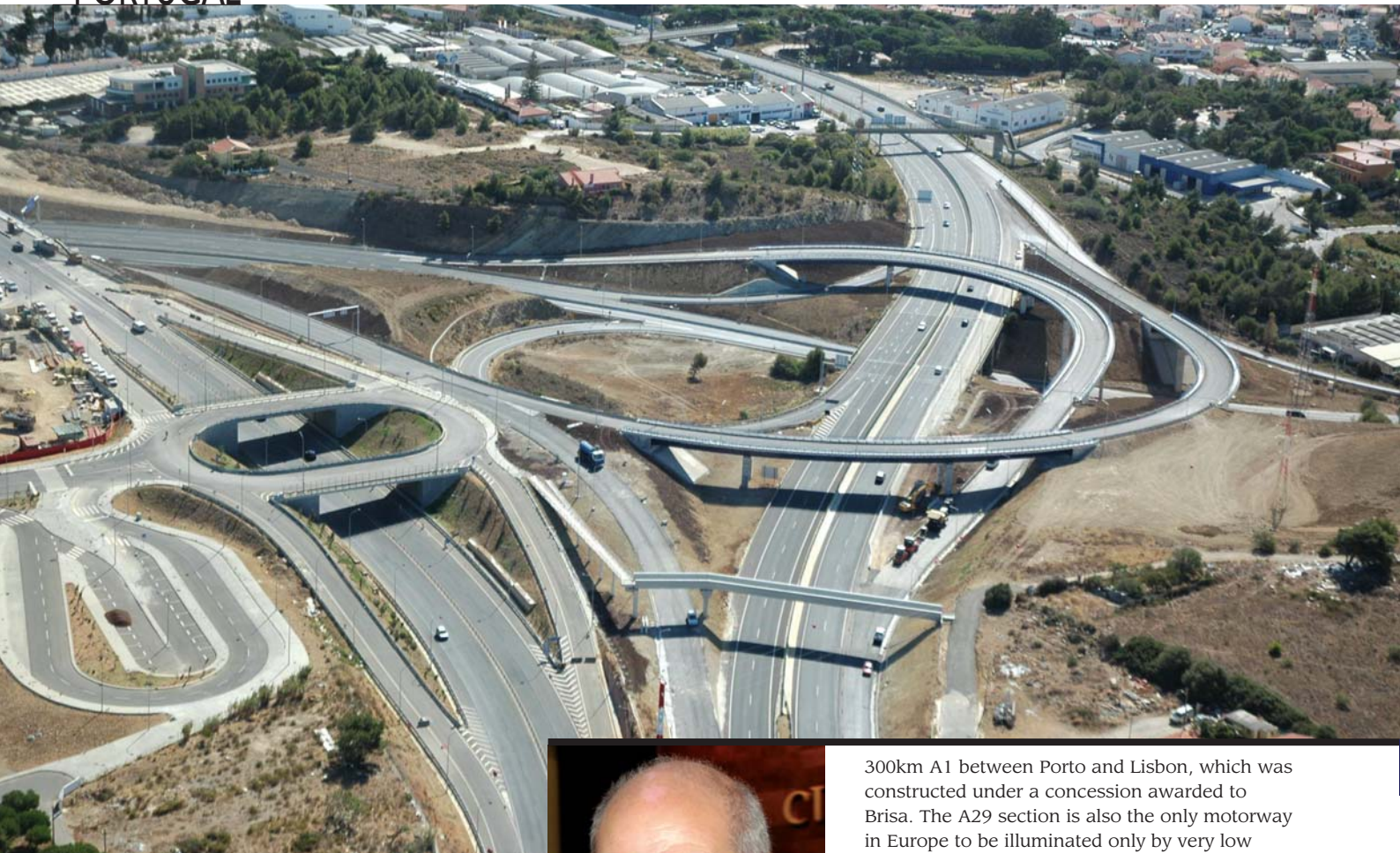
The sun-soaked nation of over ten million people living in 92,000km<sup>2</sup>, and bordered by Spain, now has one of the finest highway systems in the world and one of the best safety records.

This is the culmination of a series of national plans, which have seen huge roadbuilding programmes and a successful concession programme involving companies such as the largest Brisa (at one time state owned), and the second biggest Ascendi (until recently Aenor), a partnership of construction group Mota-Engil and the bank Grupo Espirito Santo, which has just opened Lisbon's 23km long, €256 million A16 motorway, relieving traffic congestion on the IC19 and A5 routes and serving some 640,000 inhabitants from Cascais and Sintra municipalities to the west of the city. It is part of the Grande Lisboa Concession, under which Ascendi is also liable for five years for the operation and maintenance of 66km of roads (IC19, Eixo Norte-Sul and CRIL) under a shadow toll system.

Fontes de Carvalho, the company's CEO, said the group has now has over 850km of motorways in Portugal in various concessions (North, Silver Coast, Beiras Coast and Alta, Greater Oporto, Greater Lisbon and Inland Douro) with its first route opening in 1999.

It, like other concessionaires, is also looking





► for concessions under a new sub-concession scheme introduced following a roads authorities' shake-up (see panel).

Gonçalo Moura Martins, chairman of Mota-Engil Concessões, said: "This is a very important concession because it is integrating a very urban population near Lisbon. For our group (Ascendi) it is the first concession in the south of the country."

Add to all this an aggressive national road safety policy that has proved so successful that European Union guidelines to reduce road deaths by half by 2010 were reached years early. Work has already started on a new programme aimed at even greater improvements in driver and traffic regulations, and further reductions, while the new sub-concession offers successful operations the opportunity to build new routes, but they must also maintain some existing roads.

It was to discuss the safety improvements that my trip to Portugal was originally planned, but such is the pride with which the country views its success in the transport field that many of the leading orchestrators offered to discuss its overall achievements, including Minister Lino, who had recently flown in from Portugal's second city, Porto, in the north. Later he was back in the city to open a new route, meaning that Lisbon and Porto are now connected by two motorways. The last stretch of the Silver Coast motorway, the new €50 million, 13km stretch of the A29 between Estarreja and Angeja, connects with the A25 (Aveiro/Vilar Formoso), the A17 (Marinha Grande/Aveiro) and the A8 (Lisbon/Leiria) to complete the alternative connection to the



“Transport infrastructure is very important for Portugal because we are a peripheral country in Europe and we want to be properly linked to Europe”  
*Mário Lino*

300km A1 between Porto and Lisbon, which was constructed under a concession awarded to Brisa. The A29 section is also the only motorway in Europe to be illuminated only by very low energy consumption LED.

"Our National Road Plan [NRP] in 1985 was approved in our Parliament by all the parties, and in the NRP of 2000 the same thing happened without opposition. There was a very large consensus," says the Minister.

"In 1985 we joined the European Union, and that put a new impetus on us to build roads. We had money from the EU and we wanted to make good projects to be approved by the EU that included special environmental requirements. We had 11,400km of main roads as part of the national network. This meant 35% of our national roads had been built."

Indeed, after joining the EU, Portugal received some €6.7 billion (third behind Spain and Italy) and this attracted many major companies looking to work on the country's infrastructure, so much so that in one year Ricardo Oliveira received many offers from international concerns to either buy COBA in part or in full.

The cash allowed Portugal to build infrastructure, and as the Minister pointed out: "Between 1985 and 2000 we built 2,000km of new roads for the national network, and this represented 50% of our NRP. Since 2005 we have built over 2,000km of roads, and we have raised our NRP from 50% to 62% and we have put in another 2,360km of concessions involving the private sector: these are new roads."

Out of 3,600km of main national roads (IP+IC), some 1,500km of motorways/high-capacity routes are financed under public-private partnership (PPP) agreements and are tolled either using shadow tolls (these are being phased out) or real tolls, and plans are in hand to make routes multi free-flow electronic toll



collection (ETC) lanes.

Portugal has got a national road network of 16,500km, and the municipalities have their own road networks totalling 90,000km (they are responsible for the investments, maintenance and upgrading of the roads not included in the NRP), and more recent plans for the country include the government's decision to build Lisbon's new international airport on the southern bank of the Tagus, and a new road/rail bridge between Chelas e o Barreiro, which will be the third crossing of the Tagus.

Although the process of an NRP was started in 1978, it was not until 1985 that a new classified National Road Network came up with a hierarchical structure to meet the needs of existing and projected traffic demand. This consisted of major roads (IP=2,600km), complementary roads (IC=3,500km) and other roads (5,300km) totaling some 11,400km.

In 1985, approval of a new NRP combined with the funds from the EU, allowed the rapid implementation of an ambitious construction programme for building a new road network (IP and IC), and from 1985 to 2000 (when a reviewed NRP was introduced), 2,000km of roads were

built, half of them motorways.

The socio-economic development following joining the EU, led to the revision of the NRP in 1998, and among its objectives were the definition of a national network of 3,300km of motorways; the integration of 5,000km of regional roads; development of a programme of construction of bypass roads; the implementation of road safety audits, and installation of information systems and traffic management.

The National Road Network has a total length of about 16,500 of which 3,300km are motorways.

From 1999-2008, the major goal was the construction of the motorways network, and some 1,300km were constructed in order to complete routes Valença-Castro Marim; Peniche-Castelo Branco; Lisbon-Caia and Viana do Castelo-Vila Real, as well as Apulia-Braga, and Lisbon-Cascais along with others including the Radial de Sintra.

To achieve this level of implementation an ambitious concessions programme was developed using PPPs (Brisa was the first concessionaire in 1972, and the PPP that followed was awarded in 1994 for the Vasco de Gama Bridge, which was built by the private consortium Lusoponte).

Brisa is the company that holds the largest road concession granted by the Portuguese government, and it constructs, maintains, and operates the country's main network of tolled expressways. Its 1,100km highway network encompasses a major north-south expressway along the Atlantic coast, a circle of roads around Lisbon, and a highway that reaches east from Lisbon to the Spanish border.

Founded in 1972 when it was granted a 30-year concession by the government to design, build, manage and maintain express motorways (220km by 1985), Brisa was nationalised in 1975 and privatised in 1997, and is one of the companies that have played a key role in bringing Portugal's once-neglected transportation infrastructure up to date.

Dr Vasco de Mello, chairman, said: "Basically, Brisa was almost a state company with very limited participation from private investors from 1985 to 1997. However, with the framework that was presented by the National Road Plan, Brisa has been one of the driving forces behind the development of the sector.

"We have grown from a company with a network of 150km of motorways to one with some 1,100km [it has 1,682km of concessions in Portugal and is a controlling shareholder of CCR in Brazil, with another 1,846 km], and we introduced new standards of construction quality, not only in design but in terms of materials used, taking into account the needs for future maintenance in view of the increase in traffic."

In 1991, the company trialled the innovative Via Verde (green lane) electronic toll collection system in Lisbon and this was introduced all toll booths in 1995.

"We have 2.2 million people using our Via Verde tags, representing a penetration ratio of more than 62%, and this is the highest level of toll automation at a national scale worldwide.

## Portugal's new-look road concessionaire

**FOLLOWING A** government decision, a new model for the management and financing of the road infrastructures sector was defined in 2007 and is now being implemented.

The national road agency (Estradas de Portugal or EP, EPE) was transformed into a state-owned public company, Estradas de Portugal, SA (EP, SA), and a new body, the Institute for Road Infrastructures (InIR), was created with public functions of regulation and supervision of road infrastructures.

InIR is now the Portuguese national road authority, and aims to ensure greater transparency and cautioning in the relationship between the EP, SA and the state.

EP, SA is just like a public limited company (plc), but the single shareholder is the Portuguese Republic, while InIR's main mission is to oversee the management and operation of the road network; to check the application of laws and regulations, the concession

and sub-concession contracts, always having in mind the need to ensure the implementation of the National Road Plan, as well as ensure the efficiency, equity, quality and safety of the road infrastructures.

EP, SA is now a concessionary company, focused on the conception, design, construction, financing, maintenance, operation, upgrading and enlargement of the national road network, under a 75-year concession contract between it and the state.

Almerindo Marques, EP, SA president, said that under the new model, EP, SA is the only concessionaire.

"Now we have to complete the National Road Plan because it is missing about 2,000km and this new sub-concessions programme includes 2,200km of roads and of these 1,000km are new roads. A large part of these sub-concessions are roads that are already built. They will be included in the sub-concession as operate and maintain."

The company will rely on

PPPs (sub-concessions) for the development of key projects.

At InIR, João Sousa Marques, vice president, admitted that negotiations with concessionaires to transfer contracts from the state to the EP, SA had not always been completely successful.

"We have under our supervision 16 concessions both old and new. It must be difficult to move from one good contract with the state to one with a private company," he said.

"We have a contract to complete the road network by 2012. When this is done about 95% of all traffic will be running on the network."

In a nutshell, and by the end of my visit to Portugal, I could well understand what CRP executive vice president António Pinelo told me on arrival: "I am confident that after our meetings with stakeholders you will realise why Portugal was selected as the venue for the 16th IRF (International Road Federation) World Meeting".



“ We have grown from a company with a network of 150km of motorways to one with some 1,100km”  
*Dr Vasco de Mello, chairman of Brisa*

► Along with this we have developed a state-of-the-art traffic management centre at our head office in Lisbon [it overlooks the A5 which runs 40km to the coast] from where we control and coordinate operations for the whole network," said Dr Vasco de Mello.

"Brisa has always promoted the partnership model and has actively participated in all the Portuguese tenders for tolled highways. We are also participating in a diversification project: the high-speed train link, which will run from Poceirão, near Lisbon, to Caia on the Spanish border and then on to the capital Madrid."

Now, seven sub-concessions have been drawn up with an investment of around €7 billion for work on some 2,200km of the road network: 1,000km are for new infrastructure (40% with tolls). More recently, Estradas de Portugal (EP, SA) received instructions from the government to prepare the launch of four additional sub-concessions up to the end of the first half of next year for about 800km (320km of new roads).

Professor João Bento, president of the Portuguese Association of Concessioned Tolled Motorways (APCAP) and executive director at Brisa, said his association is now seen as the representative of the sector by the government and all the relevant stakeholders.

"We have three technical committees on pricing and tolling; road safety and the environment and ITS/road telematics. Every time there is a need to promote a public policy or we want to react to a forthcoming law or, simply, want to exchange best practices, we tend to do it within these committees," said Professor João Bento.

Outlining the efforts relating with the furthering of technology usage in road operations by Brisa - as a example of what Portugal has been able to perform in recent years - namely around the company's innovative control centre, he said it controls Brisa's entire network using 550 CCTV cameras, 200 variable message signs, 40 weather stations, 1000 call boxes and 90 road

assistance vehicles (indeed, there are 15,000 devices permanently active 24x7), from a single site.

"We have about 260 events each day requiring dedicated management, and although many are not serious accidents, everything is recorded in our system and all the response plans are triggered from there: road assistance, works, accidents, incidents - we manage 1,500km from a single room."

Between 1985-2008, some 3,600km of new roads, of which 2,700km have a motorway profile, have been constructed, and the density of motorways increased from 2-30km/1,000km<sup>2</sup> and from 2km/million inhabitants to 271km/million inhabitants: of the 18 district capitals, only three (Bragança, Portalegre and Beja) are not yet served by motorway.

Minister Lino added: "Transport infrastructure is very important for Portugal because we are a peripheral country in Europe and we want to be properly linked to Europe. We must have good highways, airports, roads and ports to facilitate the movement of people and goods.

"Portugal is one of the main ports into Europe with traffic coming from North and South America and Africa. We can play an important role in the world transport system." ■



Brisa is one of the companies that have played a key role in bringing Portugal's once-neglected transportation infrastructure up to date



# United by the same goal on safety

The Portuguese experience with road safety has proved that planning, development, introduction, and hard work do pay off in the end

**PAULO MARQUES** Augusto, president of the National Road Safety Authority (ANSR), explained that in the last ten years a decrease of over 50% has been achieved in the number of fatalities on the road network despite a continuing growth in traffic demand (there are five million vehicles in Portugal), and a similar reduction in travel time on most of the connections between Lisbon and the district capitals.

Paulo Marques Augusto said: "Our previous experience shows us that the promotion of actions with regard to the improvement of road safety levels has to apply on the three pillars: the vehicle, the infrastructure and the human being.

"Our first National Road Safety Plan aimed at achieving the EU White Paper goal of reducing fatalities by 50% by 2010. We reached this in 2005-6 with a 51% decrease followed by a 59% reduction in serious injuries in 2007, and we then needed a new plan to further reduce accidents. This was set up during the period of the first plan."

Indeed, to mark its success, last year the European Transport Safety Council presented Minister Mário Lino with the 2nd PIN Award for the country's outstanding progress in road safety.

The Minister said: "The Portuguese government is proud of this PIN Award result, yet it did not come about by chance. It is the outcome of a serious and coordinated effort between several players, united by the same goal: to save lives on Portuguese roads. This positive result only provides a stronger incentive to the Portuguese government to work harder."

The Trans-European Road Network in Portugal is 2,800km long (17% of the national road network and about 95% of the

main IP network), and statistics show that during the 25 years up to 2000, Portugal was always the country with highest road casualties in the [original] 15 EU member states. In 1995, Portugal was still the country with highest fatality figures: 105% above the EU 25 average.

However, the trend changed by 2000 the figure had decreased to 60% above the average; in 2005 the difference was reduced to 30%, and in 2006 Portugal was only 6% above the EU 25 average figures concerning road fatalities per million inhabitants.

Although traffic increased 4 times between 1985 and 2005, during the same period the number of fatalities was reduced by 50%.

"Therefore, our experience shows that it is possible to increase traffic and at the same time reduce road fatalities," said Paulo Marques Augusto. So what has changed in the last decades in Portugal?

The road network has had a major impact with huge improvements since 1995, especially due to the new roads that were built, and the introduction of new layouts has resulted in safer and more comfortable roads.

Urban areas have also required the attention of the municipalities and the appliance of traffic calming measures was, and still is, necessary to reduce speed and to keep pedestrians safe.

Vehicles have also improved, and it is believed that people have also changed their behaviour in traffic for the better.

"In the last decade, the implementation of the NRP has been a huge help. On the national road network some 3,600km of new roads have been built, representing 60% of the total extension of main roads (IP+IC) according to the NRP 2000. The impact of the

new motorways on safety is very important. In 2005, the total traffic demand on National Road Network was 50,000x106, 45% of which travelled by the motorway network."

With construction of the new roads, traffic has dropped on old roads with drivers preferring the new routes which offer better conditions with regards to safety, comfort, travelling time and better facilities.

In the 12 years to 2008 the length of the motorway network expanded from 970km to 2,700km (1,250km have been built in the last six years), and at the same time, improvements have been made to the existing road signing and marks, pavements, and drainage, and special attention has been paid to managing high-risk road sections or black spots.

Between 1998 and 2008, the number of black spots reduced by about 84%, and this resulted in a reduction of 89% of fatalities in black spots.

Traffic calming has also been introduced in urban areas and road safety audits and road safety inspections have been introduced.

The forgiving roadside concept has been promoted; more awareness of safety in road works zone, and intelligent traffic systems have been installed while measures regarding vehicles have also contributed to the results achieved. For example, new regulations introduced more rigorous periodical technical inspections on cars, extraordinary inspections, post-accident inspections and inspections on the road, with more severe for the absence of mandatory inspections.

Seat belts on heavy weight vehicles have been made compulsory, and tax incentives for the retirement of old vehicles have also come into force

New traffic rules, including on-the-spot fines, and tougher penalties for speeding (different rules being applied in rural and urban areas) have also helped, with traffic law enforcement carried out by Portugal's two police corps: the Public Security Police (PSP) in urban areas and the National Republican Guard (GNR) in rural areas, motorways and on roads outside urban areas.

Enforcement has been particularly aggressive on speeding, drinking and driving, the use of seat belts, on child restraint systems and on other types of offences.

New driving licences are provisional for three years instead of only two years and the period before 'cleaning the slate' has increased from three to five years

Constant awareness campaigns on television, on radio and in the media have been introduced, and road safety leaflets are delivered in primary and secondary schools.

Improvements in assistance to road accident victims are linked to improving the time between the accident and the arrival of paramedics, and to a better health care system involving hospitals and health centres.

Social pressure on drivers and on the government and public entities is rising due to new associations and to the media. Both demand constant improvements in road safety rates.

All these are part of the National Plan for Road Accident Prevention (2000-2009), which more than achieved its targeted reduction in the number of fatalities and severe injuries.

"The challenge is now to maintain the decreasing trend of the fatalities figures. For that purpose we are now in the process of implementing a new National Road Safety Strategy for the years 2007-2015," said Paulo Marques Augusto. ■