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**ANNUAL  
REPORT**





ANNUAL REPORT 2009

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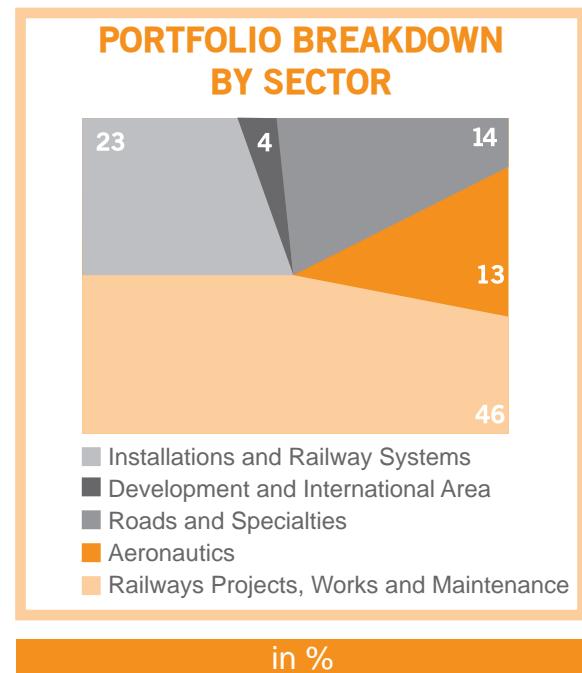
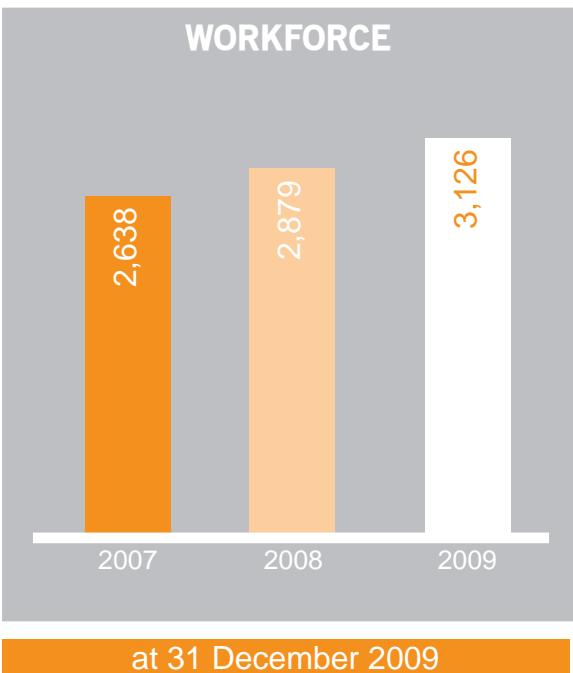
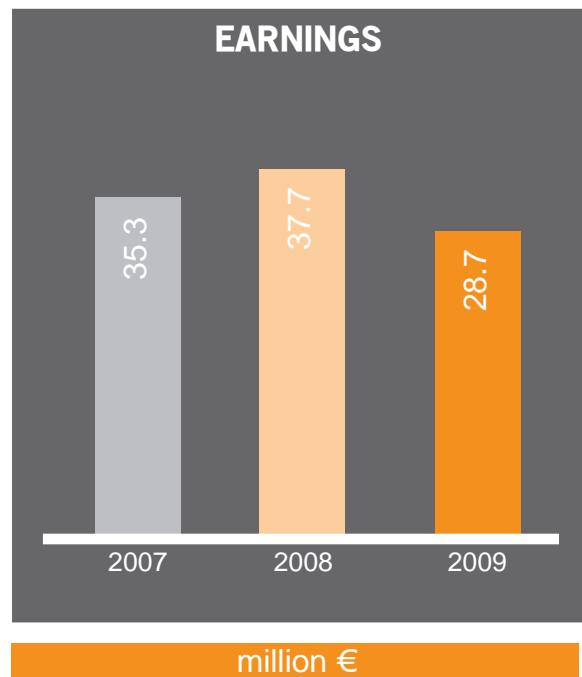
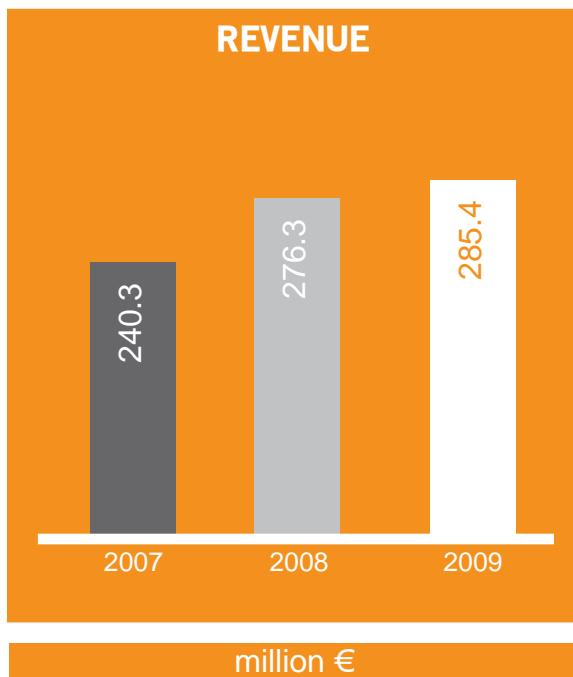
**Railways**

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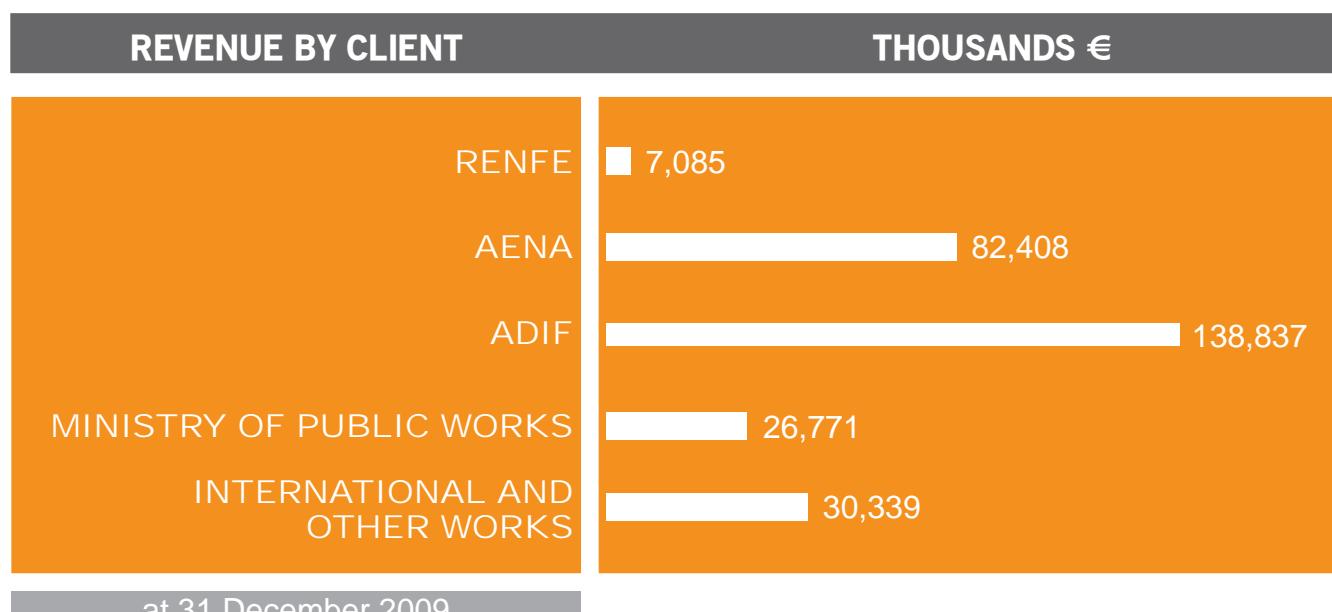
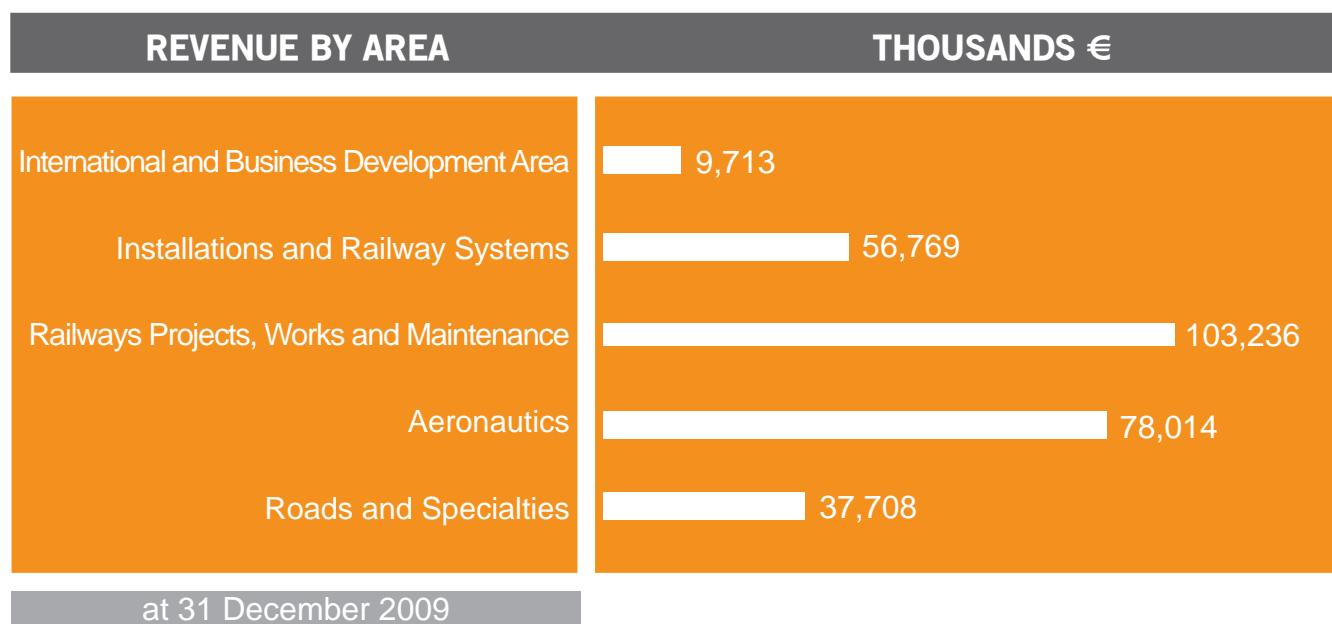
**International business**

# POSITIVE RESULTS AND STRONG outlook



**The Ineco Tifsa Group had revenues of over 285.4 million in 2009, a 3.3% increase on the previous year.**

**The portfolio ended the year at 355.8 million, 4.6% higher than the year before.**



# LETTER FROM THE chairman

I recently assumed the chairmanship of Ineco Tifsa at the behest of the Minister of Public Works, with a clear mandate to decrease and rationalise spending and rein in the scope of the business. Going forward, we must focus our energies on those areas which contribute most to the bottom line and grow our business in international markets, where we can contribute most towards the implementation of the strategy of the Ministry of Public Works, which envisages the international expansion of Spanish businesses driven by the knowhow and capacity in the transport segment acquired in recent years.

In 2010 we have to work together to ensure that Ineco Tifsa continues to set the standard in efficiency, which will require us to implement cost containment measures in our businesses, and formulate a strategy, an organisational structure and the adequate tools to align our business with the Ministry of Public Works' and our shareholders' objectives.

A first step will be the merger of the two companies, which will result in synergies, and the streamlining of our commercial image.

It is my honour to present the 2009 annual report, although the responsibility and credit for the results obtained lie entirely with the previous chairman, Fernando Palao.

In 2009 the group maintained its positive trend in turnover, contracting, margins, human resources, etc., and posted revenues of €285 million, 3% more than the previous year. The headcount stood at 3,126 employees, 8.5% more than at year-end 2008.

These results were obtained in the context of a sharp economic downturn, which impacted the transport sector, but to a lesser degree than other sectors.

In 2009, Ineco Tifsa continued working on the development of high speed lines in Spain, in the modernisation of airports and highways, and other high-profile projects, most notable

of which were the expansion of the Málaga and Barcelona-El Prat airports the construction of the Pajares tunnels, the expansion project for the Atocha train station, and the start-up of Seville Metro's line 1.

In addition, important agreements were signed with other entities this year, such as the framework agreement signed with FEVE, the contract to update Algeria's National Transport Plan, the agreement to develop the implementation of the Gran Canaria train project, and other agreements which bolstered our increasingly international business.

Ineco Tifsa has maintained its commitment to underprivileged groups, in line with its Corporate Social Responsibility Plan, and the company's agreements with various organisations such as Red Cross, Ingeniería Sin Fronteras, and Intermón Oxfam.

When I came to Ineco Tifsa, I found a company with a solid foundation, strong results, and a very young and highly professional workforce. I am proud to work for this company, that boasts a highly committed, expert team which will make it easier to face the challenges and changes which will shape 2010.

Meeting these challenges will require the professionalism, dedication, and effort of the men and women who

comprise this team, and whose daily work ensures that Ineco Tifsa will continue to be a benchmark in the transport engineering and consulting sector.

In closing, I would like to express my gratitude to our employees, our shareholders and the Board of Directors.



Ignasi Nieto  
Chairman

# BOARD OF DIRECTORS AND DECISION-MAKING bodies

**Fernando Palao**

Chairman

**Guillermo Vázquez**  
Corporate General Manager

**Antonio Monfort**  
General Manager

# ORGANISATIONAL CHART AT DECEMBER 2009

**Jose María Urgoiti**  
General Manager  
Railways Projects,  
Works and Maintenance

**Juan Batanero**  
General Manager  
Installations and Railway  
Systems

**Francisco Quereda**  
General Manager  
Aeronautics

**Ignacio Nuche**  
General Manager  
Roads and  
Specialties

**Javier Cos**  
General Manager  
International and Business Development Area

## Ineco Board of Directors

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### Chairman

Fernando Palao Taboada

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### Directors

Juan Ignacio Lema Devesa	Luis López Ruiz
Javier Marín San Andrés	Pascual Villate Ugarte
Carmen Librero Pintado	Javier Anibarro García
Jesús Mendiluce La Calle	Juan Javier Pérez Sanz
Antonio González Marín	María Rosario Cornejo Arribas
Teófilo Serrano Beltrán	Enrique Tomás Moreno Bueno
Santiago Cobo Diego	María Manuela Dolores Ferrari Velázquez

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### Secretary to the Board

Jesús Fernández Rodríguez

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## Tifsa Board of Directors

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### Chairman

Fernando Palao Taboada

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### Directors

Alfonso González Gutiérrez	Ángel Luis Arias Serrano
Manuel Martínez Cepeda	Amparo Brea Álvarez
Vicente Camarena Miñana	José Manuel Hesse Martín
Antonio Berrios Villalba	José Manuel Dávila Cascón
Francisco Bonache Córdoba	Antonio José Gómez Templado

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### Secretary to the Board

Mauricio Corral Escribano

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### CHANGES TO THE INECO BOARD OF DIRECTORS

At the Extraordinary Shareholders Meeting of 23 January 2009, Rocio Gamo Yagüe was appointed.  
At the General Shareholders' Meeting of 4 May 2009, Juan Torrejón Casado and Encarnación Vivanco Bustos were removed from the Board and Fernando Palao Taboada and Juan Ignacio Lema Devesa were appointed.  
At the Extraordinary Shareholders Meeting of 18 June 2009, José Salgueiro Carmona, Vicente Vilanova Martínez-Falero, Miguel Ángel Campos García and Rocio Gamo Yagüe were removed and Teófilo Serrano Beltrán, María Rosario Cornejo Arribas, Luis López Ruiz and Enrique Tomás Moreno Bueno were appointed.  
At the General Shareholders' Meeting of 23 July 2009, Amparo Brea Álvarez was removed and Jesús Mendiluce La Calle and María Manuela Dolores Ferrari Velázquez were appointed.  
At the Extraordinary Shareholders Meeting of 29 October 2009, Antonio González González was removed and Javier Anibarro García was appointed.

### CHANGES TO THE TIFSA BOARD OF DIRECTORS

At the General Shareholders Meeting of 4 May 2009, Juan Torrejón Casado was removed and Fernando Palao Taboada was appointed.  
At the Extraordinary Shareholders Meeting of 18 June, 2009, Pedro Antonio Martín Moreno, Mariano Garrido García and Manuel Sánchez Doblado were removed and Manuel Martínez Cepeda, Antonio Berrios Villalba, José Manuel Dávila Cascón and Antonio José Gómez Templado were appointed.

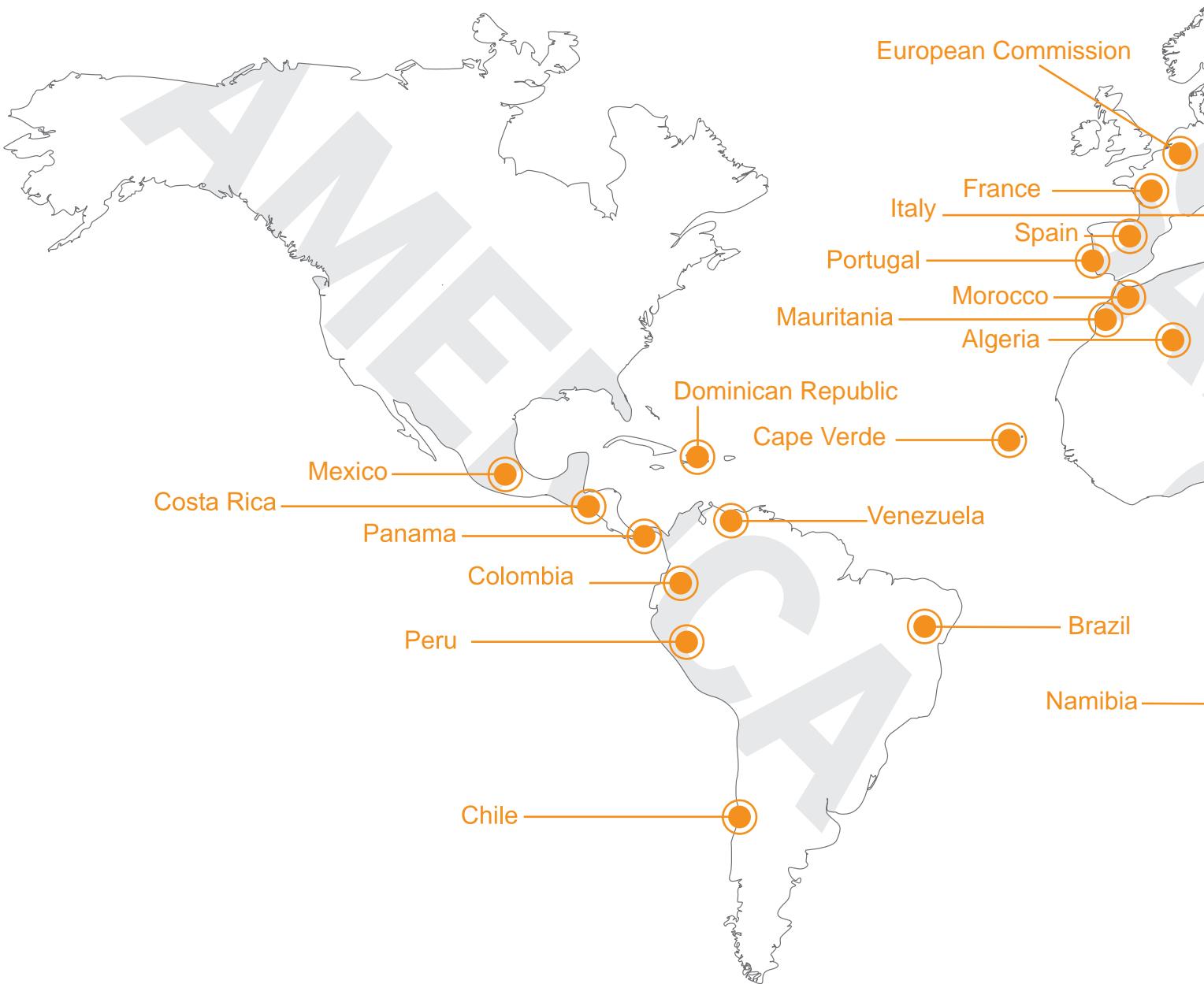
# OUR clients

ABERTIS ■ ACCIONA INFRAESTRUCTURAS ■ ACOMETE ■ ADECCO ETT, S.A. ■ ADIF ■ AENA ■ AENA DESARROLLO INTERNACIONAL, S.A., SOCIEDAD UNIPERSONAL ■ AEROPORTS DE CATALUNYA SLU ■ AEROPUERTO DE MALI ■ AEROPUERTOS Y SERVICIOS AUXILIARES ■ AEROSVIT UKRAINIAN AIRLINES ■ AESA ■ AGENCY FOR BUILDING LAND AND CONSTRUCTION OF BELGRADE ■ AIR TRAFFIC ALLIANCE ■ AIRPORTS DEVELOPMENT TEAM INTERNATIONAL (ADTI) ■ ALSTOM ■ ALSTOM TRANSPORT S.A. ■ AMTU ■ ANSALDO STS ■ APPLICACIÓN DE PINTURAS, S.A. ■ APMIB ■ ARCELOR ESPAÑA S.A. ■ ARPEGIO ■ ASA-EMPRESA NACIONAL DE AEROPORTOS E SEGURANÇA AEREA, S.A. ■ ATM ■ AUTORIDAD PORTUARIA DE ALMERÍA ■ AUTORIDAD PORTUARIA DE BARCELONA ■ AUTORIDAD PORTUARIA DE CASTELLÓN ■ AUTORIDAD PORTUARIA DE LA BAHÍA DE ALGECIRAS ■ AUTORIDAD PORTUARIA DE MÁLAGA ■ AUTORIDAD PORTUARIA DE VALENCIA ■ AVIASOLUTIONS ■ AYUNTAMIENTO DE ANDOAIN ■ AYUNTAMIENTO DE BARBASTRO ■ AYUNTAMIENTO DE GODELLA ■ AYUNTAMIENTO DE LA CORUÑA ■ AYUNTAMIENTO DE MADRID ■ AYUNTAMIENTO DE TORREJÓN DE ARDOZ ■ AZIENDA STRADE LAZIO-ASTRAL SPA ■ AZIENDA TRANSPORTI MILANESI ■ BARCELONA SAGRERA ALTA VELOCITAT ■ BIDEGI GIPUZKOAKO AZPIEGITUREN AGENTZIA ■ BILBAO RIA-2000 ■ BOMBARDIER EUROPEAN HOLDINGS SLU ■ BOMBARDIER TRANSPORTATION ■ CABILDO INSULAR DE TENERIFE ■ CAF ■ CAIXAD'ESTALVIS I PENSIONS DE BARCELONA ■ CAL Y MAYOR ASOCIADOS SC ■ CANTERAS LA PONDEROSA, S.A. ■ CASAN ARQUITECTURA E INGENIERÍA, S.L. ■ CDE (CHEMIN DE FER DJIBOUTO, ETHIOPIEN) ■ CEDEX ■ CERCANÍAS MÓSTOLES NAVALCARNERO, S.A. ■ CETREN, CERTIFICACIÓN ■ CINTURÓN VERDE DE OVIEDO ■ CLASA ■ CODEMA INVERSIONES, S.L. ■ CODEUR, S.A. ■ COMISIÓN EUROPEA ■ COMPLEJO AGRÍCOLA, S.A. ■ COMPOSAN CONSTRUCCIÓN S.A. ■ COMSA ■ COMUNIDAD AUTÓNOMA DE MADRID ■ CONCESSIO ESTACIONS AEROPORT L9 S.A. ■ CONSORCIO DE TRANSPORTES DEL ÁREA DE MÁLAGA ■ CONSORCIO METROPOLITANO DE TRANSPORTES BAHÍA DE CÁDIZ ■ CONSORCIO REGIONAL DE TRANSPORTES DE MADRID ■ CONSTRUCTORA DEL FERROCARRIL SUBURBANO S.L. ■ CONTRATAS INTERVIAS DEL LEVANTE S.L. ■ CONVENSA, CONTRATAS Y VENTAS S.A. ■ CORPORACIÓN ANDINA DE FOMENTO ■ CORSAN CORVIAM CONSTRUCCIÓN S.A. ■ CPS DE INGENIERÍA SAC ■ CPTM ■ CRAEROPUERTOS, S.L. ■ CTS ■ DAVID FIERRO S.A. ■ DEMARCACIÓN CARRETERAS ASTURIAS ■ DIMETRONIC ■ DIPUTACIÓN FORAL DE ÁLAVA ■ DIPUTACIÓN GENERAL DE ARAGÓN ■ DIPUTACIÓN PROVINCIAL DE CÁCERES ■ DIRECCIÓN GENERAL DE AERONÁUTICA CIVIL (DGAC) ■ DIRECCIÓN GENERAL DE LA MARINA MERCANTE ■ DIRECCION GENERALE DE L'AVIATION CIVILE ■ DRAGADOS Y CONSTRUCCIONES, S.A. ■ EEW ERTMS USERS GROUP ■ EFE ■ ELECTREN ■ ELIOP S.A. ■ EMPRESA DE TRANSPORTE MASIVO DEL VALLE DE ABURRA LIMITADA ■ ENATECNOLOGÍA S.L. ■ ERNST & YOUNG ■ ERRI ■ ESTUDIO CANO-LASSO ARQUITECTOS ■ ETT-EQUIPO DE TÉCNICOS EN TRANSPORTE Y TERRITORIO ■ ETT PROYECTOS, S.L. ■ EUROCONTROL ■ EUROPEAN GNSS SUPERVISORY AUTHORITY (GSA) ■ EUROPEAN SPACE AGENCY ■ EUSKAL TRENBIDE SAREA ■ EUSKOTREN ■ EXPOAGUA ZARAGOZA 2008, S.A. ■ FCC ■ FELGUERA MELT S.A. ■ FENIT RAIL S.A. ■ FERGO GALICIA S.A. ■ FERROCARRIL METROPOLITANO DE BARCELONA S.A. ■ FERROCARRILES DE GRAN CANARIA ■ FERROCARRILES DE LA JUNTA DE ANDALUCÍA ■ FERROCARRILES DE VENEZUELA ■ FERROCARRILES SUBURBANOS S.A. DE C.V. ■ FERROVIAL-AGROMAN ■ FEVE ■ FGC ■ FGV ■ FLEX RESORTS & REAL ESTATE CO. KSCC ■ FLYBE ■ FUNDAÇÃO APLICAÇÕES DE TECNOLOGIAS CRITICAS - ATECH ■ GALILEO JOINT UNDERTAKING ■ GENERACIONES ESPECIALES S.L. ■ GENERALITAT VALENCIANA ■ GEOCISA - TIFSA ■ GEODATA SPA ■ GEOFER ■ GESTIÓN INTEGRAL DEL SUELO, S.L. ■ GESTIÓN PROINMEGA, S.L. ■ GHELLA SPA ■ GIASA ■ GICSA ■ GIE SUD EUROPE ATLANTIQUE VITORIA-DAX ■ GISA ■ GMF ■ GMV AEROSPACE & DEFENCE S.A. ■ GOBIERNO DE CANARIAS ■ GOBIERNO DE CANTABRIA ■ GOBIERNO DE LAS ISLAS BALEARES ■ GOBIERNO DE NAMIBIA ■ GOBIERNO VASCO ■ IAFE ■ IBERIA ■ IBÉRICA DE ESTUDIOS E INGENIERÍA S.A. ■ ICMA-PROAKIS (GRUPO ORTIZ) ■ IDOM ■ IECA, INSTITUTO ESPAÑOL DEL CEMENTO Y SUS APLICACIONES ■ INCOSA ■ INDRA ESPACIO S.A. ■ INEGEO ■ INGENIERÍA Y CONSTRUCCIONES MOYMAR ■ INGETEAM TRACTION S.A. ■ INMOBILIARIA CEHLA ■ INMOBILIARIA DE VISTAHERMOSA ■ INOCSA ■ INTECSA-INARSA S.A. (GRUPO SNC-LAVALIN) ■ INTECYFSA ■ IRVIA ■ ISDEFÉ ■ ISOLUX INGENIERÍA S.A. ■ ISOLUX WAT, S.A. ■ ISRAEL RAILWAYS ■ JORDANIANA KUWAITI CO. FOR INFRASTRUCTURE DEVELOPMENT SPLC ■ JUNTA DE ANDALUCÍA ■ JUNTA DE CASTILLA-LA MANCHA ■ JUNTA DE CASTILLA Y LEÓN ■ JUNTA DE COMPENSACIÓN DE LA UNIDAD DE EJECUCIÓN Nº 2 ■ KENYA AIRPORTS AUTHORITY ■ KUWAIT METRO RAPID TRANSPORT COMPANY ■ KUWAIT OVERLAND TRANSPORT UNION (KOTU) ■ KUWAIT UNITED DEVELOPMENT (KUD) ■ L'AGENCE SPECIALE TANGER-MEDITERRANEE S.A. ■ LÍNEA NUEVE TRAMO CUATRO S.A. ■

# over 300 national and international clients

LOGYTEL ■ LUSO GALAICA DE TRAVIESAS ■ M 1ND SET S.A. ■ MINISTERIO DE FOMENTO-DIRECCIÓN GENERAL DE AVIACIÓN CIVIL ■ MINISTERIO DE FOMENTO-DIRECCIÓN GENERAL DE CARRETERAS ■ MINISTERIO DE FOMENTO-DIRECCIÓN GENERAL DE INFRAESTRUCTURAS FERROVIARIAS ■ MINISTERIO DE FOMENTO-DIRECCIÓN GENERAL DE TRANSPORTE TERRESTRE ■ MINISTERIO DE FOMENTO-SEPI ■ MBJ AIRPORTS LICENSED ■ METRATIR ■ METRO DE MADRID ■ METRO RAPID TRANSPORT COMPANY ■ METROPOLITANA MILANESA ■ METROPOLITANO DE TENERIFE ■ MINISTERIO DE ECONOMÍA Y FINANZAS DE PANAMÁ ■ MINISTERIO DE FINANZAS DE LA REPÚBLICA DE CROACIA ■ MINISTERIO DE FOMENTO ■ MINISTERIO DE INDUSTRIA ■ MINISTERIO DE TRANSPORTES DE ARGELIA ■ MINISTERIO DEL INTERIOR DE MARRUECOS ■ MINTRA ■ MOTA-EMGIL, ENGENHARIA E CONSTRUÇÃO S.A. ■ NAVASCUES OBRAS Y PUENTES, S.L. ■ NEA ■ NERTUS MANTENIMIENTO FERROVIARIO S.A. ■ NEXITY ESPAÑA ■ NÚCLEO DE COMUNICACIONES Y CONTROL S.L. ■ OHL ■ OPEMA ■ PATENTES TALGO ■ PECOVASA ■ PREFABRICADOS DELTA ■ PRINCIPADO DE ASTURIAS ■ PROLOGIS SPAIN XXI, S.L. ■ PUERTOS DEL ESTADO ■ RAILTECH INTERNATIONAL ■ REGIÓN DE MURCIA ■ RENFE OPERADORA ■ REVENGA INGENIEROS ■ S.A. DE OBRAS Y SERVICIOS, COPASA ■ SAUDI RAILWAY ORGANIZATION ■ SCOTT WILSON KIRKPATRICK & CO ■ SECEGSA ■ SECRETARÍA COMUNICACIONES Y TRANSPORTES DE MÉXICO ■ SEITT S.A. ■ SENER ■ SEPSA ■ SERCOBE ■ SESAR JOINT UNDERTAKING ■ SFM ■ SICE ■ SIEMENS ■ SIGMA CREATIVE SLNE ■ SINEQUANON FACILITIES, S.L. ■ SINTAGMA ■ SOCIEDAD CONCESIONARIA TRANVÍA DE MURCIA S.A. ■ SOCIEDAD URBANÍSTICA MUNICIPAL DE PATerna ■ SPIFE ■ SPRILUR, S.A. ■ SUELLO Y VIVIENDA DE ARAGÓN ■ SUNCOVE S.A. ■ TAFESA ■ TAIM WESER S.A. ■ TEAM ■ TEAM MAROC ■ TECONSA ■ TECSA ■ TELVENT ENERGÍA, S.A. ■ TENEMETRO ■ TERMINAL MARÍTIMA DE ZARAGOZA, S.L. ■ TERRATEST TÉCNICAS ESPECIALES ■ THALES RAIL SIGNALLING SOLUTIONS, SLU ■ THE LOUIS BERGER GROUP INC ■ TOLEDO NORTE S-21 S.L. ■ TP FERRO ■ TRIA INGENIERÍA ■ UNIÓN FENOSA GENERACIÓN ■ UTE: ALBORAYA (INECO-SEG) ■ UTE: AMINSA (AGRUPACIÓN MEDITERRÁNEA DE INGENIERÍA-INECO) ■ UTE: ARUCAS (GRUSAMAR-CONSULTING-INECO) ■ UTE: ATG (GEOCONSULT-GEOCYSA-INECO) ■ UTE: BALIZAMIENTO MÁLAGA (COBRA-SAMPOL) ■ UTE: CAF-SUNCOVE ■ UTE: CONSTRUCCIÓN TRANVÍA ZARAGOZA ■ UTE: CSM (CAF-DIMENTRONIC-COBRA-CONSTRUCTORA HISPÁNICA) ■ UTE: CYCASA/MORRISON ZONA DE CARGA 4 AEROPUERTO BARCELONA ■ UTE: DEMAZABA (STEER DAVIES GLEAVE-INECO) ■ UTE: DOCOMA (INECO-TIFSA) ■ UTE: ESTACIÓN DELICIAS (INTECSA-INARSA-I3 CONSULTORES-INECO) ■ UTE: ESTACIÓN HOSPITAL L1 ■ UTE: ESTACIONES L1 ■ UTE: ETT-INECO ■ UTE: FIGUERAS (INECO-PAYMACOTAS SAU) ■ UTE: HECOTEC SE-40 (HELIOPOL-COPISA-TECONSA) ■ UTE: IBERNECO (IBERINSA-INECO) ■ UTE: IIC TIFSA (PRUEBAS DE CARGA) ■ UTE: INECO-CAT ■ UTE: INECO-CAT LÍNEA 1, DIRECCIÓN TRAMO 4B ■ UTE: INECO-CAT TRAMO 4B TRANVÍA ALICANTE ■ UTE: INECO-ECOCONSULT ■ UTE: INECO-ETM ■ UTE: INECO-ETT ■ UTE: INECO-IIC-OFITECO ■ UTE: INECO-INSERCO INGENIEROS ■ UTE: INECO-IYM ■ UTE: INECO-NARVAL ■ UTE: INECO-ODEPSA (INECO-OFICINA DE PLANEAMIENTO) ■ UTE: INECO-SENER ■ UTE: INECO-TEMA GRUPO CONSULTOR ■ UTE: INECO-TRN INGENIERÍA ■ UTE: INECO ETT P. (INECO-ETT) ■ UTE: INECO SGS ARDANUY (METRO SEVILLA L1) ■ UTE: INECO Y TTU ■ UTE: INECO-ACOLLEBA ■ UTE: INECO-ACOSEVAL ■ UTE: INECO-CAT TRANVÍA ALICANTE ■ UTE: INELIN (INEBENSA-ELECNOR-INECO) ■ UTE: INEURO (INECO-EUROESTUDIOS) ■ UTE: INSERCO ■ UTE: INVERSIONES 2008 (GRUSAMAR-INECO) ■ UTE: LÍNEA TRES METRO SEVILLA (INECO-IDOM-INGEROP) ■ UTE: METRO MÁLAGA ■ UTE: NUEVA PISTA ■ UTE: OMNILOGIC-EMTE SISTEMAS SANTANDER-LIERNAGE ■ UTE: PC ADIF VILAFRANCA ■ UTE: PC DGF 1/2004 ■ UTE: PC DGF 1 - 2006 (IIC-TIFSA) ■ UTE: PC DGF 2/2008 (IIC-TIFSA) ■ UTE: PC VALENCIA (INECO-IIC-OFITECO) ■ UTE: PC-GIF-MARTORELL (IIC-OFITECO-TIFSA) ■ UTE: PETTRA-INECO ■ UTE: PLAZA 2<sup>a</sup> FASE ■ UTE: RB-IDES-INECO ■ UTE: SAN JUAN DE NIEVA ■ UTE: SENER-INECO, VITORIA-BILBAO (GIF) ■ UTE: SYSTRA-LOMBARDI-TECHNITAL-INECO-PERRAULT ■ UTE: THALES RAIL SIGNALLING SOLUTIONS -DIMETRONIC ■ UTE: TRANVÍA DE ALMERÍA (INECO-TTU-AIT) ■ UTE: TRANVÍA DE SAN FERNANDO ■ UTE: TÚNELES DE PAJARES (GEOCONSULT-INECO) ■ UTE: TYPNECO (TYPSEA-INECO) ■ UTE: TYPSEA-TIFSA ■ UTE: VIASNECO (VÍAS Y CONSTRUCCIONES-INECO) ■ VALLADOLID ALTA VELOCIDAD 2003 S.A. ■ VEIASA ■ VESTAS EÓLICA S.A. ■ VÍAS DE ÁLAVA ■ VÍAS Y CONSTRUCCIONES, S.A. ■ VOSSLOH ■ VSRC ■ XUNTA DE GALICIA ■ ZALIA ■ ZARAGOZA ALTA VELOCIDAD 2002.

# INECO TIFSA PROJECTS AROUND the world





# CORPORATE information



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# OUR FUTURE IN A CHANGING environment

**In 2009 Ineco Tifsa made major progress in implementing its current strategic plan as well as in carrying out initiatives related to:**

- Quality and service
- Aula Carlos Roa
- Corporate responsibility
- Communication
- Knowledge management
- Innovation

Along 2010 the group is reviewing this strategic plan so as to adapt it to the new needs demanded by our activity, affected by a year of austerity, rationalization and business projection.

In this sense one of the Ineco Tifsa key strategic lines is to increase our environmental activity and thus contributing to the Ministry of Public Works objectives. That is to extend internationally the knowledge and capacities acquired by the country in transport matters.

## MISSION

As a government transport engineering and consulting company, our mission is to satisfy the needs of our shareholders and clients, while generating a positive impact on society, and creating a healthy, positive, and dynamic work environment.

## VISION

Ineco Tifsa aims to be recognised as the leading Spanish engineering and consulting company on both the national and international level, by our shareholders, clients and employees, as well as by society as a whole. We are renown for our comprehensive offering of products and services, our excellent production capabilities and our technological and professional capacity.

# benchmark in transport engineering and consulting

## EXPERTISE

- Provides high value solutions
- Continual improvement
- Quality work
- High degree of specialisation
- Over 40 years of experience
- An expert team (*know how*)
- Trust

## INNOVATIVE

- Strong technological capabilities
- Seeks out and deploys the most cutting edge systems
- Strives to adapt and create new products and services

## CORPORATE RESPONSIBILITY

- Commitment to its environment
- Ethical behaviour both within and outside the company

# VALUES

## FLEXIBLE

- Adapts to the needs of the client
- Develops all transport modes
- Open and receptive to different markets
- Able to adapt to other products and services
- Adapts to the needs and requirements of other areas, in order to carry out joint projects

## COMMITTED

- Committed to clients and shareholders/customer service
- Committed to serving and improving society
- Dedicated employees

## SUSTAINABLE

- Strong track record
- Financial solvency
- Strong shareholder structure
- Appropriately sized

# FURTHER ADVANCES IN corporate responsibility



# **corporate responsibility policy in 2009: volunteerism, equality, integration and the environment**

## **volunteer programme**

In 2009, Ineco Tifsa continued to implement its corporate responsibility policy through the approval, by the executive team, of the Volunteer Programme, which encompasses the social initiatives planned by the company in 2009.

### **IT solidarity**

A website, *it net* was created to facilitate and promote greater solidarity and participation in social initiatives among employees, as well as to open up a communications channel to build awareness about the company's efforts in this regard. This is a space designed to manage Ineco Tifsa's volunteer initiatives. Proposals for volunteer actions can be found here, along with the company's initiatives in corporate volunteerism. In addition it serves as a venue for sharing experiences and receiving the latest news about CR.

### **Fundación Lealtad**

In January 2009, Ineco Tifsa became an "Amigo de la Fundación Lealtad" (Friend of the Fundación Lealtad) after

signing a collaboration agreement which entails an annual payment. Our organization supports the foundation in its work to promote social action and build trust in Spanish society towards NGO's, and to thereby increase collaboration with non-profit organisations.

### **Ingeniería Sin Fronteras**

Ineco Tifsa also renewed its annual agreement Ingeniería Sin Fronteras (Engineers Without Borders or EWB). The funds contributed went towards:

- Development programmes and projects in the Southern Hemisphere and the so-called Fourth World.
- Training and technological research into human development in the north.
- Initiatives and campaigns to build awareness in the north, as a vehicle for social change and democratic participation.

In addition, Ineco Tifsa helped sponsor two forums organised by Ingeniería Sin Fronteras:

- III Forum on Engineering and Solidarity at the Civil Engineering

Faculty, in which the situation of countries in the southern hemisphere was discussed, with a special focus on Mozambique and Tanzania.

- Forum on Water and Aid in the Industrial Engineering Faculty, in which the universal access to water was discussed, with a special focus on water supply and sanitation in Tanzania.

### **Emergency aid- -Red Cross**

In October, Ineco Tifsa signed a collaboration agreement with Red Cross, in which it committed to make an annual contribution to the organisation's Emergency Aid Fund, and also committed to disseminating collaboration requests for emergency situations to employees through different channels.

### **Euro Solidarity Campaign- -Intermón Oxfam**

Through the Euro Solidarity Campaign, which Ineco Tifsa rolled out in 2009, employees make a monetary contribution deducted from their salaries to the water, food safety, nutritional and agro-ecological project in the state of Pernambuco (Brazil). This project aims to strengthen the agro-ecological production units in the Mata zone of Pernambuco, improving access to quality water for farming families, food safety and increasing incomes.

Ineco Tifsa will match the amount donated by its employees.

In the months in which this campaign was active in 2009 (the close of the campaign was in June of 2010), over 10% of the workforce subscribed to the initiative, which implies a quite substantial percentage for this type of campaign.

### **Operación Kilo- -Food Bank**

**486 kilos of food were  
donated by employees**

In collaboration with the Madrid Food bank, in December, the group organised a food collection campaign in its main buildings in Madrid: Operation KIL'09. This campaign counted on the altruistic collaboration of company employees who volunteered to manage its logistics.

A total of 486 kilos in non-perishable food products was collected, including: rice, pasta, beans, oil, etc, for distribution to underprivileged groups through meal centres for the homeless, childrens' and adolescents' food programmes, shelters for at-risk groups, assistance centres, etc.

### **Christmas-Three Kings 2009**

For the second consecutive year, the Three Kings from the East (also known as the three wise men) will visit the "children" at Ineco Tifsa in the main work centres in Madrid, Seville, Barcelona, and Valencia.



# FURTHER ADVANCES IN CORPORATE responsibility

The initiative received quite a warm reception, and the Three Kings, after receiving employees' letters, made a donation in their names to the NGO Acción Contra el Hambre.

The Spanish Red Cross was responsible for the Christmas cards.

## Fundación Apsuria

Ineco Tifsa made a donation to the Fundación Apsuria to collaborate in the construction of a new assistance centre for the disabled inaugurated on 2 November.

The centre is a 4,300 m<sup>2</sup> building which can house 70 people under a residential regime.

## Other initiatives

Ineco Tifsa has also collaborated with other NGO's such as Aldeas Infantiles and Fundación Niemann Pick.

## equality plan

In 2009 Ineco Tifsa elaborated an equality plan which encompasses a series of initiatives aimed at promoting

equal opportunities among employees and managing diversity:

- Gender equality.
- Maintaining a healthy work-life balance.
- The prevention of sexual harassment and gender-based harassment.

Among these initiatives, the plan includes:

- Sensitization programmes.
- Training programmes in managing diversity.
- Control mechanisms for procedures and tools for preventing discrimination.
- Support groups.
- Specific work/life balance policies.

## plan integra

Under the framework of its Corporate Responsibility policy which promotes the social and cultural development

# responsibility



in the environment where it operates, Ineco Tifsa presented its integration plan (Plan Integra) for people belonging to groups at risk of social exclusion, including: the disabled, victims of gender violence, and young people residing in shelters.

The plan encompasses a series of measures aimed at implementing diversity management models in an equal opportunity environment, establishing the following objectives:

- Promoting the recruitment of people belonging to these groups and committing to improving their employment possibilities.
- Improving the quality of life of disabled employees and employees who provide for disabled family members.
- Fostering a culture of integration and social awareness.
- Contributing towards the social and labour inclusion of people at risk of exclusion.

- Ensuring equal opportunity to accessing employment.

## environmental responsibility

Ineco Tifsa has an active environmental responsibility policy. Among other initiatives, we would highlight:

- The renewal of certification for all Ineco and Tifsa activities according to the ISO 14001:2004 standard.
- Meeting of all targets set in the Environmental Management Programme, aimed at minimising the environmental impacts of the group's activities, processes and services, as well as the operation of its installations and related resources; continuous improvement in environmental stewardship.
- The systematic measurement and control of atmospheric emissions, and energy and raw materials use.

- The correct separation of waste, and the donation to institutions, charities and NGOs of electrical and electronic equipment that the organisation can no longer use but which still work.
- The application of environmental criteria in the supplier rating and selection process.
- The drafting of Good Environmental Practices guidelines for the different activities undertaken in the organisation: in the office, in the field, and those related to installation maintenance.
- Ambitious campaign aimed at increasing environmental awareness among company employees, reminding them to put into practice measures and habits in their day-to-day lives which reduce their paper, energy, water, and fuel consumption, and that encourage recycling, whenever possible.
- Environmental targets are set annually, and take into account the group's quality and environmental policy, as well as the environmental factors identified and evaluated at the beginning of each year.
- Installation of a photovoltaic platform connected to the grid on the roof of the company's Paseo de la Habana building, financed with internal R&D funds from the previous year. This installation is expected to contribute 43,000 kWh/year to the grid.

Ineco Tifsa strives to find environmentally sustainable solutions which generate advantages for our clients. The company always includes a project related to energy conservation in our installations or projects, or those of our clients, among the R&D projects financed by the company which form a part of its annual R&D plan. Specifically, in 2009 a feasibility study was carried out on solar refrigeration at Aena facilities and a pilot study on environmental auscultation of infrastructures entered its operational phase.

AULA  
carlos roa



## a forum for exchanging ideas and debate

This organisation aims to strengthen Ineco-Tifsa's position as the benchmark Spanish engineering company in the transport sector, especially from the technical-scientific point of view.

All activities in the aula are decided upon and promoted by the academic board, a multidisciplinary group of experts that supervise and monitor these activities.

As has been the case since its founding, the activities are carried out in the following areas: workshops on transport issues, collaborations with universities (engineering departments and other faculties), editing of publications, prizes and sponsorship of other events related to the technical-scientific activity of transport engineering and economics.

These workshops gather together a small group of very high level experts to expose and debate on a specific topic. Later on a publication is issued with a summary of the contents.

In 2009, three workshops were held: "Demand and air transport", "Intercity

transport hubs" and "Engineering's contribution to added value and value perception".

This year, the Aula Carlos Roa demonstrated its support for the university through numerous activities such as the awarding of the Ineco Tifsa Prizes for final projects at the Aeronautical Engineering Faculty at the Polytechnic University at Madrid, and the Civil Engineering Faculty in Barcelona or the second edition of the Ineco Highway Prize, awarded in the Civil Engineering Faculty at the Barcelona Polytechnic University.

The company also signed a collaboration agreement with the Economics of Transport Chair at the Civil Engineering Faculty at the Madrid Polytechnic University (UPM).

And like every year, it sponsored UPM in La Granja: "Public airports,

private airports”, “Climate change and the greenhouse effect” and “Planning during the railway comeback”.

In addition to these workshops, this year Ineco Tifsa also published the works *The transport system in Spain 1939-2009*, by Francisco Javier Rodríguez Lázaro and Antonio Sánchez Soliño, and *The arch as an excuse* by César Lanza. These works have been distributed among clients, experts in the sector and related documentation centres.

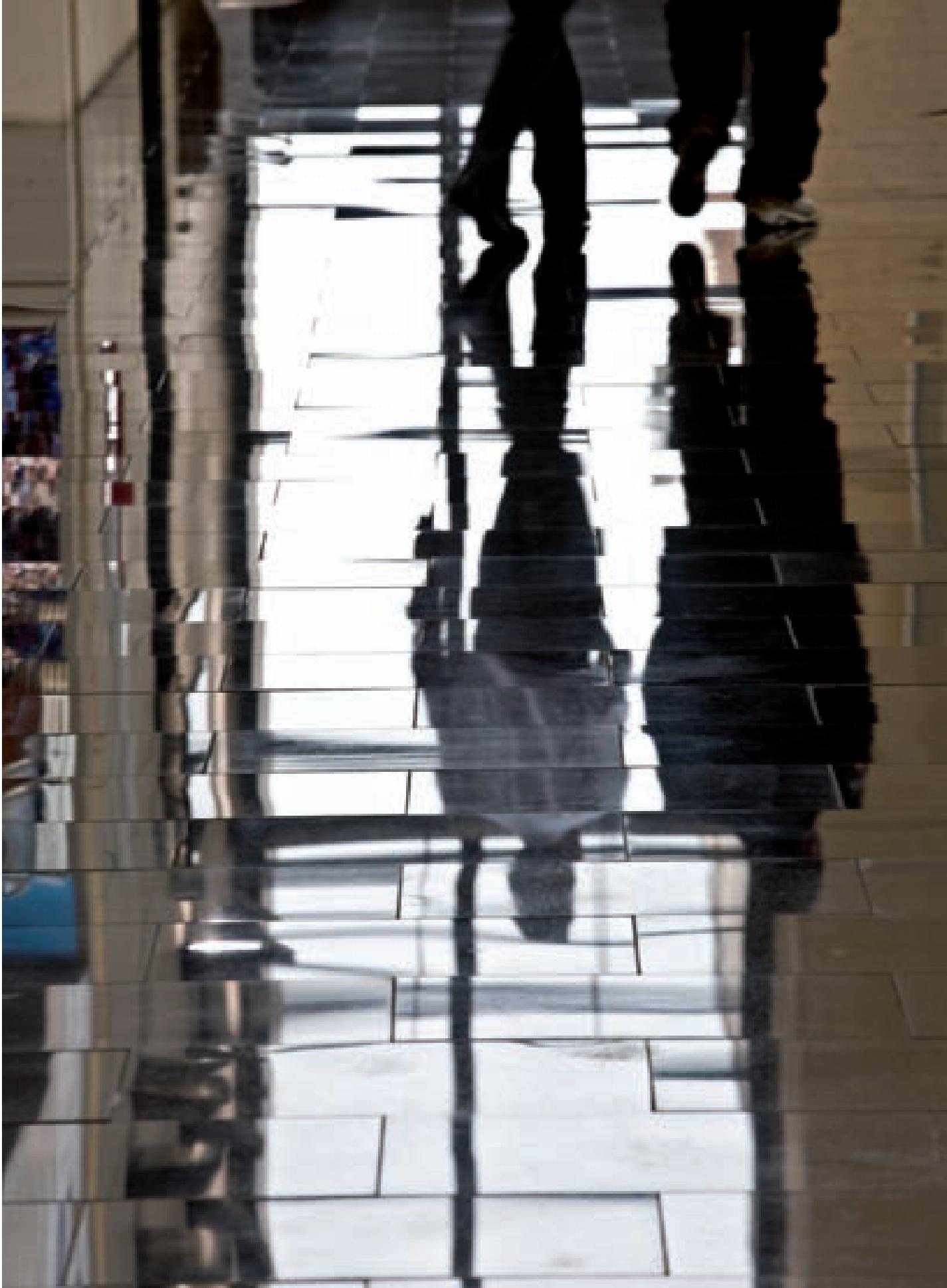
Furthermore, the 2008 prize for the Best Article in a Public Works Magazine was awarded at the Association of Civil Engineers of Madrid to José Vasallo and Pablo Pérez del Villar for their article “Equality and efficiency in public transport in Madrid”.

Furthermore, the aula decided in 2009 to create a prize for the Best Article in a Civil Engineering Magazine as well as another prize for the Best Article the Aeronautical Sector.

It also organised events in other formats, such as technical workshops open to the public, such as: “Operational security in the transport system” and “New advances and studies in the evaluation and reduction of environmental contamination from

highways”, the latter in collaboration with the Polytechnic University of Barcelona and the Association of Civil Engineers of Catalonia.

In addition, the aula also sponsored the RACC round table on “Congestion in the access corridors to Madrid”, and also collaborated with the Association of Architects of Valencia, the Regional Government of Valencia and the Ministry of Public Works, in organising the workshop “Great stations of the 21st century, reinventing the city centre”, held in Valencia.



INNOVATING INTERNALLY AND IN COLLABORATION  
**with others**



## pioneers in programmes and projects and RDI

In 2009, Ineco Tifsa participated in the development of international consortium bids for the 7th Framework Programme and was present in the European ATM Research and Development Association (EATRADA) and the European Rail Research Advisory Council (ERRAC), as well as the Executive Committee of the Spanish Railway Platform (PTFE in its initials in Spanish) where it will help draw up its strategy.

It also presented bids and obtained financing for transport and infrastructure R&D projects in the 2008 edition of the National RDI Plan 2008-2011, as well as participating in other innovation forums:

- Tecniberia Innovation Committee
- The Excellence in Management Club
- CDTI
- PM7

In 2009 the company also signed a collaboration agreement with CEDEX for RDI tasks.

Over the course of 2009 the following projects were carried out successfully

and presented to the Committee of the group:

**Railway tunnel safety.**

**SIGMA:** Environmental maintenance of infrastructures. Integrated environmental management system.

**Performance** of high module mixes in airport runway pavements.

**CRONOS:** Development of an integrated solution for analysing railway line operations.

**ASV:** A road safety audit. Case study.



**CATMASTER:** An integrated design environment for overhead line contact systems.

Lastly, the group was present in the 7th European Framework Programme with the following projects:

**AAS:** Integrated Airport Apron Safety Fleet Management.

**DEMASST:** Demo for Mass Transportation Security.

**STANDARDS:** Standardisation and Reference Documentation Support.

**GIANT2:** GNSS Introduction in the Aviation Sector-2.

**TITAN:** Turnaround Integration in Trajectory and Network.

And we have been selected to lead new projects which will start up in 2010:

**GRAIL-2:** Development and Validation of GNSS Absolute Positioning for Railway Low Density Lines.

**ACEPTA:** Accelerating EGNOS Adoption in Aviation.

**Selected projects in 2009 by the company's  
Innovation Committee**

PROPOSAL	AREA	BUDGET (thousand €)
SIOS: Information System for Underground Works 3rd phase. Comprehensive Management Systems for Works (Works and Maintenance)	Works and Maintenance	329.6
ARQOS: Analysis of the service quality parameters of the GSMR-R mobile communications network to determine the correct process of the planning of the network and its services (Installations and Railway Systems)	Railway installations and systems	194.8
SAD: Decision Assistance system for the management of incidents within the railway sector (Installations and Railway Systems)	Railway installations and systems	69.6
Flight simulator A 320 (Air Navigation Systems)	Systems and air navigation	138.4
RWY-EX: Aircraft Operations Simulator in Runways for Safety Evaluations (Air Navigation Systems)	Systems and air navigation	140.0
HELIOS: Calculation and Evaluation of aerodrome safeguarding (Consultancy)	Consulting	158.2
CRONOS: Development of an integral solution for the analysis of railway lines operation (Consultancy and Railway Projects)	Consulting and railway projects	232.5
<b>Total budget</b>		<b>1,263.1</b>



## National RDI Plan

### Incentives for R&D infrastructure and transport 2008 projects

PROJECT	BUDGET (thousand €)	OTHER PARTICIPANTS
Railway interoperability advanced systems based in technologies through the development of ERTMS components (Eurolazo)	73.0	Adif, Dimetronic, Fundación Infoglobal, Infoglobal, Renfe Operadora
Identification and Communication technologies for the improvement of the information and safety conditions during the logistic chain (Ticlog)	264.0	Adif, Insyte, Redyslogar, Renfe Operadora, UCM
Harmonic interferences in railway infrastructures	113.0	Adif, Elytt, Renfe Operadora, Tainelec, UCM
<b>TOTAL</b>		<b>450.0</b>

### Incentives for experimental development projects of the Ministry of Environment and Rural and Marine Affairs

PROJECT	BUDGET (thousand €)	OTHER PARTICIPANTS
Vulcano project. Development of prevention and risk evaluation in an electrical and railway lines environment	187.6	Adif, Iberdrola, Red Eléctrica
<b>TOTAL</b>		<b>187.6</b>
<b>TOTAL</b>		<b>637.6</b>

# A TOP-TIER team



## **training, professional advancement and development**

The company has created an organisational structure that focuses the entire workforce on improving the business and which is embodied in a career schedule which entails three avenues for advancement (management, technical, and support) all of them valid and assimilable under the organisational structure. These three channels can be transversed and offer employees the possibility of both vertical and horizontal development.

In addition, various software tools have been installed which provide support to personnel management processes, resulting in increased flexibility, speed and efficiency.

Ineco Tifsa remains committed to expertise and service quality.

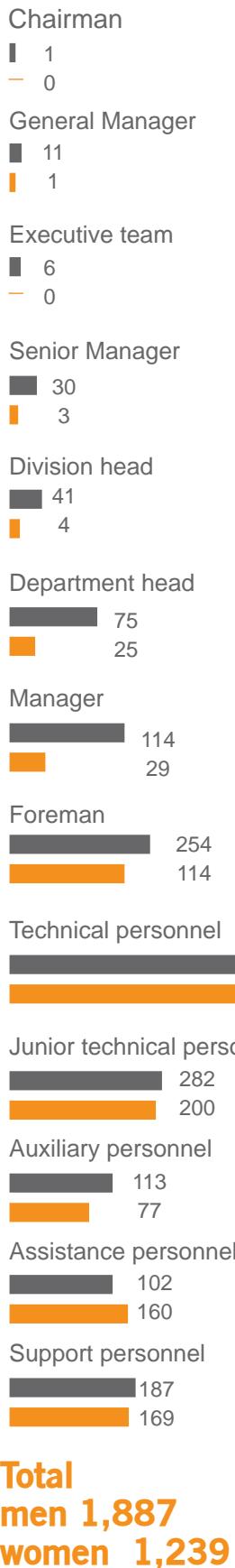
In 2009 it prepared a four year plan, which will start in 2010, customising a training and educational programme for each position in the company. This plan places a special emphasis on in-house training as a strategic tool which helps improve the competitiveness of our professionals. E-learning is also an important mean of spreading knowledge, especially for groups which may find it difficult to attend courses in person.

For the second consecutive year, Ineco Tifsa has been designated one of top thirty companies in Spain to work for, according to the prestigious international consulting firm CRF, whose report highlighted our corporate culture and work environment. This is a well-deserved recognition of the efforts made by Ineco Tifsa in developing human capital and attracting and rewarding talent.

# company information

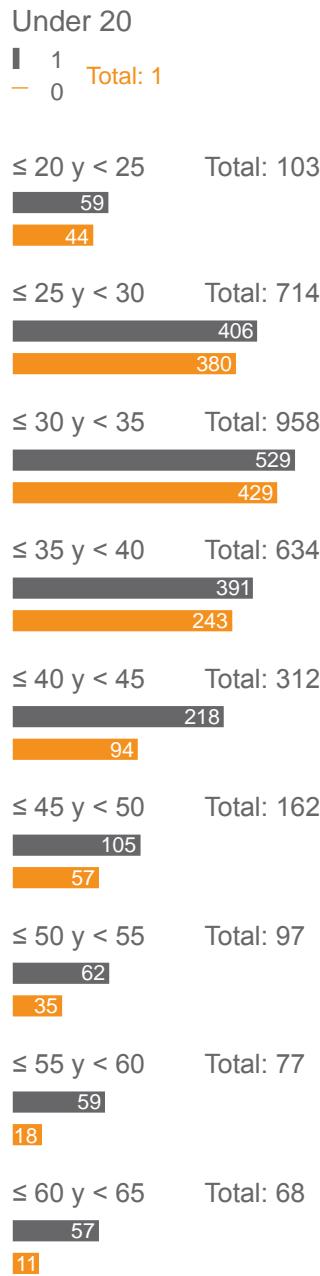
at 31 December 2009

## Personal career schedule



## Workforce breakdown by age

Men      Women



Average age  
35.52 years



**2009  
new ratios**

Item	2009 investment
Training hours	132,191
Training hours (workforce average)	44
People trained	1,939
Investment in training (thousand €)	3,075.7
Average investment per employee (workforce average) (€)	1,019
Total training investment/total payroll disbursement	2.4%
Total training investment/gross annual revenue	1.1%
Average satisfaction level with training initiatives	7.5 out of 10

**Workforce**

3,126  
09

2,879  
08

**Workforce breakdown**

International and Business Development Area	115
Railway Works and Maintenance	1,076
Installations and Railway Systems	564
Aeronautics	815
Roads and Specialties	396
Corporate	160

# QUALITY AS a challenge



# Ineco Tifsa's key priorities are to continually improve the quality of the works and services it provides and to increase client satisfaction levels

We would highlight the following group initiatives:

- Creation of taskforces to review procedures and harmonise work practices and the use of software tools for streamlining management.
- Implementation of a single work planning and monitoring system.
- Development of specific systems for monitoring the quality of works in the different business areas. These systems are complementary and operate in conjunction with the quality control system, taking into account the individual features of the different types of projects and services.
- Implementation of a single work planning and monitoring system for controlling measuring and testing equipment.
- Improvement in the processes for increasing client satisfaction and anticipating expectations through interviews at senior management levels.
- Improvement of the support processes and expansion of corporate services and interactive initiatives.
- Organisation of support and coordination groups in the different areas to carry out management functions.
- Improvement in training process.
- Increased monitoring and control of processes and activities, in order to carry out improvements on them, and define the objectives to be incorporated into the system.

All of Ineco and Tifsa's activities are ISO 9001:2008 certified. In addition, Tifsa is accredited as an Inspection Body for Railway Rolling Stock, in compliance with the ISO/IEC 17020 standard, and is in the process of being accredited as an Independent Safety Assessment Entity.

# PROJECT excellence



**45** Aeronautics

**85** Railways

**143** Roads

**153** Other works

**157** International business



AERO  
NAU  
TICS

# aeronautics



# Ineco Tifsa carries out a wide array of projects in the aeronautics sector: consultancy, airport projects, air navigation systems and works and maintenance

In 2009, the group carried out studies and projects and managed works at various Spanish airports, for Aena and private clients, as well as at other international airports and organisations such as Eurocontrol, in the navigation area.

Ineco Tifsa continues to provide support to Aena in the ambitious expansion plans of different airports, encompassed under the Barcelona, Málaga and Levante Plans. In addition it took on a new project in 2009 with the Canary Islands Airport Expansion. Furthermore, we have worked on projects in many Spanish airports, including the expansions of the Santander, Madrid-Barajas, Almería, Ibiza and Córdoba airports, and also participated in the construction of a heliport in Algeciras.

In the air navigation area, Ineco Tifsa carried out several air traffic control projects, and other projects involving communication, navigation and surveillance systems and satellite navigation systems, etc. The group also embarked on important projects such as soliciting AESA (Agencia Estatal de Seguridad Aérea, or State Air Safety Agency in English) certification to provide airfield flight

information services (AFIS), a 3D mathematical model for determining the risk of collisions for Eurocontrol, different ATC sectorisation projects, and the completion of the the rollout of ICARO XXI in over 50 sites for Aena.

Internationally, Ineco Tifsa has carried out projects in different countries among which we would highlight the airport in Cape Verde, the completion of the airport infrastructure upgrade at the Walvis Bay airport, (Namibia), and the works on the Jorge Chávez airport in Lima, (Peru).

We have participated in a large number of international air navigation projects, many of which fall under the EU Framework Programmes. The most notable are the OPTIMAL, CREDOS, SESAR, GIANT and GRAIL projects.

# airport projects

## projects

The key projects carried out in 2009 are the following:

- The drafting of Good Environmental Practices guidelines for selecting safe construction materials.
- Control access to Agaete port.
- Galileo Control Centre.
- Technical review of the projects in the shopping areas of the new Terminal T1 building at the Barcelona Airport.
- Technical assistance for the review of Aena projects, giving continuity to similar reports from previous years.
- Development of several new power stations at airports that have undergone expansion recently, such as the ones in Valencia, Almería, Córdoba and León.
- Project drafting for parking buildings associated with the new terminal buildings at Barcelona, Gran Canaria and Málaga.
- Two building projects in Cape Verde: the remodelling of the Sal passenger terminal and the construction of the new Boa Vista cargo terminal.

- Development of a simulator for air navigation electricity installations (SIENA).

- In the field of air navigation, the company is developing a programme to update the regulations for the CNS/ATM support installations and update the energy and climate control system maintenance manuals.

## Terminal buildings

- Remodelling of the passenger terminal building in the Sal Airport (Cape Verde).
- Renovation of Ibiza Airport's terminal building in accordance with a functional design.
- Renovation of check-in area and boarding gates at the Murcia San Javier Air Force Base, which is open to commercial aviation.
- Renovation of the Santiago de Compostela Airport's terminal building and parking structures.
- Shopping areas in Module C of Palma de Mallorca Airport.
- Renovation of horizontal faces and refurbishment of terminal A in the Valencia Airport.
- Expansion of the terminal area of the El Hierro Airport.

# aeronautics



- Shopping areas in the T2 building of the Valencia Airport.
- Remodelling of the T1, T2 and T3 terminals at the Madrid-Barajas Airport.

## Parking buildings

- Rent a Car car park building in the Málaga Airport.
- Construction of various car parks at Gran Canaria Airport.
- Integrated car park opposite passenger terminal at Menorca Airport.
- Works to treat ramp surfaces of the P1 parking building at the Girona Airport.
- Multi-story parking building and remodelling of the streets in front of the terminals at the Barcelona Airport.

## Auxiliary airport buildings

- New cargo terminal building in the Boa Vista Airport.
- Roof and expansion of baggage handling area at Asturias Airport.
- Emulsifier warehouse at the Valladolid Air Force Base, which is open to commercial aviation.
- Provisioning and installation of furniture for the Ibiza Airport.
- Hydrocarbon separation plant on the civilian apron and the guard booth at the Leon Airport.
- Revamping of heating system in the terminal building of the Girona Airport.
- General services building and Border Inspection Point (BIP) at the Bilbao Airport.

# aeronautics



- Refurbishing and upgrades to the public area of the Girona Airport.
- Fire prevention and first aid building (SEI in its Spanish initials) at the Almería Airport.
- Restoration of the fencing around the Ceuta Heliport.
- New maintenance workshops at the Mallorca Airport.
- Restoration of the pavement and fencing at the Menorca Airport.
- Basic project for new office building in the south zone of the Madrid-Barajas Airport.
- Remodelling of the Aena laboratory building.
- before the opening of the new terminal T1 building at Barcelona Airport.
- Drafting of action plans for emergency situations affecting the electrical system at the Madrid-Barajas Airport.
- Preliminary project for the new power plant for the future satellite building of the Barcelona Airport.
- Study analysing electric charges at the Valencia Airport.
- New power plant on the southern side of the Valencia Airport and the refurbishing of this airport's electrical system.
- Report on the standardisation of airport electrical systems.
- Preparation of the manuals adapting maintenance and operation procedures for electrical systems in airports, in conformance with
- Work related to the drafting of the building inspection and supervision procedures that had to be performed

## Airport electrical installations

- Work related to the drafting of the building inspection and supervision procedures that had to be performed

the Royal Decree governing safety protocols in jobs related to electrical installations.

- Training of maintenance personnel for airport electrical systems via the SILA simulation tool (airport electrical installations simulator).
- New power plant and energy distribution system for the Almería Airport.
- New power plant and energy distribution system for the León Airport.
- New electrical plant at the Córdoba Airport.
- Refurbishing and upgrades to the public area of the Girona Airport.
- Installation of improved signage at the Seville, Palma de Mallorca and Ibiza airports.
- Construction of new control rooms for the Ibiza Airport. Renovation of apron lighting.
- Study on illumination for common areas in the CLASA general services building in Madrid.

## Technological airport installations

- Assistance with the supervision of the installation of control and display

systems, and point to point visual aids control systems.

- Implementation of a single comprehensive safety system at the Alicante Airport.
- Second phase of the implementation of an integrated control system under IAS (Industrial Application Server). Gerona Airport.

## Air navigation installations

- Drafting of the new standards for CNS/ATM support installations and the specification of functional requirements for the construction of air navigation infrastructures such as air traffic control towers.
- Development of a simulator for air navigation electricity installations (SIENA) for training personnel in the operation of electrical systems characteristic of navigation installations such as those of ACC, control towers or radars.
- Updating of maintenance manuals for the air navigation electrical and climate control systems.
- Modification of the maintenance procedures in order to comply with the requirements the Royal Decree governing risk prevention in work related to electrical installations.

- Refurbishment of the climate control system for the Gran Canaria control centre.
- Emission centre at the new Air Traffic Control Centre (TACC) of the Valencia Airport.
- Preparation of material on energy and climate control for the air navigation training course.
- Performance of service tests for the air navigation installations of the Ciudad Real, Murcia-San Javier and Lleida airports.
- Refurbishment of the 02-20 runway of the Barcelona Airport.
- Expansion of the apron at Reus Airport.
- Urban infrastructure development in the reserve zone (second phase) of the Barcelona Airport.
- Urban infrastructure development in the cargo zone of the Barcelona Airport.
- Urban infrastructure development of zone for auxiliary services in the Girona Airport.

## RDI

- Methodology for the precise measurement of electrical consumption in an airport.
- Installation of photovoltaic panels at Ineco Tifsa's headquarters on Paseo de la Habana.
- Design of an experimental pilot plant to analyse the feasibility of climate control using absorption machines powered by solar-heated water.
- Performance analysis of high module mixes for use in airport pavements.

## Airport movement areas and developments

- Refurbishment of the eastern apron of the Tenerife Sur Airport.

- Identification of obstacles in the approach, take-off, transition and circuit areas of various airports.

## International area

In the international area, the refurbishment of the Boa Vista Airport (Cape Verde) has been completed and a project to repair the runway of the Jorge Chávez Airport in Lima (Peru) has been initiated.

## aeronautical engineering services

## Support to infrastructures management

The company continues to provide support to Aena's Infrastructures



management, the main purpose of which is to provide technical assistance to the major expansion plans of various airports and to central services.

We would highlight the integrated management services provided to the Málaga Airport Programme, the executive office of the Barcelona Airport Programme, the Levante Programme and the new Expansion Programme at Canary Islands Airport.

## Technical assistance provided to airports

### Madrid-Barajas Airport

- Services provided to technical office:
  - Project drafting and control of works on buildings, airfields and accesses.
  - Study on works requested at the airport.
  - Management and maintenance of MAXIMO.
  - Reception, treatment, review, archiving and distribution of the final documentation for works projects.
  - Support in the maintenance and control of the quality management system.
  - Drafting of Winter Action Plans (PAINV).
- Technical assistance for development and maintenance of a geographic information system (GIS) and the cartography database.

- Collaborating on defining the new functionalities of the geographic information system (GIS).
- Maintenance of the geographic information system.
- Review of the graphic information contained in the final documentation for works projects.
- Updating of cartography database to DIACAE format.
- Supervision of the topographical vertices of the Cartography and Airport Topography Network (RCTA in its Spanish initials).

### Barcelona Airport

- Technical assistance for controlling airport security services and processes:
  - Support for control and maintenance for security equipment and installations.
  - Collaboration in the execution of new projects.
  - Performance of monitoring procedures and evaluation of the effectiveness of same.
  - Support in planning and developing security systems.
- Service for integrating graphic and GIS documentation:
  - Integration of graphic documentation and development and maintenance of a GIS.

# aeronautics



- Management of technical documentation centre.
- Updating of airport plans/blueprints in DIACAE format.
- Service for the technical office:
  - Coordination and monitoring of works projects.
  - Project drafting for airport projects.
  - Ensuring compliance technical design and operations regulations for aerodromes and preparation of validating documentation.
- Coordination and monitoring of works projects.
- Coordination related to occupational safety and health.
- Installation maintenance management support.
- Technical support in coordinating Canary Island airports.

## Santiago Airport

- Planning and monitoring of the start up of the new terminal area.

## Seville Airport

- Updating of graphic information displays to DIACAE format.

## Tenerife Sur Airport

- Drafting of airport-related projects.

## Lanzarote Airport

- Support in drafting procedures, airport planning, and operations monitoring and analysis.
- Project drafting and works coordination.

## Palma de Mallorca Airport

- Airport project drafting.
- Coordination of airport activities.

# aeronautics



- Technical support to works management.
- Control of airport security services and processes.

## Support to Airport Management

### Technical support services to airport security management

- Consultancy services and support for the functional development and coordination in the deployment of airport security management (GSA) software at various airports in the Aena network.
- Needs analysis and study, and drafting of technical specifications for security equipment for screening passengers, hand and hold luggage at various airports in the Aena network.
- Supervision of the provisioning and installation of security equipment for

screening passengers, hand and hold luggage at various airports, including terminal 3 at Málaga Airport and the NAT at the Alicante Airport.

- Supervision of the provisioning and installation of integrated access control systems (SICA) and one-way passenger corridors at various airports in the Aena network.
- Verification of the degree of compliance with the National Security Programme at various airports in the Aena network.
- Drafting of operations security procedures in compliance with applicable regulations.

### Technical support to the services inspection division

- Support in carrying out inspections and drafting inspection reports for airports in the Aena network, as well as drafting follow-up reports, managing the division's database and the anomalies detected.

## **Technical support to the operations division**

- Drafting of airfield manuals and of the upgrade plan for Annex 14.
- Collaboration in the certification process of the airports in the Aena network.
- Drafting of reduced-visibility procedures for the airports in the Aena network.
- Drafting of operational procedures and instructions relating to activities performed on airfields and the apron.
- Review of terminal building projects prior to their execution.
- Review, drafting and adaptation of employee safety manuals and emergency procedures.
- Assistance with tasks relating to PRM accessibility and volume handling.
- Terminal capacity studies.
- Tasks relating to airport signalling.
- Contracts for identifying obstacles at various airports and update of obstacles database in the ASOS system.
- Monitoring of airside incident reports.

- Study on the requirements for version 2 of the Apron Incident Management (GIP in its initials in Spanish) application and training courses.
- Development of the coordination process relating to the works impacting on winter 2008/summer 2009 operations.
- Drafting and update of various operations instructions.

## **Technical support for the implementation of the Operational Safety Management (OSM) system**

- Definition and deployment of the OSM system in fifteen airports.
- Preparation of airport-based training courses and related tasks.
- OSM system support and maintenance work at airports where the system has been deployed.
- Internal supervision at nine airports.
- Various aeronautical safety assessments of airports and risk analyses of projects in the pipeline for these airports.

## **Technical support to the equipment division**

- Drafting of technical guidelines for public tenders for the supply of airport vehicles.



- Testing of incoming equipment for approval.
- Monitoring of the vehicle fleets in use at all the airports in the Aena network and maintenance of mobile equipment databases.
- Maintenance and updating of the CONOPER and SCENA operations and management systems databases, as well as the management of the incidents registered at airports using these databases.
- Studies on new air transport models.
- Drafting of short and medium-term traffic volume forecasts, processing of contracts and management of passenger and airport users' claims log.
- Supervision of new ramp handling agents.
- Definition of requirements and deployment of the SIRIAH software application.
- Monitoring, update and assessment of the quality of Aena's Information and Telephone Assistance System (SIAT), calibration and analysis of the call centre's voice recognition system.
- Preparation of routine and on-demand statistical reports using the ESTOP application.
- Technical support to airports, diagnosis and analysis of present and future airport infrastructure.

### Technical support to the airport services division

- Supervision of new ramp handling agents.
- Definition of requirements and deployment of the SIRIAH software application.
- Monitoring, update and assessment of the quality of Aena's Information and Telephone Assistance System (SIAT), calibration and analysis of the call centre's voice recognition system.
- Preparation of routine and on-demand statistical reports using the ESTOP application.

### Technical support to Central-North Group Airports

- Needs evaluation of group airports based on the strategic objectives established.
- Supervision and monitoring of objectives, indicators and targets of airports' operations plans.
- Technical support to airports, diagnosis and analysis of present and future airport infrastructure.



- Supervision and monitoring of traffic, passenger, incidents statistics, indices of perceived quality and other airport indicators.
- Preparation of the documentation needed for developing the airport executive committees of the group.

## Technical support to the technical and operational studies division

- Activities related to the airport service levels reference manual.
- Analysis of the results of the field study regarding service levels carried out in the Grupo Este airports.

## Technical assistance to the Aena's coordination division in airport slots

Studies and tasks relating to defining, upgrading and controlling airport programming for slots.

## systems and air navigation

### Communications, Navigation and Surveillance Systems (CNS)

#### Communications

- Collaboration in all phases of equipment supply contracting for the Ciudad Real and Lleida-Alguaire airports.
- FAT (Factory Acceptance Test) and SAT (Site Acceptance Test) testing of systems and validation for operational deployment, as in the case of the Málaga, Córdoba and Madrid-Barajas airports.
- FAT testing and verification of the functionality of the new software versions for control tower voice communications.

- Validation and start up of the ATIS systems (Automatic Terminal Information System) of the Jerez, Girona and Menorca airports.
- Coverage and technical feasibility studies for the allocation of new ground-to-air communications frequencies.
- In-flight verification of radio communications station coverage.
- Support for the integration of the VHF Data Link into the terrestrial network under the IP protocol, as well as the definition of the requirements for the acquisition of testing models.
- Frequency planning, management and coordination for all air navigation systems, and electromagnetic compatibility and interference studies: Málaga and Castellón airports.
- Assistance to international taskforces in managing and planning of the radio electric frequency spectrum such as the Frequency Management Group (FMG) and the World Radiocommunications Conference (WRC).
- Ineco Tifsa was also present at the FAT of the CVOR THALES 431 equipment in Milan, DME Fernau 2020 in Lutton and ILS NORMARC 7000B in Oslo, as well as at the SAT and calibration flights of numerous installations.
- Participation in the definition, specification, implementation and start up of the Integrated Radio Aid System (SIRA in its initials in Spanish). In 2009 it prepared Air Navigation Directorate reports for the Southern region and Balearic Islands Balearic Islands.
- Technical assistance for the COSENAR programme which intend to harmonise the configuration of the radio-aid systems, unifying procedures for systems operations, systems failure analysis in accordance with the maintenance data, information dissemination, resolutions and tools related to radio-aid and air navigation.
- Support to the implementation process of new RNAV DME-DME routes for TMAs in Spain: evaluation studies based on simulation and subsequent validation, analysis and the application of PBN (Performance Based Navigation) and new material for the guide developed by ICAO.
- New functions implemented in the COVERNAV tool for improving and speeding up analysis of the RNAV

## **Navigation**

- Start up of the ILS/DME at Tenerife Sur 08, Almería 26, Menorca 19, and also in the VOR/DME of the Cuesta de la Reina, among others.



infrastructures in the development phase for procedures and the subsequent in-flight verification, in line with the latest requirements set forth in the PBN (Performance Base Navigation) manual.

- Study of effects of radio magnetic waves and radio aid simulation studies for signal quality analysis within the range of these installations, as a consequence of the interference caused by the construction or installation of new infrastructure in the vicinity.
- Evaluation of optimal dimensions of critical and sensitive ILS areas and identification of taxiways affected, and solutions to avoid reducing runway capacity while maintaining safety levels.
- Validation of electromagnetic simulation tools through correlation of results from flight trials carried out in Gran Canaria and Madrid.
- Feasibility and economic studies on CNS installations and collaboration on drafting action plans for the route/TMA and approach services.
- Development of tools and a methodology for capturing operational parameters directly from Air Navigation facilities for analysis and quality assessment of their working order and identification of potential breakdowns.
- Operational safety of radio aid and radar installations: safety analysis of and risk mitigation for these installations.
- CE verification (an SES requirement) of radio-aid and radar systems: preparation of verification reports, contracts and plans to be filed for CE verification.
- Participation in international work groups (Wind Turbine Task Force and Navigation Steering Group) in representation of Aena and

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management of agreements with universities.

## Surveillance

- Support for the implementation of new radar installations and in the analysis of new technologies and surveillance systems based on ADS.
- Drafting, monitoring, installing and updating primary and secondary radar contracts, multilateration and SMR (Surface Movement Radar) and support for the A-SMGCS programme (Advanced Surface Movement Guidance Control System).
- Monitoring of status of radar surveillance service through the compilation and analysis of radar data recorded in different ACC (Area Control Centre), drafting of reports and suggestions for preventative and/or corrective actions.
- Support to the Radar Information Quality Control Programme (COCIR

in its initials in Spanish) and monitoring of actions undertaken.

- ADS surveillance (Automatic Dependant Surveillance):
  - Support for activities related to the ADS/CPDLC System installed in FIR (Flight Information Region) Canarias (SACCANv2) and the ECA-UP system installed in CED and in SIMAC (ADS/CPDLC simulator).
  - Continual supervision of the functioning of the SACCAN model in the CED.
  - Participation with Indra in the treatment of the new operating requirements of SACCAN.
- Safety study: compilation of data on detours received from the ACC in the EUR/SAM corridor (Europe/South America) and carrying out of studies on collision risk, taking into consideration ADS-C (Automatic Dependant Surveillance-Contract) information.

- Collaboration in the preparation of the documentation to obtain certification as a navigation and surveillance service provider from Aena.

## Maintenance management and technical operations

- Coordination and management of all the phases entailed in the process of defining a training plan for Aena air navigation maintenance technicians.
- Updating of maintenance manuals for Aena air navigation technical operations.
- Engineering support for the CNS/ATM infrastructures support division and collaboration with the Air Navigation Directorate contracts managers in project management, monitoring and coordination of health and safety issues, environmental protection, and the drafting of special infrastructure projects.
- Analysis of the organisation of the technical operation of Aena's air navigation system and the preparation of studies on how to improve it.
- Collaboration in activities related to in-flight radio aid verification. Assistance was provided to Aena International in creating the new in-flight identification unit.
- Activities related to the implementation of the certification

function of the air navigation installations.

- Development, in collaboration with the maintenance division for the Canary Island region, of the GESPLAM software application for managing air navigation maintenance.
- Collaboration with the geographical and aeronautical rights of way department.

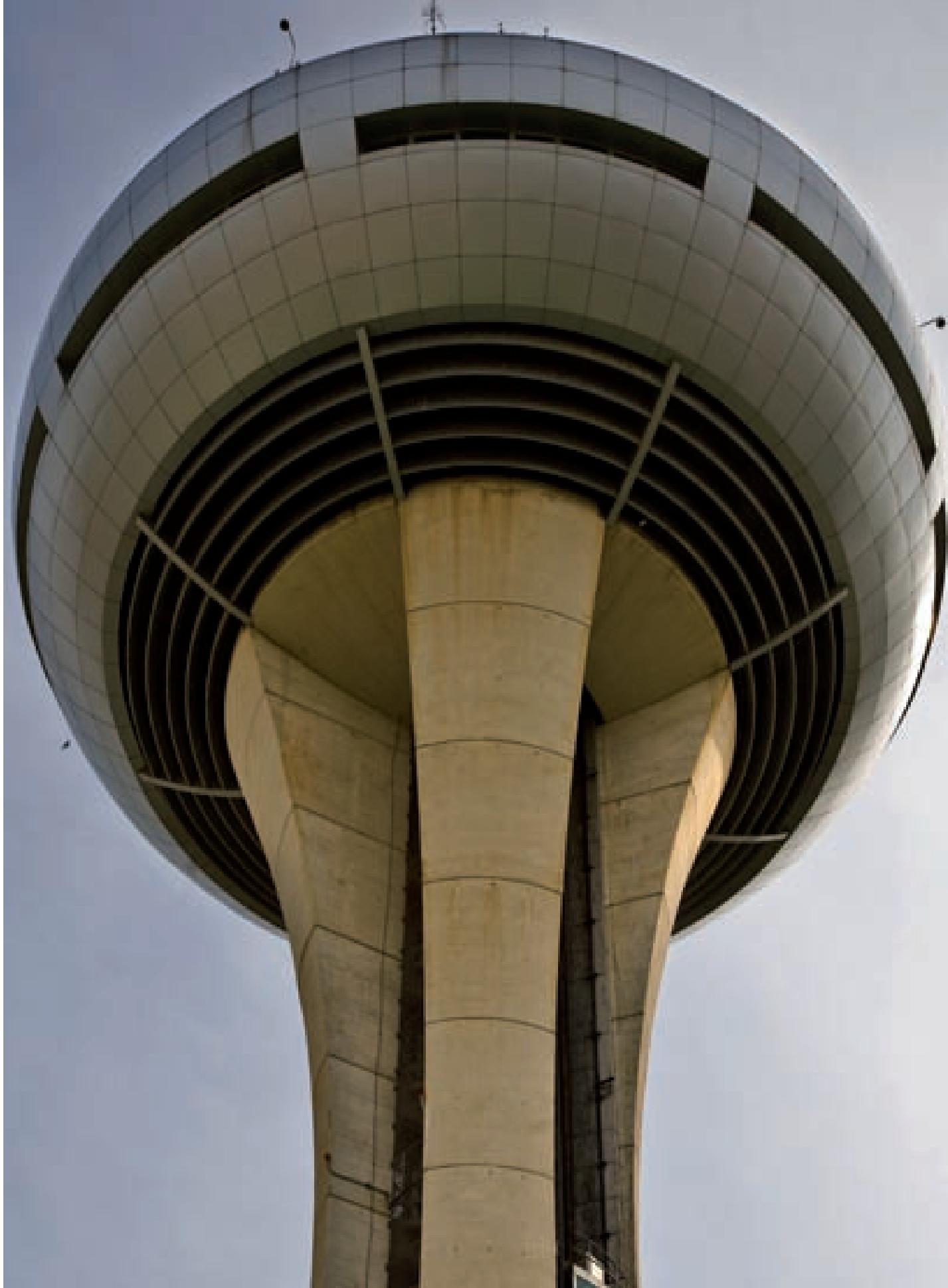
## Development of the air navigation system

- Simulation and optimisation of runways and aprons at the Málaga and Alicante airports.
- Study on optimised operations simulation at the Madrid-Barajas Airport, with a time horizon of 2010.
- Airport/TMA study: simulation and feasibility study of the New Madrid Airport System (NSAM in its initials in Spanish ) for the selected proposal 04/22 (LECR 4 runways) and the transition scenario (Madrid-Campo Real operates with two runways in mixed mode, and Madrid-Barajas with 4 runways).
- Air space study: simulation for the study of possible radar guided approach manoeuvres to the Ibiza Airport and analysis of the impact of the update of AATCS CF1 and CF2.

- Start up of a ATC monitor (Air Traffic Control) (eTLM-MWM-WAC) work load as a support for the supervisor positions in the MAS-UAC (Maastricht Upper Airspace Control Centre).
  - International procedure evaluations projects to optimise the capabilities of the ANS (ATMAP, AP9, etc.).
  - Participation in the definition phase of the SESAR Programme: analysis of the general strategy for the validation of the operational concept. In the EP3 project, the company participated in the clarification and refining of the SESAR concept of flexible air space use for both civilian and military aircraft.
  - Development of the Platform for the analysis of the effects of the network of sectorisations in operation (PERSEO in its Spanish initials).
  - Support activities for various Aena R&D activities (PITOT, HYSIM, XMAN-II, ITACA, MIDAS voice recognition and voice synthesis, etc).
- Barcelona, Palma de Mallorca and Gran Canaria.
- Validation of new control functionalities with operational impact corresponding to AATCS configuration CF2:
    - Redesignation of runways under radar.
    - New operating procedures regarding levels.
    - Coordination and transfer.
  - Completion of the migration to ICARO XXI, weather and flight information management and distribution system, including user training at the various sites where the system is installed: 56 AROs (Aerodrome Reporting Office), 21 control towers and more than 10 additional users (military, airlines and aircraft manufacturers).
  - Collaboration in the definition of requirements for the new treatment of advanced flight plans, iTEC-eFDP, which will be incorporated into AATCS in the AATCS-iTEC 4.1 version.
  - Leader in procedures design, coordination and startup of the support office for air navigation regions to channel, prioritise and resolve as quickly as possible, any issues arising during AATCS operations.
  - Implementation of a safety management system and of the

## Air traffic control systems

- Launch of the 3.Z5 version of AATCS (Automatic Air Traffic Control System) at the Madrid, Canary Islands, Seville, Palma de Mallorca and Barcelona airports, as well as in the control towers at Madrid-Barajas,



safety requirements based on the ESARR regulations under the Single European Sky and the SAM (Safety Assessment Methodology) methodology.

## Systems engineering projects

The group has developed a series of tools, defined in accordance with Aena, to provide support and facilitate the studies of air navigation by different teams of specialists.

In this regard, it has developed a project with Adif to launch a methodology applied to its Experimentation and Validation Centre, which it will deploy for high speed lines.

The most relevant are the following:

- **INVENTA:** Web portal for managing inventory of land-air equipment.
- **TRAFGEN (air traffic generator):** Tool for preparing traffic samples that operate independently from the simulators used habitually.
- **E-TLM (advanced workload monitor):** To optimise the work load of the air traffic controller in real time.
- **SPADE 2 (support platform for decision-making and airport efficiency analysis):** The aim is to build a platform which integrates the different tools for analysing the airport environment.

- **EPLAN AIRPORT:** Collection of web services which allow remote access to SPADE type systems.
- **COVERNAV (coverage calculations):** Support for studies on the line-of-sight coverage of radio-aid installations.
- **COVERGBAS (coverage calculations adapted to GBAS stations):** The coverage tools have been adapted to the specific requirements of the GBAS (Ground Based Augmentation System) stations, expanding its scope to include studies in the vicinity of airports and also considering artificial obstacles such as buildings, hangars, communication towers, etc.
- **PSI profiles (Integrated Supervision Position or ISP):** The different users generated for the ISP of the AATCS system are managed in a centralised form in all the Aena installations.
- **Message injector:** a support tool for AATCS testing which enables web traffic simulation by inserting messages into the system buses.
- **Flight simulator:** Flight simulator integrated with the different ATM (Air Traffic Management) tools.



## Operation and deployment of ANS

- Request for certification of Ineco as an airborne flight information service (AFIS) provider and report on compliance with the requirements thereto.
- Analysis, evaluation, and optimisation of the air transit service provided.

## Performance analysis of the ATM system

- Monitoring and analysing aircraft operation in Spain's main towers and control centres.
- Identification of Air Navigation actions required for the implementation and subsequent operation of Air Navigation services at emerging airports.
- Forecasts of future scenarios, with the aim of managing air traffic, both

in airport environments and in air space.

- Design of control and display systems for detecting incidents and analysing their impact on the short and long term situation.

## Management of ATC operations in airports and air space

- Reorganisation projects for ATC sectorisation through the GENES methodology (new sector structure manager):
  - FAB (Functional Air Block) Spain-Portugal: reorganisation of the air space affected by the FAB definition project undertaken by Aena in conjunction with Nav Portugal.
  - NSAM: generation of ATC sectorisation for the New Madrid Airport System (NSAM).
- Development of quick-time simulations using RAMS Plus:
  - NSAM: analysis of PRNAV (precision RNAV) procedures for

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evaluating the utilisation of the transitions to the localizer in the participating airports (Barajas and Campo Real).

- FAB Spain/Portugal: Analysis of the main traffic interchange routes with Portugal, and evaluation of the different options considered within the project.
- Analysis of the rerouting of Paris and Benelux flows and their impact on the balanced use of the two landing runways in Madrid/Barajas in the north and south configurations.
- NORVASE programme and initiatives (sector validation regulation):
  - “2008 annual report on Spanish sectors”.
  - Analysis of ATC sector proposal that have applied to be monoposition candidates.
  - Evaluation of work load in the Canary Islands ocean sector, usage of the ADSC (Automatic Dependant Surveillance Contract)-CPDLC (Controller Pilot

Data Link Communications).

- Application of the methodology in the new versions of the AATCS.

- Drafting of follow-up reports for the analysis and improvement of ATC sectorisation:

- “Sector management scorecard”.
- “Demand-capacity management-protocol”.
- “Operating reference configurations”.
- “Forecast of ATM system performance indicators”.
- “Comparison of configurations in use”.
- “Follow-up report” (POS).

- Support to the traffic flow management functions by analysing on-time performance, delays and instances of CTOT (Calculated Take Off Time) non-compliance.

- Support to air traffic controller shift management: automatic assigning of human resources in ATC sectors

through the use of software applications specifically designed to ensure homogenous shift rotation and to comply with the directives of the Civil Aviation Authority, acting as a support for the functions of the air traffic control room operational manager (SALOMON software).

- Review of airport master plans: chapters related to air navigation (runway capacity, procedures and sectorisation) in accordance with the different growth scenarios forecast such as: the Fuerteventura, El Hierro, La Palma, Gran Canaria, Tenerife Norte, Tenerife Sur and Seville airports.

## Airspace structuring and organisation

- Design and construction of RNAV approach manoeuvres (GNSS: Global Navigation Satellite Systems) with vertical guidance based on SBAS (APV SBAS: Space Base Augmentation System Approach with Vertical Guidance SBAS) for the Cuatro Vientos, Santander and Córdoba airports in the GIANT 2 project.
- Design and construction of RNAV approach manoeuvres (GNSS) without vertical guidance (RNAV—GNSS—NPA for the La Palma Airport.
- Participation in the proposal for the future Barajas TMA and Canary Islands TMA based on PRNAV.
- Other proposals for airspace restructuring among which are notable the TMA for Seville and Almería.
- Analysis of the viability of the implementation of the CAT.II/III approaches at the Tenerife Norte.
- Participation in the Technical Assistance Plan (TAP) established in the EUROMED Aviation Project: participation in the Technical Assistance Actions 52 (TA52): Flight Procedure Design On-the-Job Training, for different MEDA cities: Syria, Jordan, Egypt and Israel.
- Initiation of participation, under SESAR regime, of the 5.7.2. project of the SESAR Joint Undertaking (SJU): “Development of 4D trajectory-based operations for separation management using RNAV/PRNAV”.
- Participation in route design and airspace restructuring through the following international taskforces: RNDSG, AEFMP, SAT, OWG and tripartite AENA-NAV Portugal-ONDA -Morocco.
- Collaboration in technical development of Aena's offerings (BAFO1), in order to participate in the



SESAR programme as a member of the SJU.

- Participation in the launch and drafting of the Project Information Report (PIR) of the different projects underway over the course of the year, in the SESAR programme.

### **Strategic planning**

- Consulting for Aena's Air Navigation Directorate (DNA) division on the strategic planning process guiding the medium-term growth of the Air Navigation system and organisation, and on the definition and launch of the corresponding projects and activities.

### **European convergence**

- Consulting services for Aena's Strategy Management and Planning division in the planning of the action lines included in the Local European Single Sky Implementation (LESSIP) and the monitoring of those actions

which affect Aena's Air Navigation Directorate.

### **Certification and Single European Sky (SES)**

- Consulting, management and coordination services for ongoing adaptation of the Air Navigation Directorate to the new regulatory framework and functional scenario derived from the development of the Single European Sky initiative.
- Support for maintenance of Air Navigation Directorate certification as provider of ATM, CNS and AIS (Aeronautical Information Service).
- Monitoring and participation in the consulting processes for developing regulations in line with the second package of the Single European Sky (SES II).

### **New operating concepts**

- Consultancy services for Aena's Strategy Management and Planning



division regarding its role in defining the Future ATM Operational Concept for Europe (within the SESAR Programme).

- Consultancy services for Aena's Strategy Management and Planning division in defining the performance based ATM management model under the framework of the SESAR Programme.

## Operational security

- Support to the Quality, Safety and Certification unit in carrying out safety studies and risk evaluations during the operation.
- Aeronautical safety study for Lanzarote's Airport's ICAO certification.
- Air navigation safety study on the operation of Madrid's new airport system for four runways in the Campo Real Airport.

- Development of a mathematical model to determine 3-D collision risk based on radar data, for Eurocontrol.
- Support to the Infrastructures division in the development of methodologies to evaluate situations of non-compliance with the regulations set forth in annex 14 of the ICAO.
- Development of methodologies for the evaluation of the VSS surfaces (Visual Segment Surface) of the non-precision instrument proceedings.
- Participation in the Technical Assistance Plan (TAP) established in the EUROMED Aviation Project, in initiatives related to safety.

## Physical safety

- Consulting to the Quality, Safety and Certification unit on the ongoing review, development and implementation of initiatives related to physical safety in the air navigation management system.

- Drafting of specific safety programmes for the installations and branches of the various regional Air Navigation regions.
- Analysis and evaluation of risk levels at all the air navigation installations.
- Collaboration in all phases of supplying equipment that guarantees the physical safety of the air navigation installations.

## Quality and environment

- Consulting services in the development and review of the processes and procedures of Aena Air Navigation Directorate, in the context of the integration process to unify management of quality control, environmental control, operational security and physical safety.
- Drafting and implementation of internal environmental audits in the various Air Navigation units and sections.

## Satellite navigation and international projects

- Monitoring of the development of the EGNOS system.
- Operational implementation of the GBAS system in Spanish air space and drafting of coverage studies for different airports in the Aena network using the COVERGBAS tool.

- Participating in the safety analysis of this system through taskforces that monitor the certifiability of the EGNOS system.
- Collaboration as experts on the Galileo certification board, organised by the GSA (GNSS Supervisory Authority).
- Management of and support for the operation of the EGNOS project's NLES (Navigation Land Earth Station) and RIMS (Ranging and Integrity Monitoring Stations) subsystems.
- Participation in the definition of the requirements for the Galileo programme's Safety of Life (SOL) centre.

## International projects

The systems and navigations area is involved in a large number of international projects, several of them in close collaboration with the railway systems area and many which are being undertaken under EU Framework Programmes:

- **OPTIMAL:** aims to develop and validate advanced and innovative procedures for the aircraft approach and landing phases, as well as for onboard navigation functions and ATM tools required to carry them out.

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- **SPADE II:** to implement the software platform.
- **GIANT:** supports the introduction of Galileo and EGNOS services in the aviation sector, specifically in regional aviation, emergency medical services and oil platform approaches.
- **GRAIL:** supports the introduction of Galileo and EGNOS services in the railway sector, especially in the ERTMS/ETCS environment.
- **RESET:** focuses on reviewing the minimum separation (SM in its initials in Spanish) between aircraft in the face of the expected increase in air traffic in the coming years.
- **SESAR:** aims to modernise ATM management in Europe, in accordance with the "Single Sky" guidelines.
- **CREDOS:** researches the possibility of taking advantage of existing crosswinds to reduce the effects of the aircraft's own turbulence on takeoff, with a view to increasing airport capacity, reducing delays and maintaining safety.
- **ASPASIA:** investigates the use of communications satellites in providing ADS services from a technical and financial perspective.
- **AAS:** defines, specifies and creates a system prototype for optimising airport apron vehicle fleet management.
- **GIANT-2:** supports the introduction of Galileo and EGNOS services in other areas of the aviation sector of interest to satellite navigation: business aviation, general aviation and flight schools as well as search-and-rescue helicopter operations.
- **MRS:** project for the European Space Agency (ESA) that investigates the expansion of current satellite navigation systems to multi-constellation, multi-frequency systems.

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- **EPISODE3:** Validation of the operational concept for air traffic congestion developed by SESAR for launch in the medium term (2020).
- **RETA-CDA:** coordinated by Ineco, this programme studies the environmental benefits that are generated by continuous descent approach procedures. These benefits mainly consist of the reduction of CO<sub>2</sub> in the airport environment.
- **TITAN:** project carried out in coordination with the SJU, aims to optimise the turnaround process for aircraft, mainly through improved information exchange.
- Expansion of the Menorca Airport's terminal building and management of the works project. Construction of a heliport in Algeciras (including project management) and various actions at the Ceuta heliport.
- Remodelling of the terminal building and expansion of the apron at the Girona Airport.
- New terminal building, developments and apron at the León Airport.
- New terminal area and control tower at Pamplona Airport.
- Architectural and functional upgrades to the facade of the terminal building of the Tenerife Norte terminal building.
- Expansion of the eastern-side apron of the Tenerife Norte Airport.
- Project management, safety coordination service and technical support.

## works and maintenance

### Infrastructures and airports

- Technical assistance for the control and supervision of the following works:

- Remodelling of the terminal building at the Santander Airport.
- Expansion of the runway and works performed on the apron and treatment of expropriated areas of the Córdoba Airport.
- Renovation of Ibiza Airport's terminal building according to a functional design.

in the branches of the Air Navigation Southern Region.

## Infrastructures division CNS-ATM

- Technical assistance in controlling and supervising the following works: construction of the new Air Traffic Control Centre (TACC) at the Valencia Airport, and associated infrastructure.
- Technical assistance in controlling, monitoring and project management for air navigation management contracts.

- Providing support for coordinating health and safety measures and environmental protection in air navigation contracts.

## International area

- Project to upgrade Airport improvement project for the Republic of Namibia including navigation and safety systems. Walvis Bay Airport.

## consulting

### Planning

- Airport master plans for the El Hierro, Fuerteventura, La Palma, San Sebastián, Seville, Gran Canaria, Tenerife Sur airports, and others.

### Air navigation

- Assistance for the technical office and management of building maintenance

- Planning studies for the New Madrid Airport System (NSAM).
  - Comparative study on the connections between terminals at the Barcelona Airport.
  - Functional model alternatives in the South terminal of the Madrid-Barajas Airport.
  - Master Plan Sangster Airport-Montego Bay (Jamaica).
  - Traffic forecasting office for network airports.
  - Strategic plan for the Panama City Airport.
  - Maximum airfield development alternative at the Barcelona Airport.
  - Planning study on air bases open to civilian traffic.
  - Functional design of the landside of the Tenerife Norte Airport.
- Methodology and evaluation of the cost of phasing out marginally compliant aircraft at the Barcelona and Valencia airports.
  - Management undertaking from the DGAC to support the runway clearance procedures for new airport infrastructures.
  - Drafting of airfield procedures manual for the Lleida-Alguaire Airport.

## **Impacted areas and airport surroundings**

- Service for the detection and alert of violations of operating restrictions at Madrid-Barajas Airport.
- Assessment and study of airport impacts in relation to urban infrastructure planning.
- Updating and establishment of the aeronautical rights of way for Aena network airports and radio-electric installations: the Almería, Burgos, Fuerteventura, Huesca Pirineos, La Palma, Málaga, Sabadell and Santander airports, the Ceuta heliport and the aeronautical rights of ways corresponding to the VOR/DME and Vejer emmission centre.

## **Operations**

- Implementation of the Operational Safety Management (OSM) system at various airports in the Aena network and maintenance of OSMs in place.
- Development of marketing plan for Aena airports.
- Drafting of the winter action plan for the Madrid-Barajas Airport.

## **Operating transitions**

- Start-up of operations at Barcelona Airport.



- Preliminary works for the start-up of operations of the expansions at the Málaga and Alicante Airport.
- Operating tests and support activities for new installations' transition process and familiarising personnel with new facilities at the different airports in the network.

## **Commercial developments**

- Supervision of the design process for exclusive commercial building works at the Fuerteventura, Barcelona and Málaga airports.
- Development and project management of the shopping areas of the Valencia and Lanzarote airports.

## **Airport businesses**

- Study on traffic assignments and space allocation for airlines at airports.
- Technical assistance for the provision of internal audit services.
- Achieving required perceived quality levels and drafting regular reports on Spanish airports.
- Technical assistance for carrying out the Emma survey campaign at Spanish airports.

## **Technological developments**

- Support service for the Public Aena website (WPA). The Aena website has been recognised as one of the twenty best sites under the ".es" domain by the public entity red.es. In addition, the Málaga airport website has won the best institutional website award of the Premios Sur.es.
- SMS service providing information on airline companies in the Barcelona and Málaga airports.
- IT and software tools specifically designed for human resources management, training and evaluation of bids.
- Digital procedures libraries at the Barcelona and Málaga airports.

## **environment**

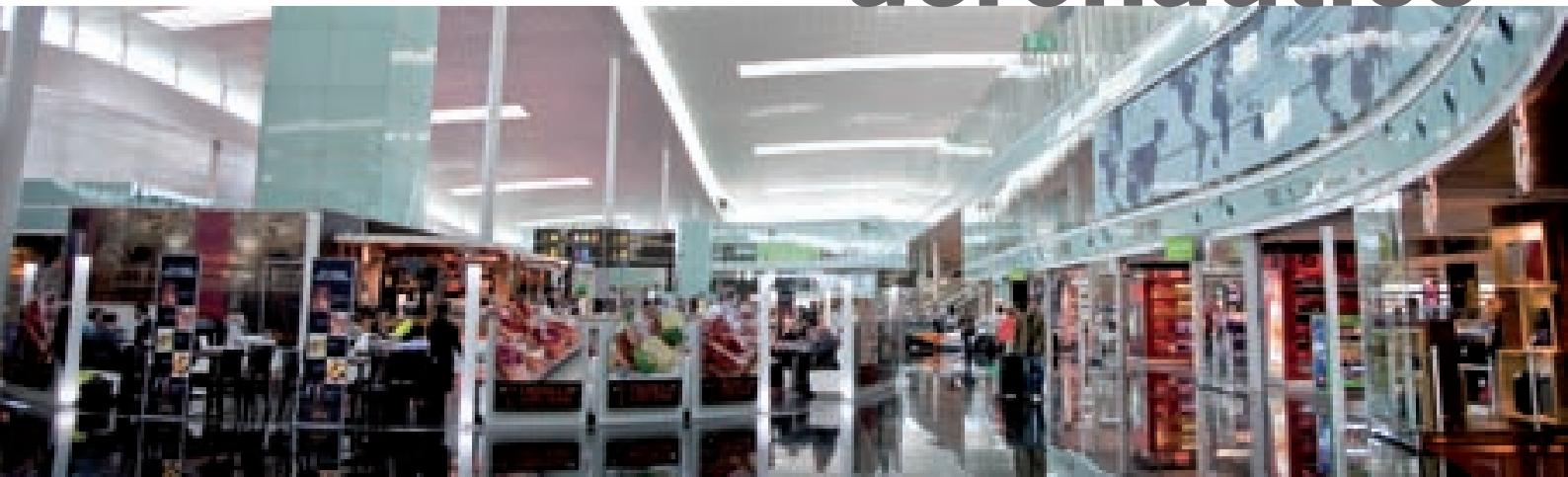
### **Sustainability strategies**

- Support to Aena's Environmental Management in drafting the annual Sustainability Report.

### **Environmental assessment of plans**

- Environmental assessment of master plans for the Ibiza, Granada, Menorca, Palma de Mallorca, Pamplona, Santander, Santiago, Valencia and Vigo airports.

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## Environmental impact assessments

- Environmental impact studies of airport expansion projects in the Girona, A Coruña, Córdoba, Gran Canaria, San Sebastián, Alicante, La Palma and Reus airports.
- Environmental assessment of master plans for the Ibiza, Granada, Menorca, Palma de Mallorca, Pamplona, Santander, Santiago, Valencia and Vigo airports.
- Environmental integration projects for ten airport projects.

## Evaluation and management of ambient noise

- Action plans to reduce ambient noise at Madrid-Barajas, Barcelona, Palma de Mallorca, Bilbao, Málaga, Alicante, Gran Canaria, Tenerife Norte, Tenerife Sur and Valencia Airports.

- Drafting of plans to soundproof the airports of Santiago de Compostela and Sabadell.
- Update of the scope of the soundproofing plans for the airports of Alicante, Burgos, Cuatro Vientos, Fuerteventura, Huesca-Monflorite and La Palma.
- Management of the execution of the soundproofing plans in the airports of Madrid-Barajas, Alicante, Gran Canaria, La Palma, Málaga, Menorca, Murcia-San Javier, Pamplona, Palma de Mallorca and Valencia.

## Assessment and reduction of atmospheric pollution

- Overall programme to control and reduce atmospheric pollution at Reus Airport.

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- Programmes to replace handling-services vehicles with more environmentally-friendly vehicles at the Burgos, León, Fuerteventura and Menorca Airports.
- Programme of operational measures to reduce NOx emissions in the Palma de Mallorca Airport.
- Support to environmental management and internal environmental audits at the 46 airports and the heliport in the Aena network.
- Integrated quality and environmental audits in the five regional Air Navigation units and their central services.
- Maintenance support for environmental and quality management systems in place at the Alicante, Huesca-Pirineos, Jerez, Lanzarote, La Palma and Murcia airports.
- Collaboration in the certification process of the environmental management system in accordance with ISO 14001 at the Burgos Airport. With this airport, all the airports and the heliport in the Aena network are certified.
- Support for the implementation of EMAS in the Palma de Mallorca Airport.
- Maintenance support for environmental management systems in place at the Balearic Islands and eastern regional Air Navigation units.
- Support in quality and environmental management for Aena's Quality and Environmental Management division.
- Support to the drafting of Aena's environmental management systems' annual report.

## Environmental management systems (EMS)

- Study on solutions to the problem of treating the waste water of the Huesca-Pirineos Airport.

## Landscape Integration

- Drafting of the landscape integration project for the Málaga Airport.
- Drafting of the detailed landscape integration project and roads between runways 18-36 at Madrid-Barajas Airport.

## Environmental project management

- Environmental monitoring and control of works on the following airport expansions projects: Alicante, Burgos, Fuerteventura, Huesca-Monflorite, La Palma, León, Málaga, Melilla, Córdoba and Algeciras Heliport.

## Technical environmental services on work sites

- Environmental monitoring and control of works on developments, control towers, radars, aprons, TACC, reduced mobility points, accesses, and terminals at the airports of Málaga, Zaragoza, Pamplona, Tenerife, Girona, Córdoba, Santander, Menorca, Valencia and Alicante.

# structures and building

## Structures projects in airport installations

- Adaptation of ticketing and embarking areas on the San Javier, Murcia air base, which is open to civilian traffic. Structural dimensioning.
- Multi-story parking building and remodelling of the streets in front of the terminals at the Barcelona Airport. Structural dimensioning.
- Modular rent-a-car park at the Málaga Airport. Structural dimensioning.
- Construction of a heliport in Algeciras and various actions at the Ceuta heliport. Technical support for structures.
- Expansion of the terminal area of the El Hierro Airport. Structural dimensioning.
- Underground tunnel for handling-services vehicles in the new airfield. Málaga Airport. Structural dimensioning of the cut-and-cover tunnel and access ramps.
- Expansion of the apron for the new terminal area of the Reus Airport. Structural dimensioning.

- Refurbishment of the 02/20 runway of the Barcelona Airport. Structural dimensioning of the prefabricated boxes and special sections.
- Shopping areas in Module C of Palma de Mallorca Airport. Structural dimensioning, stairs, stores and restaurants, making openings in floor slabs.
- New power plant on the southern side of the Valencia Airport and the refurbishing of this airport's electrical system. Structural dimensioning.







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# railways



# In 2009 the company was present on AVE high-speed train projects as well as the conventional train network and urban transport development

Ineco Tifsa once again gave its support to Adif on the most important high speed train projects undertaken in 2009, such as the Madrid-Barcelona-French Border Line and worked on all ongoing high speed train line projects: the Atlantic Axis, Cantabrian-Mediterranean Corridor, as well as the North-North West Corridor and the Levante Eastern Axis.

The company carried out a number of different services for Adif on the conventional railway network, such as route alternatives, renovation of facilities, supervision of projects, maintenance controls, remodelling of installations, railway network installations, supervision of platform and track work, coordinated management of materials environmental areas.

2009 saw Ineco Tifsa maintain its collaboration with CETREN Certification in the standardisation and validation of installation components and subsystems and rolling stock, and in interoperability certification for new high speed lines entering service. We also took part in with a number of normalisation, interoperability and

safety groups, providing support to the Ministry of Public Works, Adif and Renfe, as well as in European RD programmes in the sector.

In relation to rolling stock, we renewed our accreditation with the National Accreditation Agency (ENAC) as an Inspection Body for Railway Rolling Stock, type C, in accordance with the UNE-EN ISO/IEC 17020:2004 (CGA-ENAC-EI) standard. We are the only Spanish company to hold this accreditation. Furthermore, we have started procedures to obtain the ENAC certificate to become independent evaluation body in railway safety matters.

Other important clients during 2009 were FEVE, EuskoTren, Serveis Ferroviaris de Mallorca and practically all the manufacturers and installers of train and rolling stock protection systems, as well as carrying out management work on behalf of the Spanish Ministry of Public Works.

As far as the modernisation of urban transport is concerned, worthy of special mention is the work carried

out on the recently Seville metro, as, well as the light metro in Valdemoro, Valencia metro, the metro-tram system in Bologna, the Milan-Limbiate and Algiers tram networks.

We have developed a range of important management and IT tools, planning research, financing initiatives, mobility and demand studies, inventories, auscultation, load testing and bridge repairs as well as a large number of hydrological studies, tunnel projects and other subterranean work. On the international stage, Ineco Tifsa has worked on projects in Ethiopia, Portugal, Algeria, the Dominican Republic and Italy, among other countries.

## railway projects

### High speed railway

In the area of high speed railway transport we have continued to work on both basic and detail engineering. Established as a reference point in transport engineering and consultancy, Ineco Tifsa is present on all ongoing high speed railway projects: the Atlantic Axis, Cantabrian-Mediterranean Corridor, as well as the North-North West Corridor and the Levante Eastern Axis. Some examples of the work we have carried out:

- Basic engineering:
  - Consultancy services and

assistance in the drawing up of complementary studies and projects offering management support and coordination on projects and studies on the Atlantic Axis: Portuguese Border-Vigo-Pontevedra-Santiago-A Coruña and Ferrol.

- Basic project, track laying and ballast storage on North-North West Corridor, on the Ourense-Santiago section.

- Detail Engineering:

- Construction projects on the Cantabrian-Mediterranean Corridor, on the Plasencia de Jalón-Tudela section and the Plasencia de Jalón-Luceni subsection.

- Technical assistance to project management:

- Consultancy services and assistance offering management support on platform projects providing new railway access to the Levante region. Madrid-Castilla La Mancha-Valencia Region-Murcia Region. Sections: Madrid-Torrejón de Velasco and Valencia-Castellón.
- Management of platform projects on the Madrid-Extremadura line. Section: Talayuela-Cáceres.

- Functional study looking into integration of the high speed line in Alcázar de San Juan.



- Consultancy services and assistance in the drawing up of a functional and construction project providing logistic support workshops for the Madrid-Valladolid line on the Guadarrama Tunnel section.
- Construction project to provide shoring on the Pont Candí viaduct.
- Management commission: the drawing up of construction project on the Mora-Alcázar de San Juan line (Ciudad Real). Sub-section 4: Herencia-Alcázar de San Juan (Ciudad Real).
- Management commission to draw up and coordinate studies regarding Galicia's high speed railway network. Ourense-Lugo line.
- Viability study into the implementation of UIC gauge track on the Chamartín-Barajas Terminal 4 line.

## Platform

- Consultancy services and assistance offering management support on platform projects on the Bobadilla-Granada line.
- Stabilisation project on the surroundings of the Salinetas viaduct. Section: Monóvar-Novelda. Madrid-Levante line.
- Assistance in drawing up a modernisation project covering the abutments to the viaduct over the Pallaresos ravine on the Madrid-Zaragoza-Barcelona-French Border line.
- Management support for platform projects on the Madrid-Basque Country/French Border line. Section: Burgos-Vitoria.
- Consultancy services and assistance in preparing work on the Atlantic High speed Railway Axis. Management

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and coordination support for projects and studies.

## Superstructure

- Consultancy services and assistance concerning the construction project to lay 1,668 mm gauge track between Albacete and Almansa. Sections: Albacete-Alpera alternative spur.
- Consultancy services and technical assistance in the drawing up of a functional study to provide 1,435 mm-gauge access from Can Tunis to the goods logistic facility at Barcelona Morrot.
- Consultancy services and technical assistance in the drawing up of basic construction projects, railway bed construction and ballast shoring on the North-North West Corridor. High speed railway line to the Basque Country.
- Consultancy services and assistance concerning the construction project of

the León-Asturias high speed railway line. Section: La Robla-Pola de Lena.

- Functional study into providing new 1,435 mm gauge access between Puerta de Atocha station and the Cerro Negro/Santa Catalina railway complex.

## Stations

- Modernisation at Atocha:
  - Extension project at the Atocha station complex. Phase 2-Madrid.
  - Drawing up a functional study to redesign the Plaza del Embarcadero and the Patio de Méndez Álvaro at the Atocha station complex.
  - Study services regarding the transfer of the Atocha Communications Centre. New railway complex at Atocha station (Madrid).
  - Technical assistance services in drawing up a construction project

to improve access to Atocha station commuter trains (Madrid).

- Activity at Chamartín station:

- Assistance in the drawing up of functional and construction projects aimed at coordinating modernisation of the northern hub.
- Assistance in the preparing studies looking into the Madrid-Chamartín railway complex and its relationship with its surrounding as well as drawing up basic and construction projects covering Phase 1 of the new complex.

- Consultancy and technical assistance services in drawing up a functional study covering the modernisation of facilities at the A Susana station in Santiago de Compostela.

- Consultancy and technical assistance services in preparing a study into alternative routes and environmental studies into the San Pablo-Algeciras section. Drawing up a construction project for the Almoraima-Algeciras section of the Bobadilla-Algeciras line.

- Support and coordination of construction projects looking into the public transport corridor between Las Palmas de Gran Canaria and Maspalomas, using the company's own infrastructures and guidelines.

- Project to modify access to commuter railway transport services at the new Prat Airport terminal.

- Functional study looking into the modernisation of San Fernando de Henares station.

- Consultancy and technical assistance services in drawing up a functional study looking into the problem of platform length on commuter lines.

- Consultancy and technical assistance services in drawing up a functional study looking into increasing capacity on the C-2 Bilbao commuter line

## Conventional Network

- Assistance in the maintenance of the general inventory of Adif's real estate property.

- Inspection work on trenches dug for conventional railway lines for the 2008-2010 campaign.

- Informative study and construction project covering the integration of railway transport at Sant Feliu de Llobregat, Barcelona.

- Extensions to infrastructure maintenance facilities at the Villaverde Complex goods terminal.

- Informative study of the Puertollano alternative spur on the Madrid-Ciudad Real-Seville line.

between Barakaldo and San Julián de Muskizs.

- Construction Project: modifications to railway access at Puerto de Cádiz.
- Functional study looking into increasing the capacity of the Madrid-Segovia line. Section: Villalba-Cercedilla.
- The drawing up of a functional study looking into the modernisation of the Iberia halt. Line C-1, Bilbao-Abando to Santurce.
- Functional study looking into the modernisation of the Iberia halt. Line C-1, Bilbao to Santurce.

## Platform

- Assistance in the preparation of platform projects on the Madrid-Extremadura line. Plasencia/Fuentidueñas station.

## Superstructure

- Technical Assistance: drawing up requirements reports (functional project), of which we should highlight the following track modernisation programmes: 3.405 track switchgear-Almudévar, Almudévar-Sariñena, Virgen del Rocío-Dos Hermanas, Venta de Baños-Magaz, Torralba-Soria (second phase), Santa María de la Alameda-La Cañada, Santa

Cruz de Mudela-Vadollano, Fregenal-Huelva, Castillejo-Villasequilla.

- Preparing a functional study looking into the modernisation of the Taboadela railway complex.

## Sidings

- Consultancy and technical assistance services in drawing up a functional study covering the doubling of the track on the Arenys-Blanes section of the Barcelona Sagrera-Maçanet-Massanes line.
- Drawing up a basic project covering new goods sidings for the Metratir company.
- The drawing up of a construction project for railway sidings and unloading infrastructures and superstructures at the new solid agrofeed bulk terminal in the port of Santander.
- Consultancy and technical assistance services in drawing up a functional study looking into the moving and relocation of maintenance facilities on the conventional railway network at Vigo station.
- Construction project covering the conditioning of and improvements to railway yards and access branch line to the refinery at Puertollano.
- Basic project for railway sidings non-delimited urban development land La Mata del PGOU de Aguarón,



Zaragoza, connecting to the Caminreal-Zaragoza railway line around the 73 km point.

line between Parque Goya and Valdespartera in Zaragoza.

## Urban transport

- Consultancy and technical assistance services in drawing up a viability study covering a draft project to build and operate infrastructures and installations on the Valdemoro light metro system.
- Construction project for line 3 of Seville Metro: Pino Montano-Los Bermejales.
- Technical assistance in the drawing up of an informative study to implement a tram system in central Asturias. First Loop.
- Consultancy services and assistance concerning the drawing up of a construction project of the 1st Phase of the extension to line 1 of the FGV network in Alicante, to Altet Airport.
- Assistance in the preparation of a construction project for Line T2 of Valencia Metro. Section: Plaza del Ayuntamiento-Antiguo Cauce. Valencia.
- Presentation of the Palma Bay tram system.
- Drawing up of an implementation project for Phase 1 of the tram
- Support and coordination services for the management of construction projects covering stations, platforms, track laying, workshops, sheds and depots, electrification and electrical supply to trains in the South of Tenerife.
- Updating document nº 2 covering draft project plans for an extension to Diagonal-Baix de Llobregat tram line to Sant Feliu de Llobregat regarding railway coverage.
- Special regional infrastructure ordinance plan for the Fonsalía branch line.
- Inspection work on line 1 of Seville Metro.
- Technical viability study covering the extension to the Diagonal-Baix Llobregat tram line to Calle Sansón in Sant Feliu de Llobregat.
- Viability study covering the closure of the railway loop between Realejos and Icod de los Vinos on the island of Tenerife.

## Others

- Technical design assistance for the plan covering renovation of track and railway transport technical facilities.

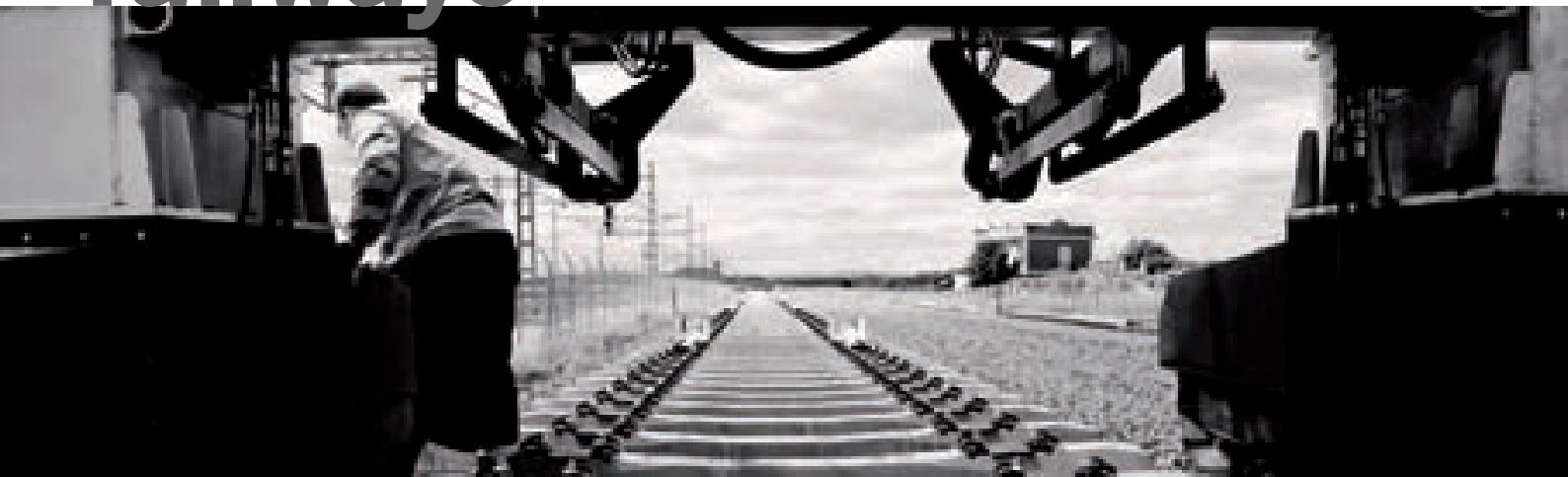


- Consultancy services and assistance concerning the materialisation of investment and projects. 2008 Financial Year. Mallorca Railway Services.
- Construction project covering a dual gauge points system in Brazatortas.
- Consultancy services and technical assistance providing support for the adjudication process and revision of cartography on high speed railway lines for 2010 and 2011.
- Management commission: new commission offering support to the General Sub-Management Department of Projects and Plans, within the Railway Infrastructures Management Department of the Ministry of Public Works.
- Preparing inventories corresponding to high speed railway lines, and the drawing up of a property inventory for Adif.
- Consultancy services and assistance in the preparation and maintenance of the inventory of Adif's real estate property. Years 2010-2011 and 2012.
- General technical assistance to high speed railway line management regarding measurement of vibration levels caused by railway traffic.

## International works

- Management of the interface between civil engineering and the railway system in Algeria's new tram system.
- Work on the metro-tram in Bologna and the Milan-Limbiate tram system.
- Drawing up the extension project for the Gallaratese Depot in Milan.
- Revision of work carried out on the project, construction and management of the Bologna People Mover system which connects the airport to the city centre.

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- Technical assistance to the Madrid Metro network with the construction of a railway line between the cities of Santo Domingo and Santiago (the TSS line) in the Dominican Republic.
- Electrification and electric traction sub-stations for the Albacete-La Encina section of the new Madrid-Castilla La Mancha-Valencia Region-Murcia Region railway access and for the Albacete-Almansa section of the Albacete-La Encina-Alicante line.

## railway installations and systems

### High speed railway

In 2009 the company maintained its activities on new high speed railway lines at both a project and construction level, as well as maintaining fully operational lines.

#### Project Preparation

- Electrification (electric traction sub-stations, auto-transformation centres, automatic energy and overhead contact line) of the new Bobadilla-Granada and Navalmoral de la Mata-Badajoz lines.

- Electric sub-stations, auto-transformation centres and automated energy systems for the Valladolid-Venta de Baños-Burgos on the North-North West Corridor.
- Electric sub-stations, auto-transformation centres and automated energy systems for the Monforte del Cid-Murcia section of the new Madrid-Castilla La Mancha-Valencia Region-Murcia Region railway access.

- Overhead contact line installations and associated systems for the Valladolid-Venta de Baños-Burgos section of the North-North West Corridor.

- Overhead contact line installations and associated systems for the Monforte del Cid-Murcia section of the new Madrid-Castilla La Mancha-Valencia Region-Murcia Region railway access.
- Signalling, landline telephone, centralised traffic control installations and train safety and protection systems for the Monforte del Cid-Murcia section of the new Madrid-Castilla La Mancha-Valencia Region-Murcia Region railway access.
- Signalling, landline telephone, centralised traffic control installations and train safety and protection systems for the Valladolid-Venta de Baños-Burgos and Venta de Baños-Palencia-León-Pola de Lena sections of the North-North West Corridor.
- Signalling, landline telephone, centralised traffic control installations and train safety and protection systems for the Ourense-Santiago section of the North-North West Corridor.
- GSM-R and public operator mobile phone installations on the Albacete-Alicante-Murcia/Valencia sections of the new Madrid-Castilla La Mancha-Valencia Region-Murcia Region railway access.
- GSM-R and public operator mobile phone installations on the Vitoria-
- Bilbao-San Sebastián-French Border section of the Madrid-Valladolid-North of Spain line.
- GSM-R and public operator mobile phone installations on the Ourense-Santiago section of the North-North West Corridor.
- Civil protection and safety facilities on the Barcelona-Figueres section of the Madrid-Barcelona-French Border line.
- Civil protection and safety facilities on the Ourense-Santiago section of the North-North West Corridor.
- Technical assistance in the supervision of civil protection and safety projects on the Pajares alternative spur on the North-North West Corridor.

## Technical Assistance

- Facultative management of construction work:
  - Overhead contact line installations and associated systems, switchgear heating, tunnel lighting and energy supply to other installations, electric traction substations and auto-transformation and energy automation centres on the following sections: Torrejón-Motilla del Palancar, Motilla del Palancar-Valencia, Motilla del Palancar-Albacete and Barcelona-Figueres.



- Construction work control and supervision:
  - Overhead contact line installations and associated systems, switchgear heating, tunnel lighting and energy supply to other installations, electric traction substations and auto-transformation and energy automation centres on the Torrejón-Motilla del Palancar section of the Madrid-Castilla La Mancha-Valencia Region-Murcia Region line.
  - Electric traction sub-stations, auto-transformation centres and automated energy systems for the Barcelona-Figueres section of the Madrid-Barcelona-French Border high speed line.
  - Overhead contact line installations and associated systems for the Valladolid-Venta de Baños-Burgos section of the North-North West Corridor.
  - Signalling, landline telephone, centralised traffic control
- installations and train protection systems for the Torrejón de Velasco-Motilla del Palancar and Valencia-Albacete high speed sections of the Madrid-Castilla La Mancha-Valencia Region-Murcia Region line.
- Signalling, landline telephone, centralised traffic control installations and train protection systems on the Barcelona-Figueres section of the Madrid-Barcelona-French Border line.
- GSM-R and public operator mobile phone installations on the Torrejón de Velasco- Motilla del Palancar-Valencia/Albacete high-speed sections of the Madrid-Castilla La Mancha-Valencia Region-Murcia Region line.
- GSM-R and public operator mobile phone installations on the Barcelona-Figueres section of the Madrid-Barcelona-French Border line.
- Facultative management and control and supervision of civil protection



facilities in tunnels on the Torrejón de Velasco-Motilla del Palancar-Valencia/Albacete sections of the Madrid-Castilla La Mancha-Valencia Region-Murcia Region line.

## Safety and technology assessment

- Monitoring and control of the safety life cycle and independent safety assessment of the specific train protection systems and control of centralised traffic on the Torrejón de Velasco-Motilla del Palancar-Valencia/Albacete sections of the Madrid-Castilla La Mancha-Valencia Region-Murcia Region line.
- Monitoring and control of the safety life cycle and independent safety assessment of the specific train protection systems and control of centralised traffic on the Barcelona-Figueres section of the Madrid-Barcelona-French Border line.

- Management commission for the Railway Infrastructures General Management Department, providing support on work relating to the ERTMS system.
- Technical assistance to Adif in the study of the evolution of ETCS/ERTMS specifications applicable to the high speed network.

## Interoperability and start-up

- Technical assistance in ensuring EC verification regarding interoperability and start-up on new new sections, for Adif's Executive Circulation Management department.
- Technical assistance in the evaluation of conformity of the LAC AE-350 interoperability component in line with technical specifications governing the interoperability of the Trans-European railway energy sub-system.
- Integrated technical assistance in the definition, programming, monitoring and start-up of traffic control facilities.

## Maintenance

- Monitoring and maintenance control on facilities on the Madrid-Zaragoza-Lleida-Barcelona section of the Madrid-Barcelona-French Border line.
- Monitoring and maintenance control on facilities on the Madrid-Seville, Córdoba-Málaga and La Sagra-Toledo lines.
- Monitoring and maintenance control on facilities on the Madrid-Valladolid line and the Olmedo-Medina branch.
- Technical assistance in the maintenance and operation of the control car on high speed railway lines.

## Operation

- Consultancy services and assistance in the operation of energy automation on the following lines: Madrid-Zaragoza-Barcelona-French Border; Córdoba-Málaga; Madrid-Valladolid.
- Technical assistance and consultancy for the operation service of the telecommunication command in the high speed lines Madrid-Zaragoza-Barcelona-French border, Madrid-Seville, Córdoba-Málaga, La Sagra-Toledo and Madrid-Valladolid.
- Technical assistance in preparing and modernising documentation relating to Adif's circulation safety management.

## Rolling Stock

- Technical assistance in ensuring project conditions, the control and monitoring of manufacturing and reception of 30 new train unit S-102 and 45 train units with movable bogies and dual voltage S-130.
- Technical assistance in ensuring the manufacturing conditions and reception of 10 new train units S-103 and 16 new train units with movable and dual voltage S-120.

## Conventional Network

Normal activities have been maintained on projects and the provision of technical assistance on conventional railway installations, developed for Adif and the Railway Infrastructures General Management Department.

We continued to offer maintenance and support to Renfe, inspecting manufacturing and processes of authorisation of new trains to be put into service. 2009 also saw work undertaken relating to the maintenance of self-propelled material.

## Project Preparation

- New 3,000 V DC traction sub-station in Bahía Sur, on the Seville to Cádiz line.



- New traction sub-stations at Cardedeu and Gualba.
- Traction sub-stations on the Son Rullan-Enllaç section of the Palma-Inca-La Pobla/Manacor line.
- Double electrical connections for traction sub-stations.
- Modernisation of the overhead contact line at the Montcada station junction.
- Overhead contact line, signalling and communications installations on the Son Rullan-Enllaç section of the Palma-Inca-La Pobla line.
- Overhead contact line, signalling and communications installations on the Manacor-Artá section of the Palma-Manacor-Artá line.
- Replacement of the signalling at Cornellá station with a new electronic signalling system.
- Signalling and communications installations on the Albacete-La Encina section of the conventional gauge Madrid-Alicante line.
- Adaptation of safety and communications installations on the conventional gauge sections Aranjuez-Tarancón, Utiel-Chiva and Aranjuez, Albacete and Valencia surroundings, due to the construction of new high speed railway access to the Levante region.
- Adaptation of safety and communications installations on the conventional gauge Ourense-Santiago de Compostela section, due to the construction of new high-speed railway access on the North-North West Corridor.
- Improvements to logistics installations at Tarragona Clasificación, Tarragona Constantí and Port Bou.
- ERTMS level 2 train protection and GSM-R mobile telecommunications installations on the Seville-Cádiz line.

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- Adif GSM-R mobile telecommunications systems on the Murcia, Alicante, Seville, Valencia and Málaga commuter train networks.
- Train-to-earth radio-communications installations on the new section of the conventional gauge Albacete-La Encina line.
- Adif storage and fuel supply facilities.
- Civil protection and safety at all Adif facilities.
- Construction of a electric traction sub-station at Blanes and modernisation and power increase at the San Sadurní de Noya electric traction sub-station.
- Construction of a electric traction sub-stations at San Cugat and Cubelles.
- Comprehensive treatment of the 3,000 V DC overhead contact line on the San Vicent de Calders-El Prat de Llobregat section of the Tarragona-Barcelona Sants line.
- Modernisation work improving electrification on the Terrasa-Manresa section and at Mataró station.

## Technical on-site assistance

- Construction work control and supervision:
  - Construction of electric supply lines to traction sub-stations.
  - Modernisation of electric traction sub-stations at Venta de Baños, Las Navas del Marqués and modernisation and power increase at the Valchillón electric traction sub-station.
- Safety facilities on the Barcelona commuter train network.
- New electronic signalling at Brazatortas-Veredas.
- Modification of safety and communications installations at Venta de Baños junction due to disruptions on the high speed North-North West Corridor.

- Repairs to safety and communications installations on the conventional network due to disruptions on the high speed Madrid-Levante in the vicinity of Albacete and Valencia.
- System start-up Adif GSM-R on the Bilbao and Santander commuter networks and fibre optic cable on the Santander-Bárcena section.
- Installation of telecommunications equipment in order to implement a high speed multi-service QoS platform for Barcelona commuter station.
- Development and planning services for the fibre optic network in Madrid, Valencia and Barcelona, for the Telecommunications and Energy Executive Management Department.
- Work on the Orange broadband multi-service network on Madrid and Barcelona commuter hubs.
- Health and safety technical assistance and coordination concerning protection supervision of level crossings.
- Control and supervision of the centralisation of gauges and the supervision of safety on 263 level crossings on a number of railway lines deemed to be of general interest.
- Technical support and coordination of safety facilities

- relating to the integration of 24-hour systems and centres.
- Control and supervision of work associated with the testing and validation and all related operational tasks.
- Management of the development and implementation of Adif's energy efficiency and savings plan.

## **Safety and technology assessments**

- Evaluation of the safety life cycle and independent safety assessment of the specific application ERTMS/ETCS level 1 track sub-system on the Castellbisbal-Mollet San Fost section.
- Evaluation of the safety life cycle and independent safety assessment of the specific application of the signalling and train protections systems at the Alcolea de Córdoba points.
- Independent safety assessment of the generic application of ASFA SEPSA digital on-board equipment.
- Independent safety assessment of the generic application of ASFA digital on-board equipment for CAF.
- Technical assistance in laboratory testing of ERTMS/ETCS operations on the Madrid commuter network.

- Management commission for the Railway Infrastructures General Management Department, providing support on work relating to the ERTMS system.

- Management commission for the Railway Infrastructures General Management Department, providing support in the development of technical regulations.

- Technical assistance in the monitoring and control of auscultation at the Adif dynamic laboratory.

- Technical assistance in drawing up a risk map of railway lines administered by Adif and deemed to be of general interest to the Spanish state.

## **Interoperability and start-up**

- Certificate of interoperability on control, command and signalling sub-systems on the new Atocha-Chamartín tunnel and corresponding Madrid commuter network lines.

- EC Verification of control, command and signalling sub-systems on switching equipment on 446, 447 and 450 series Renfe trains.

- Technical assistance on the start-up of new sections of the general conventional railway network.

## **Maintenance**

- Regulation inspection on Adif's high voltage suspended power lines.

- Regulation revision, adjustment and inspection of Adif's 3,000 V DC electric traction sub-systems.

- Provision of remote measurement services at Electrical Energy Management Department supply points, as well as SAGE and GIAR measurement process applications.

- Visual and thermographic inspection of Adif's 3,000 V DC overhead contact lines.

- Inspection of workshops to check maintenance processes regarding the purveying of rolling stock maintenance centres.

- Management commission for the Railway Infrastructures General Management Department, providing support in the authorisation of maintenance centres and inspection work.

- Technical assistance in support of the Maintenance Management section of the Trains and Technological Innovation department.

- Technical assistance in preparing regular audits concerning self-propelled train maintenance



carried out by Renfe's Commuter and Medium-Distance General Management department.

## Operation

- Technical assistance with the fibre optic network and administration of the local area network for the Telecommunications and Energy Executive Management Department.
- Technical assistance in the maintenance of and improvements to the integrated management system used by Adif's Executive Circulation Management department.
- Technical assistance in the certification of an integrated management system covering quality control, environmental concerns and health and safety at work for Adif's Telecommunications and Energy Executive Management department.
- The design, development and implementation of an advanced integrated energy management system for Adif's Telecommunications and Energy Executive Management department.

operated by Serveis Ferroviaris de Mallorca.

- Drawing up a draft project for the modernisation of Series 200 MRRM electric trains operated by EuskoTren.
- Validation of the manufacturing process and series testing on VOSSLOH's EURO 4000 locomotives.
- Validation process covering the use of a 120 km/h maximum speed diesel locomotive, in compliance with NTC MA 001.
- Ensuring project conditions are met in the inspection of the construction and start-up of 12 dual TD2000BB metric gauge locomotives to be operated by EuskoTren.
- Inspection, quality control and risk prevention in the construction of FEVE's 1603 and 1610 locomotives.
- Ensuring project conditions are met and the inspection of the manufacture of 12 S-2700 diesel traction units to be operated by FEVE.
- Ensuring project conditions are met and the inspection of the construction of 50 599 Series diesel traction units (TDMD) and 57 electric traction units (TEMD) for medium-distance services.
- Validation in compliance with NTC MA 001 and the inspection of the construction and reception

## Rolling Stock

- Technical Assistance:
  - The drawing up of a technical instruction manual for use in the contracting of movable material for the Manacor-Artá line



of 100 car-carrying wagons in Alegria workshops.

- Inspection of the construction and reception of 188 Tolva water tank and platform wagons.
- Ensuring project conditions are met in the construction and reception of 75 platform wagons.
- ETH validation of high-sided wagon towing material with Y-21 bogeys, manufactured by COVASUR.
- Validation of manufacturing conditions and reception testing of 105 MEGACOMBI wagons.

## Urban transport

- Technical assistance regarding the control and supervision of electrification systems and extension work to line 2 of the Santa Cruz de Tenerife light metro network.
- Technical assistance regarding the control and supervision of platform

access installation systems on line 1 of Seville Metro.

- Technical assistance in preparing the technical manual for the contracting process for line 1 of the Murcia tram system.
- Technical assistance regarding supervision of the manufacture and movable material testing on the new Móstoles Central-Navalcarnero line.
- Consulting services, quality control and technical assistance in the manufacture and start-up of 36 auxiliary vehicles used in the maintenance of Madrid Metro infrastructures and installations.

## Innovation projects

- **ArQoS (GSM-R network analysis of QoS):** Performance study examining service quality parameters (QoS: Quality of Service) on GSM-R networks.

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- **HARMONICS:** Study investigating harmonic interference caused by rolling stock. Project financed by the Ministry of Science and Innovation.
- **BOSS (On Board Wireless Secured Video Surveillance):** Design, development and validation of a broadband railway communications system, on an IP gateway, providing on-board video surveillance and preventive maintenance services. Project subsidised by the Ministry of Industry, Tourism and Commerce, with the participation of railway companies and telecommunications multinationals.
- **CAMED (Measurement Calculation):** Internal tool used to authorise signalling projects, specifically aspects concerning planning, measurement and budgets.
- **CATMASTER (integrated design environment for overhead line contact systems):** Internal tool used to automate design, measurement and budgeting of overhead line contact systems.
- **DEMASST (Demo for Mass Transportation Security):** Establishment of a route map for the implementation of transport security measures. Financed by the Seventh Framework Programme.
- **EUROLOOP:** Subsidised by the Ministry of Science and Innovation, this initiative seeks to develop the EUROLOOP product to an operational through the reference laboratory testing phase.
- **GALILEO SAFETY OF LIFE CENTRE:** Support in defining the Sol de Galileo centre in various transport sector systems: aviation, maritime transport, railways etc.
- **INESS (Integrated European Signalling System):** This project will define the specifications for a new generation of standard and

online signalling systems. Project financed by the Seventh Framework Programme.

- **SAD (Decision-Making Assistance System):** For the resolution of railway-oriented incidents. Internal innovation project.
- **STANDARDS:** This project forms part of the Seventh Framework Programme and is a continuation of the GEM project (the Fifth Framework Programme) and GARMIS (the Sixth Framework Programme). The objective is to promote the standardisation of Galileo across the various transport sectors.
- **TICLOG (Information and Communication Technologies for Logistics Chain Security):** Project financed by the Ministry of Science and Innovation.
- **TRIOTRAIN (Trio-Total Regulatory Acceptance for the Interoperable Network):** This is a combination of three projects (AeroTRAIN, PantoTRAIN and DynoTRAIN) created within the European Commissions Seventh Framework Programme which aim to establish a more efficient, quicker and cheaper methodology for application in the virtual certification of rolling stock.

## works and maintenance

### High speed railway

2009 saw Ineco Tifsa continue to work on all high speed railway lines currently under construction:

#### Madrid-Barcelona-French Border Line

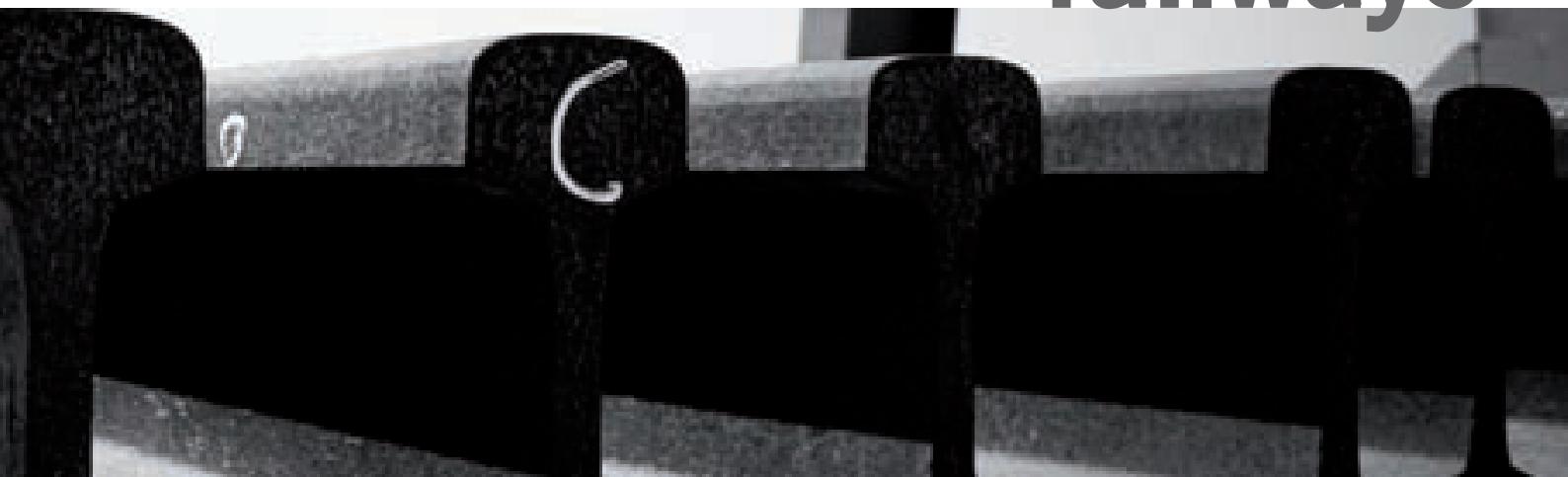
- Supervision of platform work, track-laying between Lleida and Figueres as well as railway bed construction between Puigverd de Lleida and Roda de Barà.
- Monitoring of the programme of platform work in Catalonia.
- Coordination of work on the various sections into which the line is divided in the vicinity of Barcelona.
- Monitoring of work on conventional lines Barcelona-Vilanova, as a consequence of the impact of work on the high speed line.
- Supervision of services affected by work on the high speed line in the vicinity of the city.
- Technical assistance in supervising track laying and the construction of platforms and facilities at the second high speed terminal: Zaragoza-Plaza station (Trade Fair Ground-Airport).  
1st Phase.



- Technical assistance with modernising the line and points of access for international gauge use.  
Section: Girona-Figueres.
- Monitoring of work carried out within the framework agreement between Adif and Hospitalet City Council.
- Project services and on-site control of work on stabilising the water course at Pont Candí.
- Monitoring, planning and surveillance services on the Barcelona Sants-Figueres section of the 2nd phase.
- Facultative management assistance.  
Section: Lleida-Figueres 2nd phase; project supervision in the vicinity of the La Sagrera-Nus de la Trinitat section.
- of railway bed construction and track-laying between Córdoba and Antequera.
- Pre-maintenance technical assistance.
- Supervision of platform work on various sections of the Osuna-Pedrera line.
- Supervision of platform work on various sections of the Bobadilla-Granada line.
- Supervision of platform work on various sections of the Extremadura line.
- Facultative management, specialist consultancy services and monitoring of the online programming and information office for the Murcia-Almería line.
- Assistance in the coordination of the transverse section of the Seville-Antequera Santa Ana line to be carried out by the Junta de Andalucía regional government.

## Southern Line

- Supervision of platform and station work (Antequera-Santa Ana and Puente Genil-Herrera) supervision



## Access to the Levante region

- Supervision of platform and track work on various sections of the line, as well as technical auditing of platform quality on all construction sections.
- Formation of a specific monitoring team for the programming of platform, track and facility work on the Madrid-Albacete/Valencia section.
- Technical assistance with track laying on sections: Gabaldón-Siete Aguas; Siete Aguas-Almusafes and Gabaldón-Albacete.

## Access to the North and North West of Spain

- Consultancy services and assistance with facultative management, the monitoring and programming office and the office of information for the Vitoria-Bilbao-San Sebastián line.

- On-site supervision and assistance with platform work on the León-Asturias line, on the Pajares alternative section, as well as on-site supervision and monitoring of the programming of the Ourense-Santiago.
- Planning, monitoring, programming and surveillance, and additional work relating to the preparation of operational manuals and self-protection plans for tunnels on the line to Galicia. Section: Ourense-Santiago.
- Specialist geotechnical and structural consultancy services and supervision of reports on the North-North West Corridor. Section: Palencia-León.
- Facultative management, technical consultancy services, monitoring and information offices for the UIC-gauge link between Atocha and Chamartín.
- Consultancy services relating to facultative management and specialist assessment of

programming and subterranean site IT systems (SIOS) on the Madrid-Valladolid North line. Section: Valladolid-Burgos.

- Contracting of facultative management services and control and surveillance of extension work to the Atocha station complex. 1st Phase.
- Consultancy and assistance concerning the management of the integration of high speed railway services at Chamartín station. 2nd phase.
- Consultancy and assistance concerning the management of the relocation of infrastructure maintenance service units due to the integration of high speed railway services at Chamartín station.

## Maintenance

- Monitoring and control of infrastructures, superstructures and installations, and the specific monitoring of explanations.
- High speed line Madrid-Barcelona-French Border: bases at Brihuega, Calatayud, Lleida and Vilafranca.
- High speed line Madrid-Seville, Córdoba-Málaga and La Sagra-Toledo: bases at Calatrava, Hornachuelos, Mora and Bobadilla.

- High speed line Madrid-Valladolid: base at Olmedo.
- Levante Corridor and Mediterranean Corridor: bases at Valencia and Albacete.

## Information and Customer Attention Points

2009 saw Ineco Tifsa continue to proved services to Adif Information and Customer Attention Points at Sants, Prat, Montcada, Sagrada Familia, Girona and Figueres, as well as at Valencia and Alicante, Murcia, Vitoria, Bilbao, San Sebastián, Valladolid, Málaga, Granada, Mérida and Santiago de Compostela.

## Track laying

- Consultancy and support services with track laying on the new high speed railway access to the Levante region, the Madrid-Castilla La Mancha-Valencia Region-Murcia Region line. Section: Torrejón de Velasco-Villarubia de Santiago.
- Assistance services with construction work at Monforte del Cid and ballast storage at intermediate areas on the section: La Encina-Alicante/Murcia on the high speed NAF to Levante. Madrid-Castilla La Mancha-Valencia Region-Murcia Region.
- Track laying assistance services with construction work on the new high-



-speed railway access to the Levante region: Madrid-Castilla La Mancha-Valencia Region-Murcia Region. Section: Xátiva-Almusafes.

new railway network in the Basque Country, on the Bergara-Irún section.

- Consultancy services and technical assistance in the standardisation of processes, document monitoring and analysis of the implementation of High speed Railway Executive management systems.

## Inventory and built projects

- Supervision and standardisation of finished projects and inventories on the Barcelona, Córdoba-Málaga, Madrid-Valladolid and Levante high speed lines.
- Preliminary work before the supervision and standardisation of finished projects inventories on the Ourense-Santiago line, Pajares spur, and the Bobadilla-Granada, Navalmoral de la Mata-Badajoz and Vitoria-Bilbao-San Sebastián lines.
- Monitoring of work of the Pajares spur and the Pola de Gordón information centre.
- Quality control auditing and monitoring on platform work on the

## Technical treatment centres

- Technical assistance and coordination of health and safety matters relating to the new Valladolid arterial network railway complex.
- Facultative management, control, surveillance and coordination of health and safety matters relating to the building of a new high speed railway technical treatment centre at Barcelona Casa Antúnez.
- On-site health and safety coordination: electrification installations on 3 kV vehicle entrance

# railways



on track 8 of the high speed CTT at Fuencarral.

- On-site technical assistance and coordination: the North-North West high speed corridor. The Burgos spur. New station at Burgos- infrastructure maintenance base.

## Other contracts for high speed railway lines.

- Maintenance and manoeuvrability on gauge switchgear at Chamartín, Atocha, Port Bou, Roda, Huesca, Zaragoza, Plasencia, Campo Grande, Valdestillas, Majarabique and Antequera.
- Control of supply and assembly of sidings and supervision, handling and maintenance of machinery used in assembly lines.
- Supervision of the supply of railway materials: sleepers, fastenings, railways, welding and ballast to be

used on the operation and a track geometry inspection vehicle.

- Operative studies and strategic analysis of railway infrastructures and network operational management.
- Facultative management and integrated support for modernisation work on commuter network stations at Vilanova, Barberà, Castelldefels Playa & Centro and Montcada i Reixac.
- Integrated management and quality control of the supply of track materials and apparatus for all new lines under construction.
- New Ourense-Monforte-Lugo line Puebla de San Julián alternative spur. Platform and track. Ministry of Public Works.
- Consultancy and assistance services:
  - On-site control and supervision: Atlantic Axis. Section: A Vacariza-Riallón. Platform and track. High

- speed Atlantic Axis. Section: Riallín-Padrón (A Coruña). Platform. A Coruña. Ministry of Public Works.
- On-site control and supervision: Castellbisbal/Papiol-Mollet/Sant Fost branch. Upgrade of the line to serve both international-gauge and Iberian-gauge traffic. Mollet junction. Phase 1. Barcelona. Ministry of Public Works.
  - Inspection of work on the international section of the high speed line between Figueres and Perpiñan. Girona. Ministry of Public Works.
  - Monitoring, technical support and coordination of the work on the high speed Atlantic Axis in various provinces in Galicia. Ministry of Public Works.
  - Consultancy and support services providing monitoring, technical support and coordination of the high speed Seville (La Salud)-Cádiz Axis. Seville and Cádiz. Ministry of Public Works.
  - Management commission offering support in the monitoring of deadlines, meeting of targets and coordination of work on the Madrid-Galicia line, on the Olmedo-Zamora and Zamora-Lubián corridors and the link to the Mediterranean corridor with the Madrid-Barcelona line.

## Circulation and operation

- Consultancy and support services regarding circulation control, supervision of traction services and the carrying out of operational testing during the track-laying phase, as well as assistance with facilities in Adif bases used in the construction of new high speed lines.
- General technical assistance on the high speed railway line to Galicia regarding planning, monitoring, programming and surveillance, and additional work relating to the preparation of operational manuals and self-protection plans for tunnels. Section: Ourense-Santiago.
- Support in drawing up tunnel self-protection plans for the high speed Madrid-Barcelona-French Border line.
- Support in drawing up tunnel self-protection plans for the high speed Madrid-Castilla La Mancha-Valencia Region-Murcia Region line. Section: Torrejón de Velasco-Motilla-Valencia.
- Support services providing integrated management of high-performance rolling stock used on the high speed railway network.

# Conventional Network

## Technical assistance

- Management of construction project: extensions to Seville's commuter service. Phase1. Section: La Cartuja-La Cartuja junction, km 3/910 to 4/910.
- Supervision of contract work on the Adif-Estado 2007-2010 programme. Modernisation of the Madrid-Hendaye line. Section: El Escorial-Santa María de la Alameda.
- Supervision, control and surveillance of modernisation work on the Bobadilla-Algeciras line. Section: Ronda-Cortes.
- On-site health and safety coordination. Section: Villasequilla-Villacañas. Toledo. Modernisation of track and electrification.
- Supervision of track and electrification work on security facilities at Miranda de Ebro station.
- Control, surveillance and coordination of health and safety matters on the construction of new railway access to the north and north west of Spain. Madrid-Segovia-Valladolid/Medina del Campo. Madrid-Chamartín-Fuencarral junction.
- Supervision of contract work as programmed in the Extremadura region: modernisation and stabilisation of trenches of the Zafra-Fregenal track.
- Supervision of contract work on the Adif-Estado 2007-2010 programme. Modernisation of the track. Huesca-Canfranc line. Section: Caldeareanas-Jaca.
- Supervision of access work on FGC track to the SEAT Martorell railway yards.
- Consultancy services relating to the facultative management of modernisation work on the Bobadilla-Granada-Algeciras line. Section: Ronda- Cortes de la Frontera and modernisation of the Bobadilla-Algeciras line. Section: Cortes de la Frontera-San Pablo de Buceite.
- Site management and health and safety coordination of repair work on the footbridge at Nubledo station, Corvera, Asturias.
- Consultancy work relating to site management and technical assistance with the control and surveillance of modernisation on the Zafra-Huelva line. Section: Fregenal-Jabugo.
- Technical assistance with the site management and health and safety coordination of complementary work undertaken by the Ministry of Public



Works on the Alsasua-Tolosa section of the Madrid-Hendaye line.

- Technical assistance with the site management and health and safety coordination of modernisation work on the Coscurita-Soria section of the Torralba-Soria line.
- Consultancy services and technical assistance control and surveillance of modernisation work on the Bobadilla-Algeciras line. Section: Cortes de la Frontera-San Pablo de Buceite.

## Coordination of railway work

- Technical assistance in coordination of the Atlantic High speed Railway Axis. Section: Uxes-Pocomaco. Section: Pocomaco-San Cristóbal. A Coruña.
- Overall contract to carry out service work covering the coordination of work undertaken by the Ministry of Public Works in the vicinity of the South Delegation.

## Removal of level crossings

- Technical assistance with quality control, geometrics, load testing and coordination of health and safety matters during the removal of the level crossing at km. 436/036 on the Madrid-Alicante line (Agost, Alicante) and km. 43/348, 45/373 and 45/686 at the Vallada junction-Alcudia junction.

• Control and assistance of quality control, geometrics, load testing and coordination of health and safety matters during construction work on an underpass at km. 240/215 and a pedestrian underpass at km. 239/566 relating to the removal of the Class C level crossing at km. 240/313 on the Zaragoza-Barcelona line, Cervera section.

- Construction of two overpasses in order to remove Class C level crossings at km. 267/044 on the Zaragoza-Barcelona line-Calaf section (Barcelona) and km. 176/126 of the Tarragona-Barcelona-France line on the Maçanet de la Selva and Massanes sections.

## Construction

- Integrated facultative management and support services on the following works:
  - Screeing of platforms at Irún station.
  - Development of UA2 and UAS adjacent to the special Lleida station plan, associated to Vialia construction projects and the building of a car park.
  - Renovation of Sant Andreu de Llavaneres station, Barcelona.
  - Renovation of Montgat Nord station, Barcelona.
  - Building work on an extension to the car park at Segovia-Guiomar station.



- Renovation of Elche Parque station.
- Development of the hotel square at the new María Zambrano station, Málaga.
- Screeding and lengthening of platforms at Galapagar La Navata station, Madrid.
- Improvements to the central platform at Atocha commuter station, Madrid.
- Extension to the existing car park at Avenida Ciudad de Barcelona, 8 Posterior, Madrid.
- New mechanical access to the main concourse and Platform 1 of Madrid-Chamartín station.
- Platform screeding at Collado Mediano station, Madrid.
- Extension to platform 1 at El Escorial station, Madrid.
- Adapting platforms at Cercedilla station, Madrid.
- New Madrid-Chamartín-Metro connection access.
- Provisional screeding of platforms at Ramón y Cajal station.
- Renovation of Elche Carrus station, Alicante.
- Support team to work on coordination of the Barcelona commuter network plan (2008-2012).
- On-site management of work to improve the working environment at the Barcelona command station.
- Site management and coordination of security in the renovation work on Ripoll station.
- Coordination of health and safety matters on work relating to the station modernisation plan in Cataluña.
- Site management and technical assistance on the new commuter station at La Sagrera. Lines C3 and C4.
- Health and safety technical assistance and coordination on improvements to the heating and air conditioning of the command station at Atocha, the modernisation of the Hornachuelos base, the development of the Madrid-Sur storage facility and

# railways



base, and the modernisation of Mora base.

- Technical assistance with the project preparation, health and safety coordination and site management for the new intermodal station at Miranda de Ebro, Burgos, and the development of the surrounding area.
- Works management consultancy: construction of underpasses at Zarzalejo and Navas del Marqués stations on the Madrid-Hendaye line.
- Technical assessment of companies bidding for executive management contracts at Adif stations.
- Site management and coordination of health and safety matters relating to new heating and air conditioning installation in the main building of Oviedo station.
- Facultative management and coordination of health and safety matters relating to the installation of life lines on the roof of Zaragoza Delicias station.
- Technical and administrative support for regional management of stations in Madrid, Cataluña, the Basque Country and Valencia. Work relating to the modernisation plan.
- Technical assistance in the site management of the station modernisation plan and repairs to platforms at Borges del Camp, Flix, Grisen and Morata de Jalón stations.
- Drawing up a construction project for and site management of modernisation work on the Málaga Centro Alameda commuter station.
- On-site management, acoustic conditioning and lighting at the Valencia Fuente de San Luis command station.
- Enclosure work on Torrellano station. Technical support.

- Consultancy services and support for the facultative management of site management and integrated project work.

## Terminals

- Consultancy services, technical support and site management for extensions to infrastructure maintenance facilities at the Villaverde Complex goods terminal.
- Qualitative control and coordination of health and safety concerns on track renovation work at logistics centres at Vicálvaro and Silla, and at technical facilities at Zafra and Miranda de Ebro.
- Technical support in the coordination of construction work on railway sidings on the Miranda de Ebro-Pobles section of the Castejón de Ebro-Miranda de Ebro-Bilbao line.

## Infrastructure maintenance

- Technical assistance:
  - Site management, quality control and coordination of health and safety concerns on work to strengthen the factory bridge over the River Porma, km. 29/750 on the León-Bilbao line.
  - Site management and security coordination on repair work to the Trasona viaduct at km. 27/650 on the Pravia-Gijón line.

- Site management and security coordination on repair work to the underpass at Sotielo, at km. 6/720 on the Gijón-Laviana line.
- Modernisation of the metal bridge. Southern bridge (tracks left and right) km. 55/434 on the Moreda-Granada line.
- Subsidence protection on four bridges on the Madrid-Valencia line at Alcántara, km. 290/200, 291/384, 296/070 and 297/250.
- Site management of the construction of a new logistics operation building and the installation of two new lighting towers on the Irún CL containers.
- Installation of km/h signs. Alicante line. Section: San Gabriel.
- Installation of km/h signs. Section: Algemesí (km. 81/531)-Silla (km. 101/150) on the La Encina-Valencia line.
- Site management and quality and topographic controls on the treatment of backfill slopes from km. 575/900 to km. 576/150 on the Madrid-Hendaye line.
- Site management and quality and topographic controls on the trench at km. 4/800 of the Cantoblanco a San Sebastián de los Reyes fork.

## Gauge switches

- Consultancy and assistance in preparing a construction study and



monitoring of work on dual gauge switches on the eastern hub of Albacete station (related to PFF -081436-IV).

- Preventative and corrective maintenance services for dual gauge switches at the Santa Catalina high-speed train workshops.
- Provision of maintenance services for dual gauge switches at Renfe high speed train workshops at Santa Catalina.

### Circulation and operation

- Technical report covering the revision of exploitation of the Balaguer-La Pobla de Segur section, belonging to the Lleida-La Pobla de Segur line.
- Study examining the operative needs and promotion of goods services on RFIG lines in the North of Spain.
- Drawing up of an operational plan for the Palma-Inca-Manacor-Sa Pobla line.

- Drawing up of general circulation regulations.
- Operational study looking into increasing the capacity of the Villalba and Cercedilla line.
- Operational study looking into the modernisation of San Fernando de Henares station.

### Urban transport

- Assistance in the supervision of the public works and inspection contract, and movable material on the new Móstoles Central-Navalcarnero line, for Mintra.
- On behalf of Servicios Ferroviarios de Mallorca, Ineco Tifsa was appointed expert consultant for site management and works analysis on the metropolitan line, providing support to emergency site management for the restitution of the metro railway line in Palma de Mallorca.



- Ineco Tifsa, in UTE and in collaboration with GRUSAMAR, also provided consultancy and advisory services on behalf of Servicios Ferroviarios de Mallorca regarding projects to be undertaken during 2009.

Throughout the past year the company continued to collaborate on improvements to numerous stations across the conventional railway network, including:

- Technical assistance with site management of work on Line 1 of the Alicante tram system. Section 4B.
- Site management: construction and adaptation work on stations on line 1 of Valencia Metro.

## Others

### Track auscultation

- Testing, checks and authorisation:
  - Geometric track auscultation on the commuter network tunnel

- which runs from Atocha to Chamartín via Sol and Nuevos Ministerios. Madrid.
- Technical assistance in the verification of photography and track analysis, and overhead power cable geometric inspection vehicle.
- Track operative technology projects.

- Standards, regulations and technical specifications:
  - Technical support for the Ministry of Public Works in drawing up Technical Interoperability Specifications.
  - Compilation and standardisation of documentation, carrying out computerised inventories, control and monitoring of constituent track and platform elements and the integration and development of instrumentation plans on a number of high speed lines.
  - Drawing up of basic track regulations for Madrid, Bilbao and Barcelona metro systems.

- Support for CETREN with the work required in order to obtain the interoperability certificate for various railway sections.
  - Interoperability study of high-speed lines.
  - Self-protection plans for tunnels on the following high speed lines Madrid-Segovia--Valladolid/Medina del Campo (the Antequera-Málaga section), Madrid-Zaragoza and Lleida-Barcelona (the Roda de Bara-Barcelona section).
  - Work on preparing technical regulations for TMB regarding track matters.
- regarding measurement of vibration levels caused by railway traffic.
- Technical assistance in installing elastic elements under blocks in order to reduce vibration on the new underground section of the C-4 commuter line through the town of Getafe, and in vibration measurement in homes.

## **Supplies**

- Site management and technical assistance in the control of the supply of track material: sleepers, railways, apparatus and minor track material used on a wide range of projects.
- Technical assistance with the validation of elastic fasteners, as proposed by Acciona.

## **Studies**

- New monitoring and maintenance work on noise-reduction systems on the Móstoles bend. 4th Phase.
  - Support services for the supervision of projects and acoustic / vibration studies to test the efficiency of protective noise-reduction methods on high speed lines.
  - Technical assistance in the validation of elastic fastening to reduce noise and vibrations on the Delicias diagonal of Madrid Metro.
  - Sarriá acoustic study.
  - General technical assistance to high speed railway line management
- Study examining the operational start-up requirements for the Manacor-Arta section.
- Study examining the problems detected on apparatus used at Passeig de Gracia station.
- Study examining the problems detected on apparatus used at Bellvitge station.
- Technical support to the track technology management department in the supervision of P16 plans.

- Analysis of the state of sidings on line 1 of Seville Metro on behalf of Bombardier.
- Consultancy and technical assistance services in drawing up a functional study looking into increasing capacity on the C-2 Bilbao commuter line between Barakaldo and San Julián de Muskizs.
- Consultancy services and assistance in the drawing up of complementary studies and projects offering management support and coordination on projects and studies on the high speed Atlantic Axis: Portuguese Border-Vigo-Pontevedra-Santiago-A Coruña-Ferrol.

## Management commissions

- Management commissions to support chief technicians in investigating railway accidents. Ministry of Public Works.
- Management commission to provide support in preparing site reports and

in the management of sites pertaining to the major railway axes. Ministry of Public Works.

## RDI

- **SIOS (Sistema de Información de Obras Singulares - One-Off Project Information Systems):** Focuses on the control and management of projects through their various modules.
- **SFINGE:** High Speed Railway Geographic Information System.
- **SFINGE-GEOMIF:** Inventory of the high speed AVE and conventional railway systems.
- **EGEO:** Site Report Management Environment.
- **SIGREN:** Adif Fibre Optic Network Management.
- **EDACE:** Operation Analysis and Control Digital Environment.

# railways



- **SIGMA:** Integrated Environmental Management System.
- **ICECOF:** Railway Operations Coordination Centre Information.
- Technical assistance and support in the uploading of inventory data regarding the geographical information system used on conventional GEOMIF railway lines from Valencia command.

## IT Systems

- Work on the implementation of GEOMIF at Irún command and preventive maintenance of the LAC at Zaragoza command.
- Uploading inventory data from GEOMIF installations for North Madrid maintenance management command.
- Uploading inventory data from GEOMIF installations for South Madrid maintenance management command.
- Uploading inventory data from GEOMIF installations for Seville maintenance management command.
- Uploading inventory data from GEOMIF installations for Burgos maintenance management command.
- Uploading inventory data from GEOMIF installations for Valladolid maintenance management command.
- Uploading inventory data and the integration of technical information in the GEOMIF system.
- Uploading GEOMIF inventory data for Córdoba maintenance management command.
- Uploading high speed railway line data.
- Uploading inventory data from GEOMIF installations for Tarragona maintenance management command.

- Consultancy services and assistance in preparing relief cartography for the new high speed Levante access.
  - Technical support in processing information in the auscultation management department of the conventional railway executive.
  - Technical study into the development of an acoustic behaviour database.
  - Advisory services and information systems for underground works on the southern high speed line.
  - The inclusion of signalling data on the Madrid-Sur Los Gavilanes bypass in SFINGE.
  - Support with the maintenance and development of Adif's information systems. 3rd Phase.
  - Work on developing an incident management system integrated within the DAVINCI system for the Moroccan railway network.
- e Comercialização de Bens e Equipamentos, S.A. Portugal.
- Maintenance and operation technical assistance during the bidding phase of the Lisbon-Poceirao high speed railway line.
  - Consultancy services for the drawing up of a technical bid, and technical--administrative support for phase 2 of the high speed Mecca-Medina railway project.
  - Technical operational assistance during the bidding phase of the Bologna People Mover project.
  - First phase of the basic design and calculation project for the VAX 21 sleeper.

## consultancy services

### Planning

## International Projects

- “Consultancy services for the supervision and administration of the works contract for the minimum railway safety works of Chemin de Fer Djibouto-Ethiopian”, in Ethiopia.
  - Advisory services for the design and prototype of bi-block sleepers on behalf of GEOFER. Produçao
- Strategic Spanish goods railway transport plan.
  - Viability study examining railway super--highway services on the Iberian Peninsula within a 2020 planning horizon.
  - Technical, legal and financial structuring of a multi-purpose railway system for the Aburra Valley. Medellín Metro, Colombia.

- Advance work on a new Madrid-centred commuter network.
- Motril Port railway link viability study.
- Mediterranean Corridor study.

## Railway operations and exploitation

- Consultancy and technical assistance services in drawing up a functional study covering stations at Noáin, La Susana, San Vicente Calders and Taboadela.
- Analysis of alternatives for the license to run the Móstoles-Navalcarnero commuter line.
- Study examining the transportation of salt between Barcelona and Lyon.
- Maintenance of railway operations monitoring software and integrated control systems (COPÉRNICO).

## Management advisory and support services

- Technical assistance with the development of a bid for tender for the construction, operation and maintenance of Line 1 of the Zaragoza tram system.
- Collaboration and technical assistance with the conceptual, methodological and functional planning of IT applications used in the Adif Asset Management Plan.
- Technical assistance for FEVE in the modification and development of specific regulations which serve as the legal basis for the company and define its management model.
- Legal, administrative and management support for the Railways General Management department of the Ministry of Public Works.
- Technical assistance during the offer to tender for electrification of Bangalore Metro.
- Vietnam railway signalling installation market study.

## Financing studies

- Technical assistance with the economic realignment of the Figueres-Perpignan bid for tender.
- Technical advice on the financial structuring of the construction, operation and maintenance of stations on Line 9 of Barcelona Metro.
- Consultancy services and assistance to the Transport General Management department in order to incorporate private initiatives into



certain activities within the Valencia metropolitan area.

- Justification of the financial and socio-economic viability of the financing of FEVE investment by BEI.
- Application for funding from the Annual Programme 2009 within the framework of Trans-European networks 2007-2013 in order to finance work on the Zamora-Lubián section of the high speed Madrid-Galicia line on behalf of SEITT.

## Demand and mobility analysis studies

- Passenger entering and leaving capacity study focusing on the Bilbao, Santander and Seville transport centres.
- Passenger entering and leaving capacity in trains departing from/travelling to: Jaén, Extremadura and Cuenca at Puerta de Atocha, Atocha-Cercanías and Madrid-Chamartín stations.
- Goods traffic study at Tren del Sur, Tenerife.
- Study examining spatial nature of commuter train demand in Seville and Barcelona.

# environment

## Regional planning

- Special Regional Infrastructure Ordinance Plan for *Tren del Norte* on the island of Tenerife.
- Special Regional Infrastructure Ordinance Plan for *Tren del Sur* on the island of Tenerife. Fonsalía extension branch line.

## Environmental assessment of plans

- Special Regional Infrastructure Ordinance Plan for *Tren del Norte* on the island of Tenerife.
- Special Regional Infrastructure Ordinance Plan for *Tren del Sur* on the island of Tenerife. Fonsalía extension branch line.

## Environmental Impact Assessment

- Platform studies: Ourense-Monforte Lugo, the Alar del Rey-Santander spur, Atocha-Torrejón de Velasco.
- Electrification studies: Valladolid-Burgos-Venta de Baños section.
- Environmental integration of railway projects: platforms, stations, installations and communications, tunnels and electrification.



- The drawing up of technical environmental manuals and an environmental impact study of *Tren del Sur*, Tenerife. Coordination, supervision and control of environmental documents on construction projects. Adaptation to meet the criteria of the environmental impact declaration.

- The drawing up of environmental documents relating to electrification and platforms on behalf of Servicios Ferroviarios de Mallorca. The Manacor-Arta section and the urban section running through Palma.

## Environmental site management

- Adif's high speed line commissions: Ourense-Santiago, Pajares tunnels, the Basque Country "Y" section, Madrid-Barcelona-French Border, Madrid-Levante, Madrid-Extremadura and Bobadilla-Granada.

- Carrying out of work on the high speed line from Seville to Cádiz, on behalf of the Railway Infrastructures Management Department of the Ministry of Public Works.

## On-site environmental technical assistance

- Monitoring of fauna on the new high speed railway access in Extremadura. Section: Cáceres-Mérida.

## architecture

### Renovation work

- Málaga commuter station.
- Modernisation and extension work on Pontevedra station.
- Doce de Octubre commuter station, Madrid.

# railways



- Zorreras station.

## Restoration work

- Restoration of facades and vestibule of listed building at Almería station.
- Restoration of side and rear Calle Ocata facades at França station. Barcelona.
- Restoration of the main facade of Madrid Puerta de Atocha station.
- Ongoing restoration of listed Renfe buildings in the Avenida Ciudad de Barcelona, Madrid.

## Other buildings

- Restoration of railway bed on the Madrid-Seville de Mora y Hornachuelos high speed line.
- Restoration and new construction of the Guadarrama Tunnel maintenance base, north and south entrances.

## Station accessibility plan

Numerous projects have been drawn up with the main aim of adapting commuter stations to permit the entrance of the new CIVIA locomotives as well as improving disabled accessibility.

- Madrid: Cercedilla, El Escorial, Pozuelo, Meco, Los Negrales, Orcasitas, Las Margaritas, Nuevos Ministerios.
- Barcelona: Blanes, L'Hospitalet de Llobregat, El Masnou, Garraf, Pineda de Mar, Canet de Mar, Calella, San Celoni and Malgrat de Mar.
- Cantabria: Torrelavega and Valdecilla.

On the conventional railway network, the most notable station work was carried out at:

- Cataluña: Ripoll, Caldes, Torello, Llança, Flaçà and Sils.

- Castilla y Leon: Ávila, Salamanca, Medina del Campo.
- Galicia: Monforte de Lemos and Lugo.
- Asturias: Oviedo.

## One-off projects

- Technical assistance required to prepare the construction project for the Atlantic High speed Railway Axis. Standardisation of architectural elements at the following stations: Redondela, Arcade, Pontevedra, Villagarcia d'Arousa, Padrón-Brabanza, Ordes and Meirama-Cerceda.

## Collaboration on Railway Projects

- Provisional station at Sanz Crespo, in order to remove the Gijón level crossing.
- Pre-design of stations on the Leiola-Urbinaga tram network.
- Support on architectural projects and installations at La Sagrera station.
- Atocha station complex: collaboration with various bodies.
- Functional and planning studies for Chamartín station.

## Site collaboration

- Support for site teams, with the aim of providing an integrated service for Adif-Traveller Stations.

## structures and buildings

### Collaboration on Railway Projects

- Extension project at the Atocha station complex. Phase 2-Madrid.
- Drawing up a functional study to redesign the Plaza del Embarcadero and the Patio de Méndez Álvaro at the Atocha station complex.
- Study services regarding the transfer of the Atocha Communications Centre. New railway complex at Atocha station (Madrid).
- Technical assistance services in drawing up a construction project to improve accessibility to Atocha station commuter trains (Madrid).
- Assistance in the drawing up of functional and construction projects aimed at coordinating modernisation of the northern hub at Chamartín station.
- Study and project management support services for Major



High Speed projects General Management.

- Service contract to prepare projects and undertake civil and railway engineering work of the new high speed station at Granada.
- Functional study examining the high speed station at A Coruña-San Cristóbal.

### **Inventory, monitoring, load testing and bridge repair**

- Auscultation and load testing on metal and concrete bridges, Potential subsidence risk studies on bridge piers and abutments from 2006 to 2009.
- Project to add a third railway on metallic bridges across the River Oñar and the River Ter. Section: Girona-Figueres.
- Repair projects for bridges at Piera, Olabarria and Riera Beltrán

on railway lines falling under the jurisdiction of the Generalitat de Catalunya.

- Updating of the FEVE bridge maintenance management database.
- Construction project on the pedestrian underpass at Andoaín halt, Gipuzkoa.
- Inventory of walls and bridges on the Montserrat funicular railway and key railway inspections on behalf of the Generalitat de Catalunya.
- Load testing of jacked tunnel at Salou. Tarragona.
- Revision of sand illuminated underpasses of three metres or more on the railway network under the jurisdiction of the Generalitat de Catalunya.
- Technical assistance in the definition of modernisation work on eleven



bridges on the Ronda-Cortes de la Frontera section on the Bobadilla-Algeciras line.

- Specific monitoring of the southern high speed axis infrastructure. 2009-2011 period.
- Hydrological study to check bridges on the Madrid-Seville high speed line.
- Load testing on new bridges on the Levante high speed line. Madrid-Castilla La Mancha-Valencia Region-Murcia Region. Section: Gabaldon-Siete Aguas-Valencia-Almusafes.
- Carrying out inspection work, load testing and the auscultation of bridges and other structures belonging to the Railways General Management department of the Ministry of Public Works.
- Underwater inspection of the concrete foundations of metal bridges from 2007-2010.

## Inspection and renovation work on railway stations

- The drawing up of the restoration project on the vaulted roof of Madrid Chamartín station.
- Construction project for the structural renovation of the Rúa-Petín station building in Rúa, Ourense.
- Viability study to remove the mezzanine floor below the terrace of the main facade of the future auditorium at Madrid Atocha station.
- Technical inspection report and construction project for repair work to Zaragoza Delicias station.
- Structural project for Aluche commuter station, Madrid.
- Structural reinforcement project for the second floor of Atocha command station.

## **Urban development, civil engineering and workshop projects**

- Preparing an urbanisation project for the vicinity of Delicias station, G-44/2 of the PGOU, Zaragoza.
- Preparation of a project for the development of UA2 and UAS adjacent to the special Lleida station plan, associated to Vialia construction projects and the building of a car park.
- Construction project to cover tracks on the Madrid side of Lleida station between Calle Comtes d'Urgell and the station's main vaulted canopy.
- Construction project for railway sidings and unloading infrastructures and superstructures at the new solid agrofeed bulk terminal in the port of Santander.
- Consultancy services and assistance concerning the materialisation of investment and projects on behalf of Servicios Ferroviarios de Mallorca.
- Construction project to build structures on the north-north west high speed corridor. Madrid-Galicia line. Section: Lubián-Ourense. Sub-section: Vilariño-Cerdedelo.
- Project to remove the level crossing in Teruel on behalf of the Railways

General Management department of the Ministry of Public Works.

- Project to modify access to commuter railway transport services at the new Prat Airport terminal.
- Extension project for the Gallaratese Depot in Milan.
- Construction project to ensure an integrated treatment of tunnels on the Bobadilla-Algeciras line. Collaboration on structures.
- Calculation and design of bridges and maintenance workshops on behalf of Servicios Ferroviarios de Mallorca.

## **Supervision of structural and bridge projects**

- Management commission for the Railways General Management department of the Ministry of Public Works to provide support in the supervision of projects and studies.
- Construction project for the Costa del Sol railway line. Section: Fuengirola-Los Monteros. Review after structural supervision.
- Consultancy services and assistance in the supervision of the public works and inspection contract, and movable material on the new Móstoles Central-Navalcarnero line.



- Project to remove the Gijón level crossing. Structural supervision of the station.
- Extension project at Málaga Airport (2nd Phase). Structural review of the project covering points of access.
- Supervision through testing of dynamic behaviour of the Euro 4000 locomotive with TRM rolling stock profile up to a maximum speed of 100 km/h.

## Instrumentation and monitoring of rolling stock, track, structures and tunnels

- Instrumentation and monitoring of one-off viaducts on high speed railway lines.
- Instrumentation of the track system (without ballast) for the Guadarrama tunnel providing new railway access to the north and north west of Spain. Madrid-Segovia-Valladolid/Medina del Campo.
- Testing to validate the dynamic empty braking performance of RR92 tanker wagons used to transport TAFESA liquid fuel to Renfe.
- Instrumentation and testing for the inspection of the construction and start-up of twelve dual TD2000BB metric gauge locomotives to be operated by EuskoTren.
- The carrying out of one-off noise and vibration studies on high speed lines, and the drawing up of an acoustic protection project for Benalúa, Alicante.
- Predictive and investigative work with topographic monitoring (angular collimation), clinometry etc. on the wall of Calle Méndez Álvaro in Atocha.

# railways



## geology, geotechnics and underground works

### Collaboration on Railway Projects

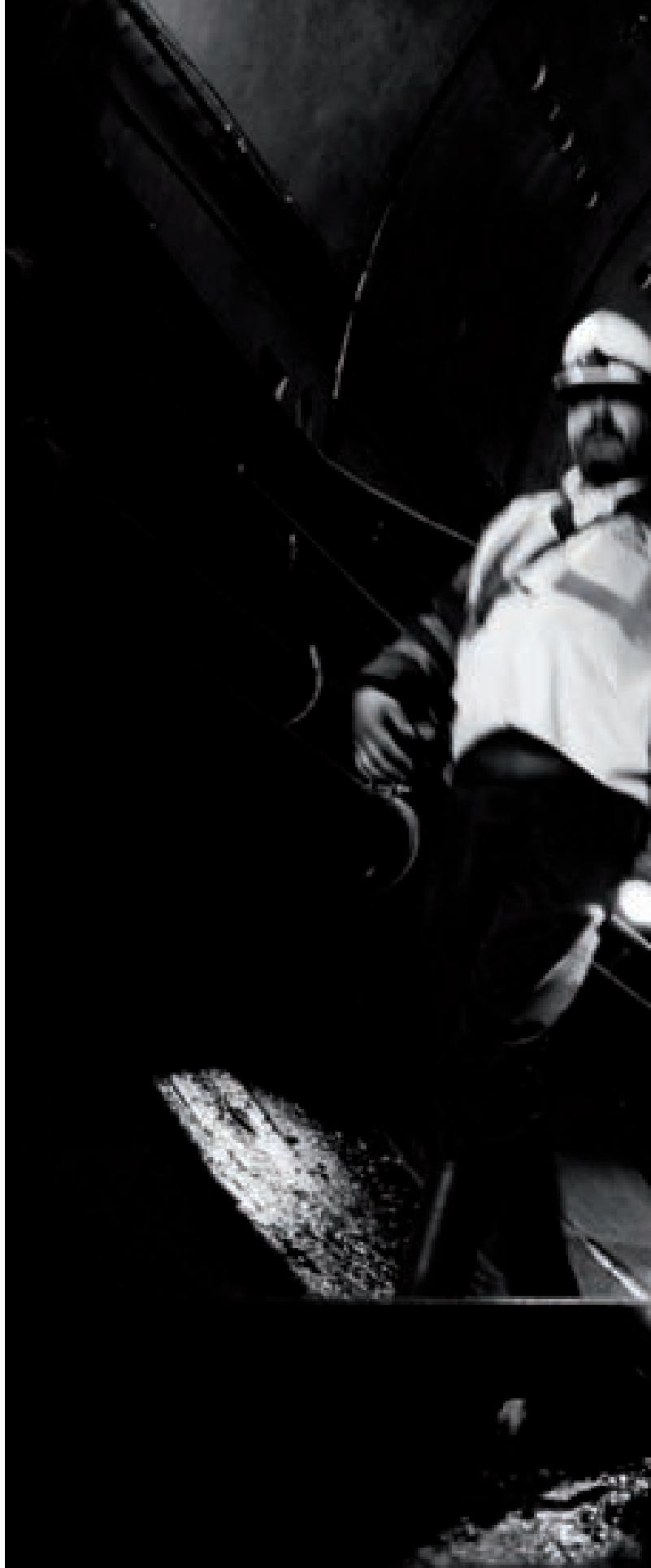
- Management commission:  
construction project for railway  
and non-railway facilities and start-  
up service for the new Moreda-  
Cabueñes tunnel.
- Consultancy services and assistance  
in drawing up a study covering the  
digging of an underground tunnel for  
line 1 of the FGV in the section that  
passes through Godella. Valencia.
- Construction project to renovate and  
improve the railway tunnel between  
Plaza de Cataluña and Norte stations.
- Integral hydrological study of the  
Pajares tunnels.
- Integral hydrological study of work at  
Valladolid.
- Tunnel auscultation on the Madrid-  
-Valladolid high speed line.
- Consultancy services and assistance:
  - Drawing up a construction project  
for the provisional tunnel for the  
future transit station in the new  
Atocha station railway complex.
  - Drawing up of a construction  
project for the 1st Phase of  
the extension to line 1 of the  
FGV network in Alicante, to  
Altet Airport. Geological and  
geotechnical work.
- On-site control and supervision:  
High speed Atlantic Axis: Section:  
A Vacariza-Rialijo. Platform.  
Section: Rialijo-Padrón (A  
Coruña). Platform. A Coruña  
Geological monitoring.
- Drawing up a hydro-geological  
study to complement the PGOU

### Internal work

- Management support for platform  
projects on the alternative Pajares  
spur.

- Valladolid modification document and detailed ordinance on the area.
- On-site control and supervision: New high speed Ourense-Monforte-Lugo line Puebla de San Julián alternative spur. Platform and track. Geological tunnel monitoring and auscultation.
  - Preparation of a draft project for Huelva station to prepare topographic geotechnical studies and services affected by the construction project for Huelva station and technical assessment for the supervision of said construction work.
  - Conditioning and revision. Conventional track renovation projects included in the 2<sup>a</sup> phase of the contract programme. Complementary geo-technical campaign and report proposing solutions on Cortes-San Pablo tunnels.
  - Management support for platform projects on the Bobadilla-Granada high speed line.
  - Services relating to instrumentation, auscultation and post-construction control of tunnels at the entrance to Barcelona for the high speed Madrid-Barcelona-French Border line.
  - Management commission to draw up an informative study regarding Alar del Rey-Santander.
  - Management commission: Informative study and construction project covering the integration of railway transport at Sant Feliu de Llobregat, Barcelona.
  - Advisory services and information systems for underground works on the southern high speed line.
  - Construction Project: the north-north west high speed corridor. High speed Madrid-Galicia line Section: Lubián-Ourense. Sub-section: Vilariño-Cerededelo.
  - Project to modify access to commuter railway transport services at the new Prat Airport terminal.
  - Service contract to provide support on the dimensioning of sections by their aerodynamic characteristics, revision of headroom measurements and standardisation of high speed tunnel section types.
  - Management support for complementary civil engineering projects and non-railway facilities on the alternative Pajares spur.
  - Assistance in the preparation of a construction project to integrate railway services in Logroño.
  - Geological-geotechnical support services to the department of geological and geotechnical studies.

- Hydrological monitoring and control of the Pajares tunnels vicinity.
- Management support for platform projects on the Madrid-Basque Country/French Border line. Section: Burgos-Vitoria.
- Preparation of a technical-economic viability study examining extensions to the tunnel in the vicinity of Los Lirios, Logroño.
- Construction project to ensure an integrated treatment of tunnels on the Bobadilla-Algeciras line.







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Ads

# roads



# **work continues on numerous road infrastructure studies and projects**

Over the course of 2009, the Roads division continued to carry out an array of infrastructure studies and projects, strengthening relationships with existing clients and signing up new ones.

The group once again worked actively with the Ministry of Public Works Directorate General of Roads, and demarcation authorities on management undertakings and projects.

Ineco Tifsa also carried out studies and projects for clients such as GISA, GIASA, the Castilla-La Mancha and Andalusia regional governments, Mintra, and other autonomous region and provincial governments.

Highlights include the road safety works carried out during 2010 for the Andalusia regional government.

In addition, Ineco Tifsa carried out research on road transportation in Spain, as part of its five year framework collaboration agreement with CEDEX.

The Group also continued its work on road innovation initiatives organised by both the Aula Ineco and the Aula Carlos Roa.

## **Management undertakings**

- Technical assistance for follow-up studies, control and planning of projects and works for the Directorate General of Roads.
- Preparing supervision reports for drafted projects and construction projects and monitoring the improvement and upgrade actions in the first phase of the First Generation Roads Improvement plan.
- Technical assistance for the monitoring, control and drafting of preliminary reports on the supervision of construction projects related to the

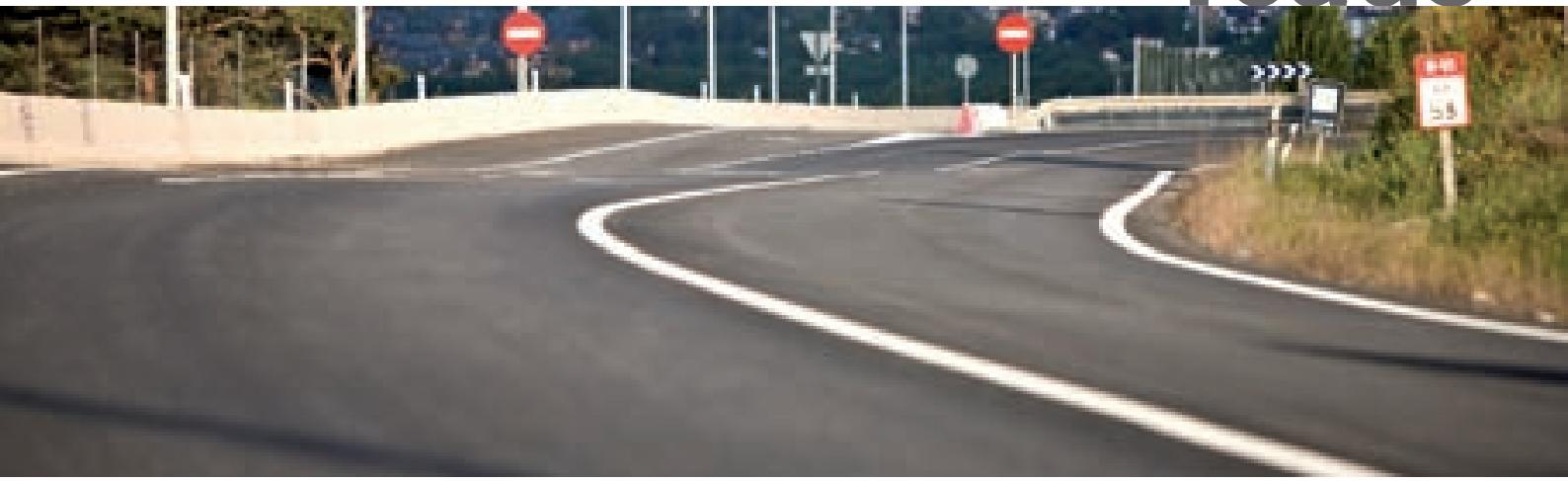
Alcarria motorway and the AP-7, AP-1 and AP-6 toll motorways.

- Drafting of pre-contract reports and providing budgetary control for the investment programmes included in the investments annex of the Spanish General Budget.
- Technical assistance for drafting preliminary reports for works contracts and technical assistance at the bid stage for the Directorate General of Roads.
- Technical and administrative support in the processing and control of actions undertaken for projects, works, conservation and operations in the demarcation of Spain's national highways in Murcia.
- Technical assistance for carrying out the graphic documentation of the Directorate General of Roads.
- Technical and administrative assistance for the activities of the subdirectorate general of projects.
- Technical assistance for the route planning and construction of the A-38 road. Safor bypass. Section: Oliva sur-beginning of the Gandía bypass. Valencia.

- Technical assistance for the monitoring, control and drafting of preliminary reports on motorway route planning and construction projects involving improvements and actions in urban areas.
- Technical assistance in the drafting of the route planning and construction project for the A-68 motorway.  
Section: Gallur-Mallen. Zaragoza.

## Studies and projects

- Drafting and construction project for M-40: service roads and other works. Link with the M-201 (Arcentales junction) to beyond the Supersur link with the A-4, KP 12 to KP 22/300.
- Lane expansion on the A-92 road.  
Section: Moraleda de Zafayona to the connection with the A-92 G in Santa Fe. Granada.
- Preparation of informative studies on the high capacity link between Toledo and Ciudad Real through the Viñedos motorway.
- Drafting the project and management of the works to widen the old CN-344 road. Section I: airport - former N-349 and Section II: former N-349-El Toyo.



- Remodelling of the link between the M-503 and M-513 roads via a bypass on the M-503 built below the existing square.
- Informative study of bypasses on the A-1414, A-231 and A-2412 roads.  
Section: Valderrobres bypass.
- Preparation of the detailed upgrade project of the T-224, KP 0/800 to 14/500, T-241, KP 0 to 1/700.  
Section: Santa Coloma de Queralt-regional boundary with El Urgell (Vallfogona de Riucorb).
- Technical assistance for the Evaluation and Supervision of Projects and Works Unit (UASPO). Concession. Doubling of transversal axis. C-25 roads, KP 180/400 to KP 237/680. Sections: Vic-Ruidellots de la Selva (N-II).
- Monitoring, control and drafting of preliminary reports for the supervision of route planning and construction projects for various sections of the following roads: A-30, N-152, N-420 and N-542, for the Ministry of Public Works.
- Technical assistance for the supervision of infrastructure projects (ATSP-IX).

## Studies and projects supervision

- Monitoring, control and drafting of preliminary reports on motorway route planning and construction projects: A-22 Lleida - Huesca, A-21 Jaca - L.P. Navarra and actions in urban areas and the Población bypass.
- Monitoring, control and drafting of preliminary reports on motorway route planning and construction projects: the Veger-Oliva motorway, Navarra motorway. Duero motorway (A-15). A-12; Cieza-Font de La

# roads



Figuera motorway and upgrades in urban areas.

## Collaboration Ineco Tifsa-CEDEX

- Identification of research lines and technical assistance aimed at promoting the Spanish roads sector.
- Feasibility study for the creation and deployment of a team to carry out accelerated road infrastructure trials in Algeria.

## Innovation and road safety

- Road Safety Audits for the Andalusian secondary road network.
- Safety works on the Peñablanca tunnel included in the construction project: A-15 motorway. Section: Los Rábanos (A-11)-Fuensauco.

- Technical assistance contract with the Andalusian regional government for the preparation of two reports for 2010 on conservation works involving road safety.

## works and maintenance

### Consulting and support

- Control and monitoring of the following works:
  - Ring road for Las Palmas de Gran Canaria, phase IV. Section: Tamaraceite-Tenoya-Arucas Costa. Gran Canaria.
  - A-21 motorway Jaca-LP Navarra. Section: Barranco de las Colladas-link with the A-1601 road. Zaragoza.
  - A-32 motorway, Bailén-Albacete. Section: Ibros (link with the A-6101 roads)-Úbeda (link with the A-316 road). Jaén.

- Technical audits:
  - For the bank Banco Espíritu Santo, on the AP-41 motorway Madrid-Toledo and A-40 motorway. North ring road, Toledo (Toledo concession motorway).
  - For the savings bank, Caja Madrid on the construction and operation of the following works: section M-40, Arganda del Rey-toll motorway R-3; section M-40, Navalcarnero-toll motorway R-5; section M-50, motorway A-6 and M-409 (Madrid concession access road).

## **Conservation and operation**

- Execution of various conservation and operational works on the following roads: E-15/A-7, N-340a, A-92, A-92a, AL-12, N-344, N-344a, AL-14, N-347 and N-349. Almería.

## **consulting**

### **Consulting services and management support**

- Drafting of regulations that govern the service provision arrangements for the AP-1 Vitoria-Gasteiz-Eibar motorway for the section that passes through the historical region of Álava.

## **environment**

### **Environmental impact assessments**

- Support to the Ministry of Public Works Directorate General of Roads in drafting of environmental procedures for different projects.
- Support to the Ministry of Public Works Directorate General of Roads in the supervision of environmental documentation for projects.
- Ecological and landscape projects for motorway projects: El Olivar, M-40, La Sabor, Mallén-Gallur, etc., in various autonomous regions.
- Informative study and environmental impact study on the detailed construction project for the bypasses on the A-1414, A-231 and A-2412 roads. Section: Valderrobres bypass.
- Informative study and environmental impact study on the high capacity link between Toledo and Ciudad Real via Autovía de los Viñedos.

### **Environmental project management**

- A-21 motorway Jaca-LP Navarra. Section: Barranco de las Colladas-link with the A-1601 road. Zaragoza.

## **Technical services on work sites**

- Route planning improvements.  
Motorway C-17. Works on B-1 of KP 32+350. Section: La Garriga/works on B-2 of PK 34+800 at 36+650 and pavement reinforcement between KP 32+350 and KP 34+800. Section: Tagamanent.
- General improvement. Upgrading of B-100 motorway from Montaneu to the LV-1005, KP 2+400 of the B-100 to 0 of the LV-1005.  
Section: Montmaneu-Sant Guim de Freixenet.

## **structures and building**

### **Motorway structures and bridge projects**

- Drafting and construction project for M-40: service roads and other works. Link with the M-201 (Arcenthaler junction) to beyond the Supersur link with the A-4, KP 12 to KP 22/300. Madrid.
- Drafting of detailed project for general improvements: upgrade to the T-224, KP 0/800 to 14/500, T-241, KP 0 to 1/700. Section: Santa Coloma de Queralt - regional boundary with El Urgell (Vallfogona de Riucorb).

- Remodelling of the link between the M-503 and M-513 roads via a bypass on the M-503 built below the existing square. Madrid.
- Informative study on the upgrade of the Comiols pass. L-512, L-911, C-1412-B, L-912 and OP-9132 roads. Section: Artesa de Segre/Ponts-Tremp.
- Informative study of the Cazorla bypass on the A-319. Jaén.
- Informative study. Bypasses on the A-1414, A-231 and A-2412 roads. Section: Valderrobres bypass.

- Preparation of the informative studies on the high capacity link between Toledo and Ciudad Real via Autovía de los Viñedos.

### **Inventory, auscultation, load tests and bridge repair**

- Load test on the bridge over the A-40 motorway in Noblejas, Toledo.

### **Supervision of structure and bridge projects**

- Management undertaking: technical assistance for the monitoring, control and drafting of preliminary reports on the supervision of construction projects related to the Alcarria





motorway and the AP-7, AP-1 and AP-6 toll motorways.

- Management undertaking: preparation of supervision reports for drafted projects and construction projects and monitoring the improvement and upgrade actions in the first phase of the First Generation Roads Improvement plan. 1st phase.
- Management undertaking: monitoring, control and drafting of preliminary reports on motorway route planning and construction projects involving improvements and actions in urban areas and upgrades.
- Technical assistance for the Evaluation and Supervision of Projects and Works Unit (UASPO). Concession. Doubling of transversal axis. C-25 roads, KP 180/400 to KP 237/680. Sections: Vic - Ruidellots de la Selva (N-II).

## geology, geotechnics and underground works

- Project drafting and expansion on the A-92 road. Section: Moraleda de Zafayona to the connection with the A-92 G in Santa Fe. Granada.
- Route planning and construction project. M-40. Service roads and other works. Link with the M-201 (Arcantales junction) to beyond the Supersur link with the A-4, KP 12 to KP 22/300. Madrid.
- Monitoring, control and drafting of preliminary reports for the supervision of route planning and construction projects for various sections of the following roads: A-30, N-152, N-420 and N-542, for the Ministry of Public Works.



- Consulting for and assistance in the monitoring, control and drafting of preliminary reports on motorway route planning and construction of the the Veger- -Oliva motorway, Navarra motorway. A-15 Duero motorway. A-12; Cieza-Font de La Figuera motorway.
- Management undertaking: preparation of supervision reports for drafted projects and construction projects and monitoring the improvement and upgrade actions in the first phase of the First Generation Roads Improvement plan.

# other works



# consultancy services

## Planning

- Multimodal study of the Mediterranean Corridor and analysis of high-speed railway-air transport intermodality.
- Development of an airport business and logistics estate at Vitoria Airport.
- CELESTE 2 (Galileo Co-operation Project for Latin America).

the Autonomous Cities of Ceuta and Melilla.

## Financing studies

- Application for funding from the Annual Programme 2009 within the framework of Trans-European networks 2007-2013 in order to finance work on the SE-40, a ring road around the city of Seville on behalf of SEITT.

## Management advisory and support services

- Support for the Ministry of Public Works in the updating of the Strategic Infrastructures and Transport Plan.
- Support for the Ministry of Public Works in the study of the socio-economic impact of the Strategic Infrastructures and Transport Plan.
- Study looking into the management process and control of fare subsidies for regular travellers for residents of the Canary and Balearic Isles and

# INTERNATIONAL business



## Ineco Tifsa in the world

Throughout 2009 Ineco Tifsa maintained its position in the international marketplace, ensuring its standing as one of the most transport sector important companies in the world.

The level of competitiveness, experience and efficiency shown in its international contracts ensures that the presence of the Group in Latin American and European markets is ever stronger, whilst it has consolidated its position in new markets such as the Middle East and Asia, where the brand has created a niche for itself among consultancy and design companies present on the market for a much longer period of time.

The strategy that Ineco Tifsa has developed over recent years on the international stage means that other Spanish companies working abroad consider the Group to be an important ally, offering them support in their projects and programmes. Ineco Tifsa is therefore increasingly and extensively becoming associated with a body of knowledge that is seen as essential in the implementation of high-speed railway systems and the development of large airport projects.

Ineco Tifsa continues to be a point of reference for its clients, be they governments or private companies, capable of tackling the most complex of transport projects.

The group has a permanent and sustainable presence in the international market place, with offices in Brussels, Bogota, Caracas, São Paulo, Mexico City and New Delhi, as well as a number of other offices allied to specific projects in various countries.

INTERNATIONAL

# business



## africa

### Cape Verde

- Extension of the Boavista Airport platform.
- Modernisation of the passenger terminal at La Sal Airport.

### Algeria

- Modernisation of the National Transport Plan.
- Study examining the reorganisation of urban transport in Algiers and the regrouping of private bus operators.

### Mauritania

- Technical supervision of improvement work at Nouadhibou port.

## america

### Brazil

- Viability study and financial modeling of the modernisation and extension programme for the CPTM metro-railway system in the São Paulo metropolitan area.
- Integrated management of the project to improve São Paulo's railway system.

### Panama

- Strategic National Airport Plan.

### Costa Rica

- Railway Transport Plan Study for Costa Rica.

## **Colombia**

- Technical, legal and financial structuring of a multi-purpose railway system for the Aburra Valley, in the Medellín region.

## **Venezuela**

- Integrated system for line 1 of Caracas Metro: Management support and project integration for renovation work on line 1 of Caracas Metro.

## **Chile**

- Consultancy services assisting with management of the changeover of the State Railway Company and the implementation of the SEC-CTC project.

## **Dominican Republic**

- Santo Domingo-Santiago express train project.

## **Peru**

- Railway study for the Cusco-Ollantaytambo alternative spur.

## **asia**

## **Kuwait**

- Preparation of complementary studies for Kuwait's metro and railway project.

## **europe**

### **Turkey**

- Supervision of improvement work within the framework of Turkey's railway security programme.

### **Italy**

- Extension project for the Gallaratese Depot in Milan.
- Milán-Limbiate tram project.

### **France**

- Viability study examining railway super-highway services on the Iberian Peninsula within a 2020 planning horizon.

### **Portugal**

- Maintenance and operation technical assistance during the bidding phase of the Poceirao-Caia high-speed railway line.

### **Serbia**

- Consultancy services for the coordination of the preparatory activities for the construction of the first light train in Belgrade.

### **European Comission / Other clients**

- Assistance with the engineering system for the EGNOS evolution programme.

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# **credits**

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