The International Programme of Italferr SpA

RAILMED A PROJECT FOR MEDA 2020
WORSHOP ITALY-IRAN
New partnership’s opportunities in the field of Railways

Bari, July 2nd 2014
Italferr

Mission

- to ensure that investments are realized on time, within budget and according to high quality standards, providing all necessary technical and administrative activities from study and design to start-up and testing

- to export the Italian railway knowledge and skills throughout the world
Figures

- 1235 highly qualified staff
- 12 offices in Italy, 8 branches abroad and 100 work sites
- 138 million Euro production value in 2013
- 73 billion Euro in managed investments
- 1,1 billion Euro in managed investments in 2013
- 600 sub-projects currently under management
Investments managed in Italy

Total Investments 73 Billion Euros

- High Speed Lines: 27% (20 Billion Euros)
- Conventional Lines: 39% (28 Billion Euros)
- Urban Hubs: 27% (5 Billion Euros)
- Technology: 7% (20 Billion Euros)
Services

- Transport development plans
- Feasibility studies
- Preliminary/final design and execution
- Design verification
- Environmental impact studies
- Cost estimates
- Tender documents and procedures
- Project Management
- Planning and cost control
- Work supervision
- Integrated Management Systems (QAS)
- Testing and start-up
- Activation
- Operating assistance
- Training and organizing consultancies
Project development

Data/Market Analysis
- Market Analysis
- Traffic Analysis
- Transport Master Planning/Technical assistance

Feasibility Study
- Technical/Economic feasibility assessment
- Environmental impact appraisal
- Conceptual design and rail operation

Project Design
- Preliminary and Detailed Design
- Cost estimates
- Technical specification and tendering

Construction
- Planning and Cost control
- Construction works supervision
- Project management

Testing and start up
- Testing and start up
- Commissioning
- Pre-operation assistance
- Training

Project Management
All business decisions made by Italferr for operating or strategy are based on constants which define the Company's identity:

- **System Engineering**
- **Planning and Control**
- **Quality**
- **Health & Safety**
- **Environment**
System Engineering

Italferr provides a complete package of activities and services that cover all the Client’s needs, from preliminary market studies to economic, financial and administrative services, from design to project management and work supervision, start-up and testing.

Italferr’s services are marked by a comprehensive approach (full-service)
Italferr pays special attention to the technical viability of solutions and construction requirements in order to identify solutions that minimise implementation time and investment costs.

The Company develops estimations of prices and takes care of the planning and implementations control in every project managed by the Society.
Italferr has extensive experience in the field of railway transport safety, substantiated by Italian Railway safety index, one of the highest in the world. It develops control and safety technologies used on the network for handling traffic.

It is an aid leader in the guaranty of construction sites safety during the planning and the carrying out phases and during the pre-exercise of railway infrastructures.

The Company has implemented a Safety Management System, certified in accordance with the regulation OHSAS 18001.
Integrated Management System: Quality, Environment and Safety

Italferr develops technology solutions for traffic control and railway safety, regarded as the highest standard in the world.

Italferr has adopted a Quality, Environment, Health and Safety Integrated Management System, certified in accordance with ISO 9001 (Quality), ISO 14001 (Environment) and BS OHSAS 18001 (Health and Safety). Italferr has also been recognized for its design verification (Type B) in compliance with UNI/CEI EN ISO/EC 17020 norms.

The Company’s projects are eco-friendly, helping to preserve and protect the environment and the national trust heritage.
Carbon Footprint in Railway Projects

Italferr is the first Engineering Company in the world to have acquired the Certificate of Conformity Regulations ISO 14064-1 for the methodology: “Calculation of Greenhouse gas emissions caused by the production of transport infrastructures”

Italferr received from UIC the Highly Commended award for the “Carbon Footprint in the design and construction phases” (Venice October the 26th, 2012)

Our Carbon Footprint-Methodology received the “Special Merit Award for Commitment to the Environment” from Middle East Rail (Abu Dhabi March the 1st, 2011).
Railways join the fight for climatic changes

Cat. 1
Emissions to produce the design
[kg CO\textsubscript{2}/kWh - kg CO\textsubscript{2}/km]
Tools usage on site inspections

Cement/concrete
Iron/steel
Embankments earth
Bitumes
Copper
Ballast

Cat. 2
Emissions generated by materials
[kg CO\textsubscript{2}/kg]

Transport of cement, earth, concrete, steel

Cat. 3
Emissions generated by transport of materials
[kg CO\textsubscript{2}/km]

Foundations
Piles, Excavations
Embankment
Culverts
Tunnels

Cat. 4
Emissions from on site works
[kg CO\textsubscript{2}/h - kg CO\textsubscript{2}/kWh]

Transport of cement, earth, concrete, steel

Cat. 5
Emissions for the installations in work
[kg CO\textsubscript{2}/h]

Electrical energy
Construction sites

Cat. 6 Absorbers
CO\textsubscript{2} removal from green area
[kg CO\textsubscript{2}/m\textsuperscript{2}]

Railways join the fight for climatic changes
Italferr in Italy

Most demanding projects entrusted to Italferr by RFI are the design and the supervision of construction of the new **High-Speed/High-Capacity System** lines in Italy and the major projects concerning the upgrading, improving and renewing of the **Italian rail network’s main routes**. These two sets of activities included the design and work supervision of:

- **Traffic control and management technologies**
- **Urban junctions**
- **Passenger stations**
- **Major civil works**
- **Rolling stock /Maintenance depots/Workshops**
- **Alpine crossings**
- **Electricity systems**
- **Intermodal terminals and interports**
The Italian High Speed/High Capacity railway system runs 1000 km through a large part of the national territory. The HS/HC network connects Turin to Salerno, passing through Milan, Bologna, Florence, Rome, Naples and shall be further extended by the two Genoa-Milan and Milan-Trieste cross country routes.

With the activation of the new Bologna-Florence and Novara-Milan fast routes in December 2009, joining those of Rome-Naples, Milan-Bologna and Turin-Novara, the objective to “unite Italy” has been accomplished.

The new lines were designed to allow mixed traffic (hence the dual HS/HC wording), i.e. passenger and freight trains, travelling long and medium distances and closely integrated with the existing railway network by means of several interconnections and considering connection with the European HS network.
Innovative tecnologies

Thanks to the experience gained in the High Speed/High Capacity railway lines field through the use of innovative technological systems (Control Command System – Multi-station Electronic Interlocking System – ERTMS etc...), Italferr is designing and/or implementing new technological systems on the main lines and junctions in order to improve the performance of the existing network and the operation efficiency.
Traffic control and management technologies

- **European Rail Traffic Management System (ERTMS)**: An interoperable signaling system for rail traffic command, control and coordination.
- **National Automatic train Control System (SCMT)**: An automatic train protection system that monitors the train operation, limiting speed exceeding (traditional lines).
- **Command & Control System (SCC)**: A remote command and control system to manage rail traffic and complementary activities across entire areas (junctions or mainlines).
- **Microprocessor-based Interlocking System (ACC)**: For stations railway traffic control.
- **GSM-R System**: For mobile radio communication (voice communication and real-time data transmission).
Italferr designs and builds:

- all kind of passenger stations
- road-rail interchange terminals including parking
- urban requalification

...to facilitate and improve integration between the various modes of metropolitan transport
HS/HC Stations: some examples

Roma HS/HC Junction: new Tiburtina Station
HS/HC Stations

Milano-Bologna Line: Station of Reggio Emilia
Florence HS Junction: new Belfiore Station
HS/HC Stations

Roma-Napoli Line: Afragola Station
Italferr designs and builds plant for rolling stock, maintenance depots and workshops
Intermodals terminals and interports

Italferr designs and builds plant for intermodal transport
The experience acquired by Italferr in Italy has enhanced its success on international markets.

International and Regional financing bodies (World Bank, EBRD, EU, ADB), Governments and private Clients have awarded the Company projects all over the world.
Italferr has worked on railway projects in more than 60 Countries
Europe
Albania
Austria
Italy/Austria
Bosnia-Herzegovina
Bulgaria
Croatia
Czech Republic
France
Hungary
Macedonia
Montenegro
Poland
Romania
Russia
San Marino
Serbia
Slovak Republic
Slovenia
Switzerland
Turkey
Ukraine
Latin America

Brazil
Chile
Colombia
El Salvador
Nicaragua
Panama
Peru
Venezuela
Asia, Central Asia and Oceania

India
Kazakhstan
Kyrgyzstan
Tajikistan
Turkmenistan
Uzbekistan

Australia
Croatia

**Project:** Planning of a section of the Rijeka-Zagreb-Budapest rail corridor

**From:** November 2012

Italferr has won the contract for planning the 45 km Hrvatski Leskovac - Karlovac section of the Vb rail corridor.
The contract was signed on 12th November, 2012 in Zagreb between Italferr, the representative company in the temporary grouping created with Technital and IRD Engineering, and the Croatian national railway company (HŽ Infrastruktura).
Project: New contract for the design of the Ankara-Esenboga connection

From: February 2013

On 6 February 2013 at the offices of the Ministry of Transport in Ankara, Italferr signed a contract for designing a railway connection between the international airport of Esenboga and Ankara. This project, desired by the Turkish Government Authorities, falls within the plan for infrastructural modernisation and development not only of the city of Ankara but the whole country and includes a feasibility study and the preliminary and final design for a connection running approximately 27 km between Esenboga airport and the capital. Also foreseen is the design of 8 intermediate stations intended for serving one of the city’s most important urban routes. Apart from the Turkish Ministry of Transport, the municipality shall also be involved in the framework of global reorganisation of the urban transport system.

The assignment shall last for 12 months.

Italferr has been entrusted with the “works supervision and design review of Eurasia Tunnel, the undersea road tunnel that will connect the European side of Istanbul with the Asian one”. About 15 km long, of which 3.4 below the level of the sea, at a depth of about 25 meters, Eurasia Tunnel will cross the Bosphorus Strait in parallel with the Marmaray rail tunnel. Once completed, it will allow the connection between the two continents in 15 minutes, compared to the current 100 minutes.
Having developed the final design of civil works for the El Palito-La Encrucijada route and the preliminary design for the infrastructures and railway works of the Intermodal Moron-Porto connection of Puerto Cabello (27km), on behalf of Consorcio Gruppo Contuy, which is assigned by the Istituto Autónomo de Ferrocarriles del Estado (IAFE) for realising the works, Italferr realised, again for Gruppo Contuy, the final and executive design of the railway works for the El Palito-La Encrucijada line. The El Palito-La Encrucijada line is part of the planned development of a more articulated multi-modal freight and passenger transport system which shall integrate the various needs and methods of transport by means of the creation of logistic railway (interports) and maritime (terminal and container) amenities and centres with which road transport can interact.
Project: Implementation of a High Speed rail network on the east coast
From: 2011

In 2011, Italferr collaborated in the initial layout of a future high speed railway line along the eastern coast of Australia which connected its main cities (Brisbane-Sydney-Canberra-Melbourne, 1800 km). The activities were included in Phase I of the study managed by the Ministry of Infrastructures and Transport of the Australian Federal Government, following the tender awarded to the consortium led by AECOM, one of the world’s two foremost engineering companies. Italferr’s contribution was activated in order to identify and detail strategic themes of specific interest, based on experience gained in Italy during the various phases of concept, design and realization of our HS network.
**Offer:** Technical Assistance to ANESRIF  
**From:** 1 February 2008  
**To:** May 2014

Under a five-year contract awarded by ANESRIF - Agence Nationale d’Etudes et de Suivi de la réalisation des Investissements Ferroviaires (Algerian governmental body responsible for the execution of railway investment programmes), Italferr provides technical support in the planning of new lines, management of competitive tenders and the overseeing of works completing the Algerian infrastructure investment programme; a 30 billion dollar development programme. The goal is the implementation and completion of an ambitious infrastructural investment programme.

Italferr has provided: The preliminary study for the High Speed line “nouvelle Ligne GV” east – west (1,200 km); Preliminary designs for the electrification of the coastal line "Ligne Rocade Nord"; Instruments useful for standardizing the drafting of plans, rendering uniform their presentation in competitive bids and subsequent planning activities (Designing Manual); Instruments for standardizing the management of works (Execution Manual). Italferr’s activities also involve staff training both in Algeria and Italy so as to ensure that ANESRIF technicians are able to operate autonomously.
Egypt

**Project:** Prefeasibility Study of Cairo – Alexandria Railway Line

**From:** July 2009 – **To:** January 2011

The Project objective was to establish a planning framework of the High Speed Link development between Cairo and Alexandria. The Project aimed to develop preliminary analyses for the potential rider-ship along the Cairo-Alexandria HS route; identify alternative routes; select the most suitable route and technology option; prepare a preliminary implementation program; calculate preliminary costs; prepare Preliminary Financial Analysis and give the Client the necessary input for future preparation of financing plans.
Egypt

**Project:** Consulting services for modernization of Signalling System on the Benha-El-Qantara and Zagazig-Abu-Kebir Corridors

**From:** September 2010

The Project includes a phase for definition of the system architecture of the technological equipment, the preparation of a preliminary design, the preparation of technical and functional specifications, the preliminary evaluation of the modernisation costs and the entire set of bidding documents.

A second phase consists in the supervision of installation of signalling system.
Ethiopia

**Project:** Consultancy services for rail operations legal framework, Operation Management System Development & Master Document Preparation for: Addis Ababa – Djibouti Railway line e Addis Ababa Light Rail Transit

**From:** February 2014

The objective of the assignment is to perform Capacity Building works to the Operations and Services Division of Ethiopian Railway Corporation (ERC) & to prepare a Master Document that shall be used for portfolio management of the rail transport industry. In particular the scope of services is to prepare the following: railway transport master plan; railway operation and maintenance guidelines, manuals, regulations and standards; railway operation and maintenance specifications and to develop and conduct training.
Iraq Transport Master Plan

Iraq National Transportation Master Plan has provided a modern, efficient transport system for the country and served as a catalyst to Iraqi economic development. The project included short, medium and long term planning of all transport modes. The overall value of investment planned has been around 54 billions of US$ along a period of 30 years. This included: railways, roads and highways, airports, ports, internal waterways, intermodal facilities. Projects were grouped into consistent development scenarios for which economic and financial appraisals were performed.

In May 2006, the Company has undertaken a “Training on ITM Tools” for 8 Iraqi experts lasting 3 full weeks.

In September 2006, the Company has undertaken a more generic “Training on Transport Planning” for 15 Iraqi experts and lasting up to March 2007. Both training were aiming at forming a group of Iraqi experts able in the future to develop autonomously the analysis needed in the field of transport planning in Iraq.
Project: “Detailed Engineering Design for Saudi Landbridge Project”
From: July 2013

The Saudi Landbridge Railway Project is part of the country’s overall railway network expansion strategy. The Project will consist of a 962 km line linking Jeddah with the existing Riyadh and Dammam railway networks.

The Saudi Landbridge Project will transform the Existing Railway into a world-class freight and passenger line linking the east and west coasts of the KSA. It will have the capability to move large quantities of cargo over long distances at competitive rates and will offer safe and comfortable overland passenger transport.

The Landbridge will connect the port city of Jeddah to the capital city Riyadh, serving its dry port.
Saudi Arabia

Project: “Safety Verification Engineer”

From: July 2011

Within the second implementation phase of the Saudi railway project Haramain High-Speed Rail (HHS) connecting the two holy cities of Mecca and Medina, 444 km of High-Speed railway line intended for transportation of pilgrims, the group Italferr – Italcertifer, selected after multiple negotiations by the Saudi-Spanish group leader of the project, shall provide the services of “Safety Verification Engineer”.

The support activities being assigned to the Italian group is a condition that has been imposed by the end client, Saudi Railway Organization, throughout the entire construction period and is aimed at safety certification for the systems Energy, Infrastructures, Control-Command and Signalling, Rolling Stock, and for the subsystems Operation and Maintenance for the new line, in accordance to European standards.
Project: “Doha Metro Red Line Underground”
From: June 2013

In June, 2013, after its submission of a winning bid, Italferr started developing its designs for the Red Line Underground, part of the underground train network of Doha. As part of a grouping of international engineering companies, Italferr fulfills the role of planner. This joint venture is headed up by Impregilo which, in turn, was appointed by Qatar Rail following their submission of a successful international bid for the construction contract. Italferr is responsible for planning the rail route, civil engineering works (tunnel approach structures), RAMS engineering, Value Management Engineering, System Assurance, Requirements Management and Interface Management. The planning phase commenced in June 2013 and will conclude at the end of 2014. As part of the Doha Metro project, Italferr has also been appointed by the same joint venture of constructors to develop the preliminary documentation required for the Red Line Elevated competitive bid.
Oman

**Project:** “The National Railway Project”  
**From:** January 2014

The National Railway Project in the Sultanate of Oman will consist of about 2,244 km of railway line (divided in 9 segments), linking Omani border with UAE (at Al Ain and Khatmat Milahah) to Muscat, as part of GCC Railway Network, and to the southern parts of the country at Port of Ad Duqm and Salalah and to Yemen border.

The Oman National Railway is intended to be a double track mixed freight and passenger nonelectrified railway line. The planned Oman National Railway (ONR) Network will link the centres of population and growth drivers of the Sultanate and will be part of the GCC Railway. The ONR is intended to form a central element in the modernization of the Sultanate’s goods distribution system. Major flows are expected to include containers between the ports and inter-modal hubs, bulk raw materials from the ports to industrial centres and export of raw materials and semi-finished goods to the GCC countries.

The National Railway Project will be a mixed freight and passenger non-electrified railway line constructed as double track and having a maximum permissible axle load of 32.4 tons. Passenger trains will have an operational speed of 200 km/h and 220 km/h as design speed. Freight trains will have a speed of 80 to 120 km/h. Corridor will permit future speed of 350 km/h. The structure gauge will be conforming to AAR Gauge Plate H for double stack containers and electric traction. The Signaling and Control systems will be based on European Train Control System (ETCS) Level 2 and GSM-R for Telecommunication System.
Italferr was active in Iran in the period before the international embargo, carrying out some small contract among which a feasibility study on electrification of Tehran-Mashhad railway line.

- **2005** Study for Training of Iranian Drivers
- **2007** Electrification of Iranian Railway Network and Feasibility Study for Tehran-Mashhad Railway Line
- **2008** Construction of the Bridge over the Euphrates River
Our interest for the country has been revitalized at the beginning of the present year, after the UE decided for lightening of economic sanctions against Iran.

Last February Italferr was in Tehran to establish again business relations with Iranian players. In particular we have identified two main railway projects that are considered as main priorities by the Iranian Ministry of Transportation and by Iranian Railway (RAI).

These projects are the **high speed line Tehran-Qom-Isfahan** and the **electrification of Tehran-Mashhad line**.

On the latter project we are currently waiting for local decision to involve Italferr as consultant.