Consulting Engineers
Design and Works Supervision

TRANSPORT INFRASTRUCTURES




GEOTECNA PROGETTI

Passion, Experience, Sustainibility…from 1972

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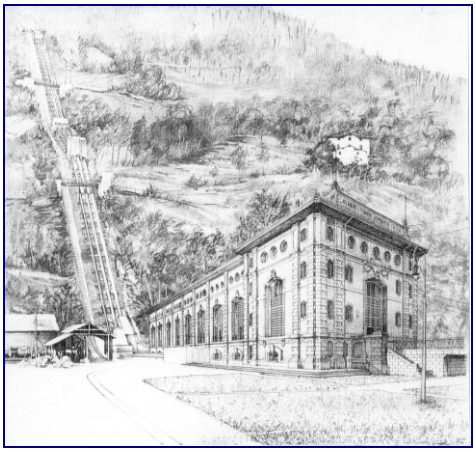
April 2024

ABOUT US



Venina Powerplant Improvement (Alps)

Geotecna Progetti is a design, consultancy and works supervision company in the field of civil engineering, which operates both in Italy and abroad, **estabilished in 1972** by Dr. Eng. Giuseppe Baldovin.

Active in the sector of hydraulic structures and dams (both new interventions and updating of existing structures), it has reached the remarkable goal of over 100 designed dams, the major part of which built, combined with hydroelectric plants, irrigation schemes and drinking and industrial derivations.

HISTORICAL DATA AND SERVICES

The protection and valorization of water resources, respecting the environment, has always been the basic element of the company philosophy.
In this sense, Geotecna Progetti works for the energy transition both in the field of hydroelectric generation (run-of-river and with reservoirs) and in that of pumping storage, engaging in the study and construction of new plants and in the updating of existing schemes for public and private clients.

In the field of underground structures, over 500 km of hydraulic, road and railway tunnels have been studied and designed. The interventions in the sector of subways and railway lines in urban areas are also significant.

Technical services for large transport infrastructures (railways, roads) and the geotechnical sector are of particular importance.

Other related fields such as monitoring, environmental engineering, seismic, as well as EDP services are also active.
Geotecna Progetti is directed by a Board of Directors with President Dr. Eng. Ezio Baldovin and Managing Director Dr. Paola Baldovin.

Technical Directors are Dr. Eng. Ezio Baldovin, Dr. Eng. Andy De Paola, Dr. Geol. Gian Luca Morelli.

The Company is quality certified by Kiwa Cermet, according **UNI EN ISO 9001-2015** and **UNI EN ISO 14001:2015** n.4021-A and n.4021-E for the following items:

- design and consultancy for civil, hydraulic, transportation constructions;
- technical services for geology, hydrogeology, soil and rock mechanics, geotechnical and structural monitoring.

In the Environmental Management System, attention is paid, in particular, to waste management and the reduction of all forms of pollution, promoting the conservation of resources and a controlled use of this heritage.

In this context Geotecna Progetti has identified the following environmental objectives:

- awareness of the staff with a view to environmental protection;
- separate waste collection;
- minimization of waste and reduction of energy consumption;
- research for design solutions and technologies with low environmental impact;
- promotion of the energy transition towards renewables.

Engineers, architects and geologists, strictly connected with experts of the main Italian Universities, and several technicians and BIM designers compose the staff.

The Company owns a computers network equipped for design, numerical modeling, and work administration.

The staff structure is organized to face both the single steps of the technical problems and the whole cycle of a Project.

The professionals of **Geotecna Progetti** are Authors of more than 100 papers and articles for technical conferences and magazines.

The usual activities concern:

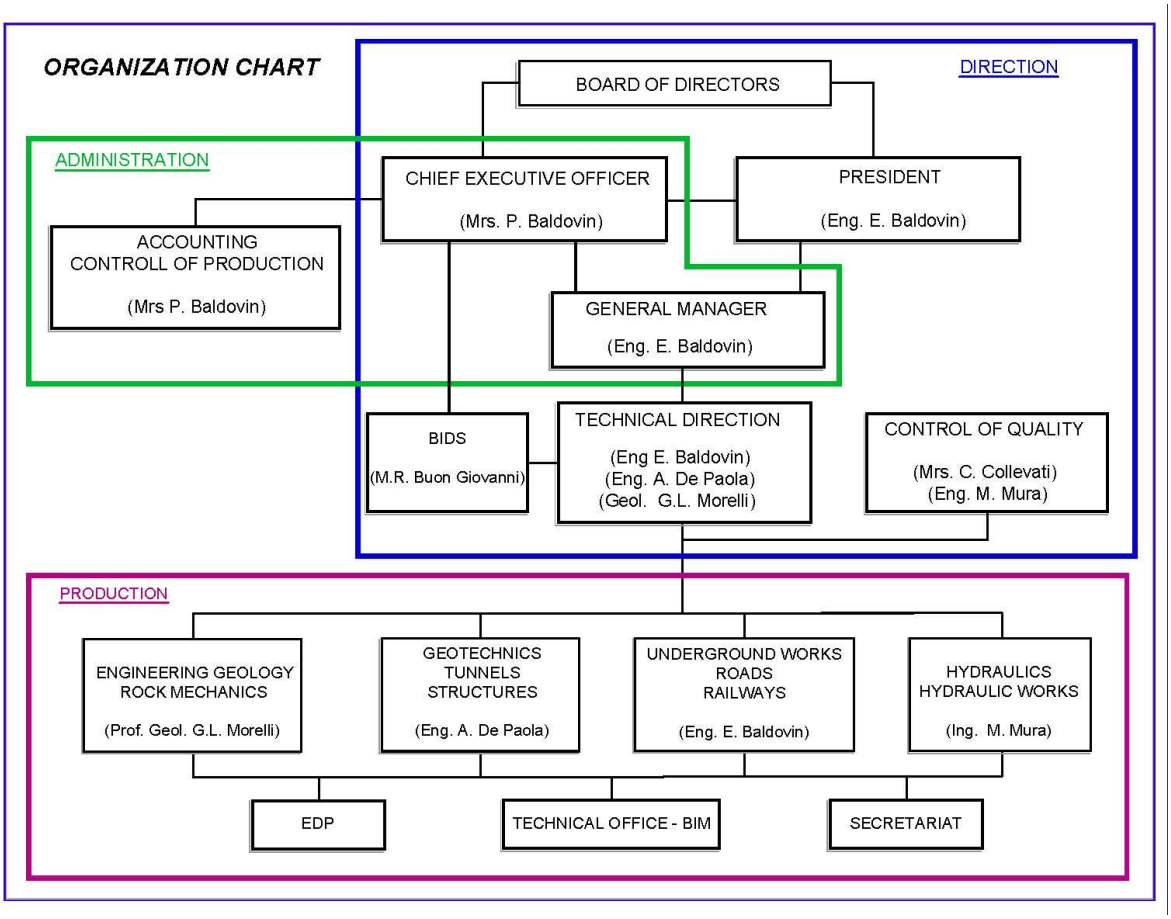
- geological and geotechnical studies and investigations;
- feasibility studies;
- preliminary design;
- final design;
- assistance during construction;
- works supervision;
- materials quality control;
- numerical models;
- environmental screening and impact assessment;
- consultancies and validations.

Geotecna Progetti is registered in the lists of the main international organizations.

Geotecna Progetti participates in a Consortium with other Companies for a total of 80 professionals. Apart Italy, **Geotecna Progetti** has developed its activities during more than 50 years in several Countries: Albania, Algeria, Angola, Bolivia, Cameroon, Chile, Congo, Costa Rica, Dominican Republic, Iran, Iraqi Kurdistan, Libya, Montenegro, Morocco, Pakistan, Philippines, South Africa, Spain, Turkey, Zimbabwe, etc.

Geotecna Progetti is a Limited Company with head office in Milan and a branch in Rome.

The net equity is 700.000,00 €.



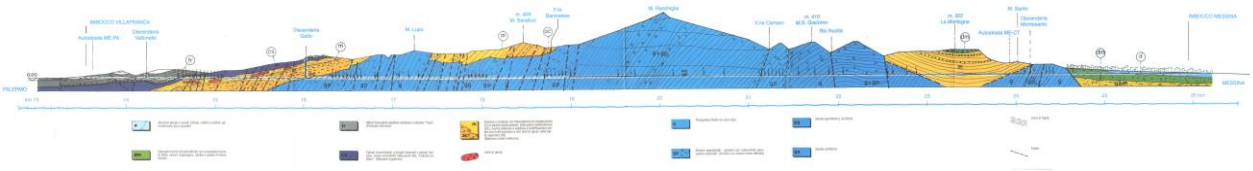
MAIN SECTORS OF ACTIVITY

ROADS AND RAILWAYS

High Capacity railway line Milano-Bologna

In the field of roads and railways several feasibility studies and designs have been realized by **Geotecna Progetti**.
Also the interventions of diagnostics and design for extraordinary maintenance of bridges and tunnels are frequent.
Moreover in big hydraulic infrastructures quite often **Geotecna Progetti** develops the service viability.

In last years the most relevant activities concern: the Enhancement and Rationalization Study of the railway line to reach the Sempione Tunnel (Italian side), the Supervision of Works of the 4A Lot of the High Capacity Milano-Bologna, the arrangement design of the access road to the operation cabin of Vernago Reservoir (Bz), the feasibility studies of extraordinary maintenance of the reinforced concrete structures of Fiumata and Castel di Tora road bridges (Ri) and the design of reinforcement and reprofile of Algerian railways tunnels.



Peloritani tunnel – Geological section (Sicily)

TRANSPORT INFRASTRUCTURES TUNNELS

Several and important within the **Geotecna Progetti** experience are the projects of **tunnels** for **transport infrastructures** (roads and railways). Among them:

- *Investigation Tunnel "La Maddalena"* for the new high speed Turin-Lyon rail link Conventional/TBM excavation – max overburden: 2000 m
- *Connections to Stretto di Messina Bridge* – Railway and Highway Tunnels
- *Peloritani double line Railway Tunnel: TBM +conventional excavation – deep tunnel: max overburden 800 m*

Peloritani Railway Tunnel (Sicily)

- *Roma-Napoli High Speed Railway:* Pelliccione, Castello, Cardellino, Campo Zillone, Montelungo and Peccia Tunnels
- *Gran Sasso Highway Tunnel:* conventional excavation – deep tunnel: max overburden: 1400 m
- *Fréjus Highway Tunnel* (Italian side): conventional excavation- deep tunnel: max overburden: 1750 m
- *Belchen Highway Tunnel* (Switzerland): conventional excavation – max

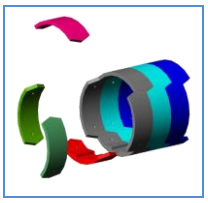
SUBWAYS

overburden: 350 m

Canada Line-Vancouver (Canada)

Considerable are also the activities in the fields of **subways** and of **urban railways**. Among the more recent, Milan "Passante", Brescia Subway Stations, Vancouver Canada Line and Milan MM4 can be mentioned.

MECHANIZED EXCAVATION AND PRECAST SEGMENTS



A particular experience has been developed by **Geotecna Progetti** in design of TBM excavated tunnels and precast concrete segments reinforced with rebars or fibers.

Mavi Tunnel yard (Turkey)

SUPERVISION OF WORKS

Supervision of works, **instrumentation data control**, **construction follow up** and environmental compatibility studies of strategic infrastructures represent other fields of action.

Geotecna Progetti is highly experienced in **hydraulic works**, **hydropower plants** and **dams**, both for **new projects** and **requalification** of existing structures.

DAMS AND HYDRAULIC STRUCTURES

Geotecna Progetti has reached the goal of **80 dams designed in Italy and abroad**.

Most of them have been built as a part of hydroelectric power plants or water supply lay-outs (irrigation schemes, industrial and drinkable utilization).

Gorge di Susa Dam (Alps)

Among them:

- *Bilancino Dam*, a 50 m high zoned embankment with a silty core, in a seismic zone of Tuscany, to defend Florence from the floods;
- *Castagnara Dam*, a 100 m high zoned embankment with a silty sand core, artificially dried and added with bentonite, in a strongly seismic zone of Calabria
- *Rosamarina Dam,* a 90 m high arch-gravity structure with incorporated a large spillway, in Sicily, near Palermo, seismic zone too.
- *Susa Gorge Dam,* a 50 m high arch-gravity structure with incorporated a large spillway, in Piemonte, near Turin, inside the Pont Ventoux-Susa HPP.
- *Skavica Dam,* a 139 m high rockfill embankment with upstream bituminous concrete facing, on the Drin River in North Albania for flood control (1550x10^6 m^3 reservoir capacity) and HPP use.
- *Mandawa Dam,* a 60 m high zoned embankment with silty core, on the Greater Zab River (Tigris affluent) in Iraqi Kurdistan (330x106 m3 reservoir capacity) for agricultural and HPP use.

To consider also the rehabilitation of *Ceresole Reale Dam*, an historical gravity structure, which has concerned the upgrade of the spillway, the reinforcement and the waterproofing with a PVC lining of the upstream face, the grout curtain and drain system integration and the improvement of the dam body by cement and microcement grouting.

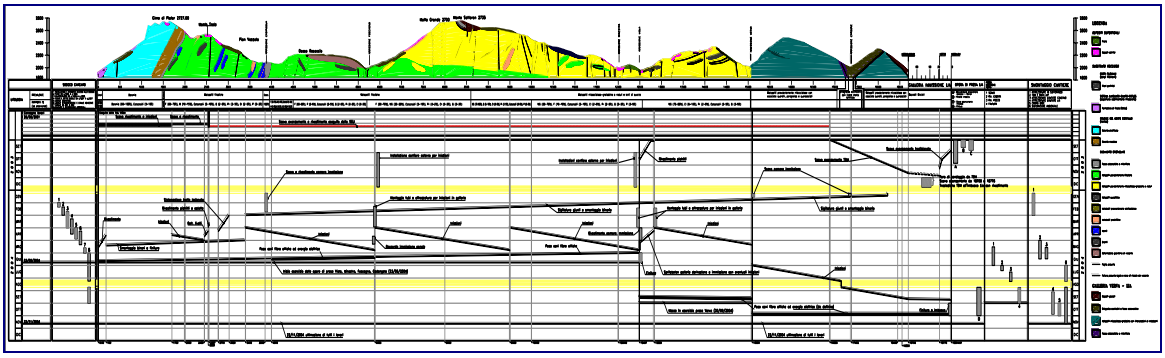
HPPs

Several **hydropowerplants** have been newly designed or re-qualified by **Geotecna Progetti**. Mentioning only the last:

Premadio II HPP – Penstock (Alps)

- Venina HPP Improvement 70 MW (So),
- Pont Ventoux-Susa HPP 150 MW (To),
- Nuovo Canale Viola (So),
- Premadio II HPP Improvement 78 MW (So),
- Skavica HPP 350 MW (Albania),
- Mandawa HPP 100 MW (Iraqi Kurdistan),
- Galatro HPP 13 MW (Rc),
- Malvito HPP 5-13 MW (Cs),
- Curraj HPPs Cascade (Albania), consisting of 11 plants for a total capacity of 105,1 MW
- HPP1 and HPP2 Plants on Achwa River (Uganda) for a total capacity of 84 MW

More than 500 Km of tunnels, related to railways, roads, highways, hydropower plants and water supply, have been studied and planned by **Geotecna Progetti**.



Nuovo Canale Viola (Alps)– Geological profile and works schedule

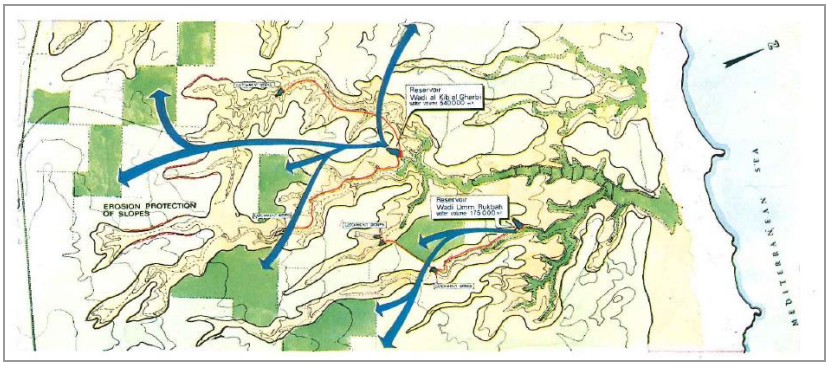
HYDRAULIC TUNNELS

The following hydraulic tunnels are in construction or already in service :

- *Torito* HPP tunnel (Costarica): EPBM:
  max overburden: 180 m; length 3.5 km;
- *Suruc* hydraulic tunnel (Turkey): Double shield TBM
  max overburden: 80 m; length 17 km;
- *Mavi* hydraulic tunnel (Turkey): Double shield TBM
  max overburden: 400 m; length 17 km;
- *Nosud* hydraulic tunnel (Iran): Double Shield TBM
  max overburden 1150 m; length 9 km;
- *Nuovo Canale Viola* hydraulic tunnel: Double shield TBM
  max overburden: 800 m; length 18 km;
- *Pont Ventoux – Susa* hydraulic tunnels: TBM + conventional excavation
  max overburden: 700 m; length 20 km ;
- *Umiray-Angat* hydraulic tunnel (Philippines): Double shield TBM
  max overburden: 900 m; length 11 km
- *Orange Fish* hydraulic tunnels (South Africa);
- *Toro Plant* hydraulic tunnel (Chile): conventional excavation – deep tunnel:
  max overburden 1500 m;
- *Tarbela Dam* outlets hydraulic tunnels (Pakistan): 4 tunnels ∅=18 m.

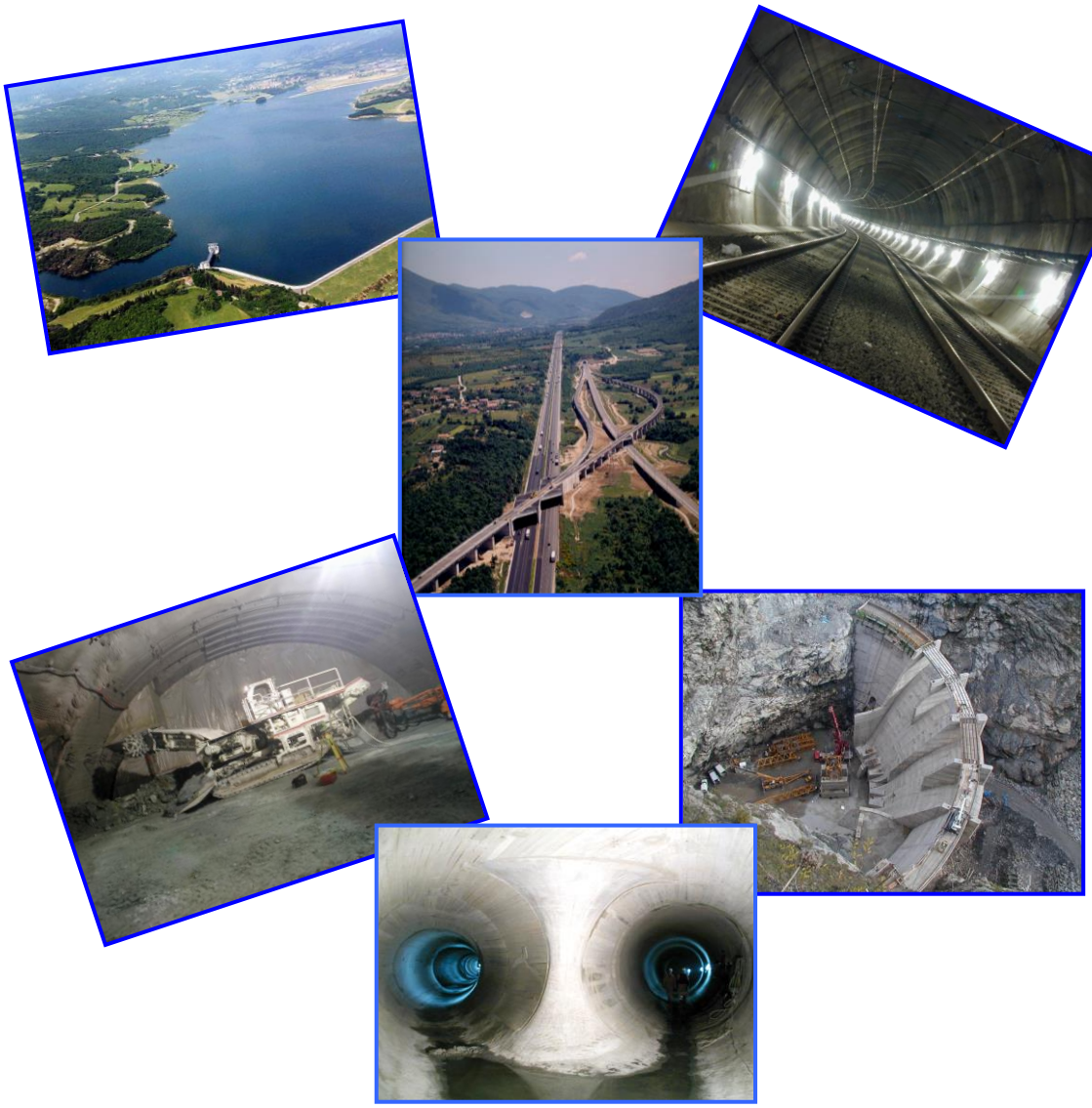
WATER RESEARCH IN ARID CLIMATES

As part of applications of hydrology and hydrogeology, **Geotecna Progetti** has carried out hydrogeological studies on differentiated geological environments mainly focused on water research and water resources regulation for application to social and agricultural development of arid climates areas.



Hydrogeological and agronomical investigations of Wadi Al Kib area (Libya)

SYNOPSIS OF MAIN EXPERIENCES



Bilancino Dam

Peloritani Tunnel

A.V. Roma-Napoli (High Speed Railway)

Premadio Powerhouse

Gorge di Susa Dam

Premadio headrace tunnel

Highways and roads

HIGHWAY CONNECTION BETWEEN AREZZO TOWN AND "SOLE" HIGHWAY

Chiana Bridge, Castro Bridge, Mugliano/S.Giuliano Viaduct, Vigone River Bridge, Vigone River Railway Bridge - Final design

ROMA/L'AQUILA HIGHWAY

Monte S.Rocco Tunnel - Design and follow-up during construction

L'AQUILA/V.VOMANO HIGHWAY

Gran Sasso Tunnel - Design and follow-up during construction

HIGHWAY CONNECTIONS TO STRETTO DI MESSINA BRIDGE

Underground works - Preliminary design of

NORTH RING ROAD OF TRIESTE

Underground works - Preliminary design

VERNAGO RESERVOIR

Access road to the Operation Cabin – Final design

VENAUS INVESTIGATION GALLERY

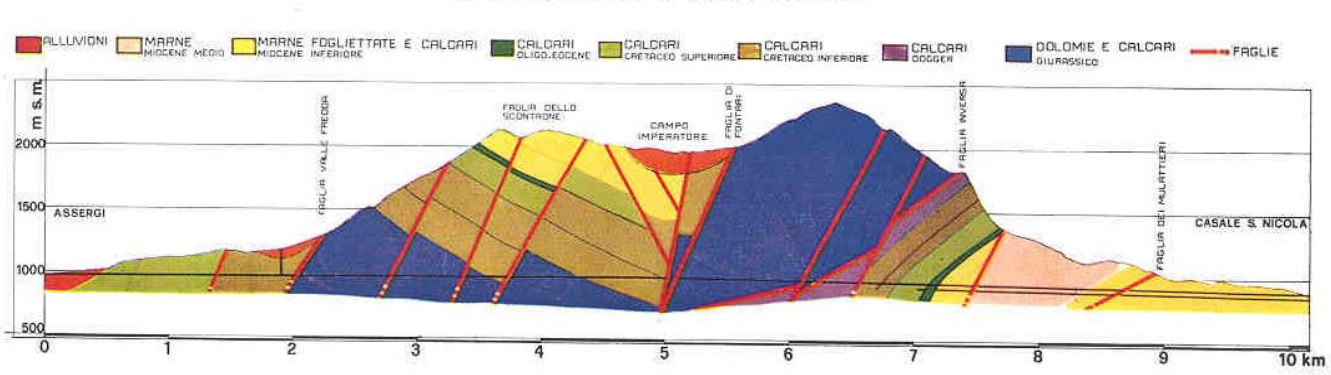
Access road – Final design

MANDAWA DAM AND HYDROPOWER STATION

Road network with 5 bridges – Final design

EXTRA-URBAN AND COUNTRY ROADS (Libya)

Final design of more than 100 Projects for 3200 km



Gran Sasso Tunnel– Geological Section

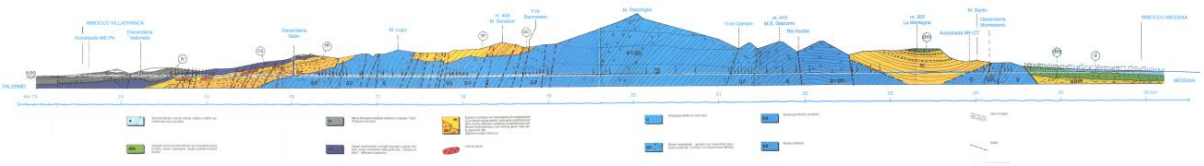
Railways

LINE	WORKS
Paola-Cosenza	Lot 3 final design
Direttissima Roma-Firenze	Orte and S.Donato Tunnels final design
Direttissima Roma-Firenze	Lots 1 e 2 from Rome to Orte final design
Transcamerunese (Camerun)	Consultancy
Congo Ocean (Congo)	Consultancy
New International Goods Station of Domodossola - Domo II	Clearing square with offices buildings final design North-South Connection and Toce River viaduct final design
Bologna-Firenze High Capacity Line	Section Km.11÷16 – Pianoro (Bo) final design
Rocca d'Evandro-Venafro Line	Section km 6+003÷6+723 (Fr)final design
Bologna-Firenze High Capacity Line	Excavation materials storage (20 sites for about 15.000.000 cubic metres) final design
Domodossola-Iselle Line	Reinforcement of Rio Rido Tunnel (Vb) final design
Messina-Palermo Line	Urban crossing of Messina Town final design Peloritani Tunnel final design Section Rometta Marea-Spadafora final design Tindari Tunnel final design Latina Tunnel final design
Milano-Venezia High Capacity Line	Vicenza underground crossing and station feasibility study
Sempione Railway axis	Section Domodossola-Iselle di Trasquera Improvement feasibility study
Lione-Torino High Capacity Railway	Venaus investigation tunneli final design

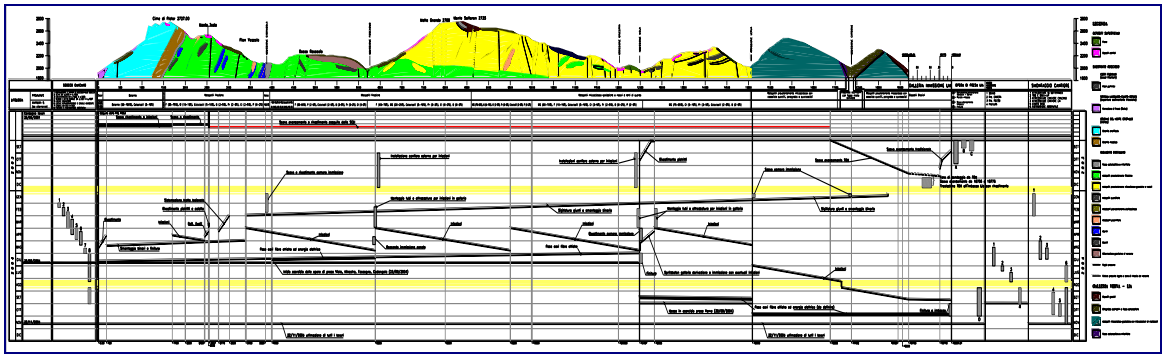
International Goods Station of Domodossola (Italy/Switzerland)

HIGHWAY AND ROAD TUNNELS	L
Gran Sasso Tunnel conventional *excavation – deep tunnel: max overburden: 1400 m*	2x10 km
"Fiori" Highway Tunnels	15 km
Belchen Tunnel (Switzerland) c*onventional excavation – max overburden: 350 m*	3.2 km
Fréjus Tunnel (Italian side) *conventional excavation- deep tunnel: max overburden: 1750 m*	13 km
Connections to Stretto di Messina Bridge	20 km
Underground North Ring Road of Trieste	40 km
Vicenza Highway Tunnel	3 km
Buttoli Tunnel (Variante di Valico Fi – New Highway Bologna-Firenze))	0.4 km

RAILWAY TUNNELS	L
Paola-Cosenza Tunnel (Cosenza side) *Conventional excavation - max:overburden: 1120 m*	15 km
Peloritani double line railway tunnel *TBM +conventional excavation – deep tunnel:max overburden 800 m*	13 km
North Ortona Tunnel *conventional excavation – shallow depth tunnel*	
Tindari Tunnel *conventional excavation – max overburden: 400 m*	5 km
Roma-Napoli High Speed Railway - Pelliccione, Castello, Cardellino, Campo Zillone, Montelungo e Peccia Tunnels	5 km
Underground railway station of **Vicenza** (new HC line) and historical line connections (*mechanized excavation D = 11 - 14 m*)	20 km
Connections to Stretto di Messina Bridge	30 km
Lione-Torino High Capacity Railway - Member of International Board of Experts for Preliminary Project examination	70 km
Lione-Torino High Capacity Railway – Venaus investigation gallery	10 km



Peloritani Tunnel – Geological section

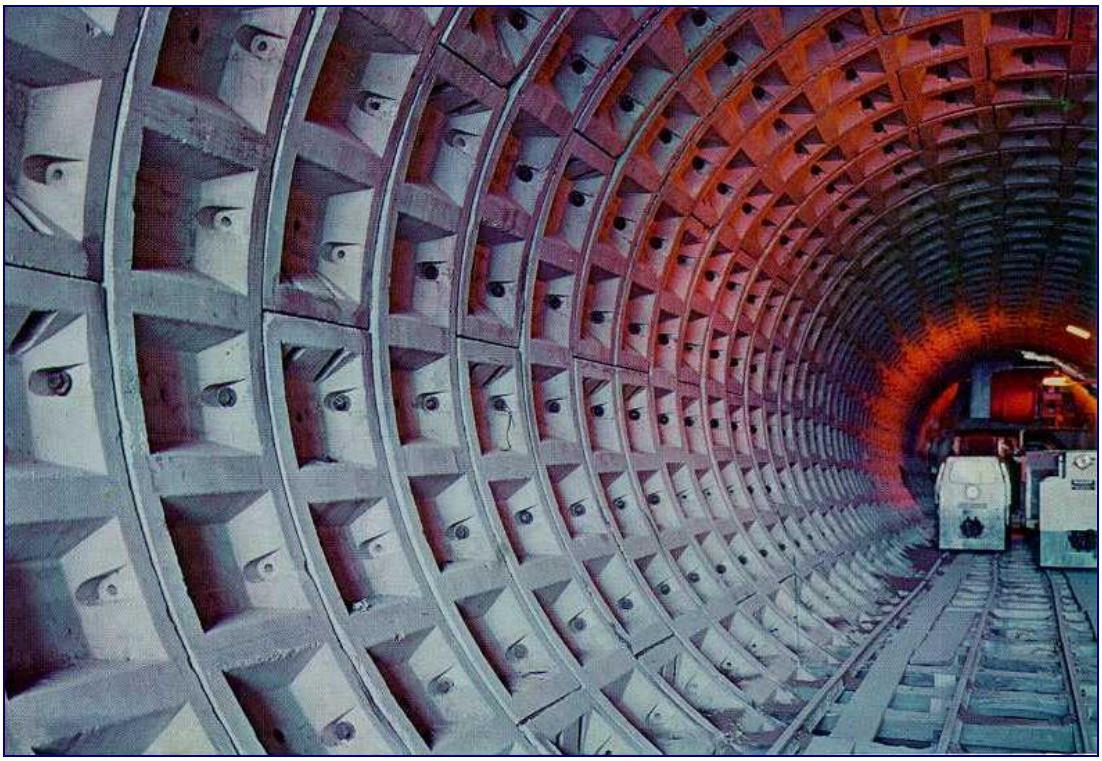


Nuovo Canale Viola — Follow up geotechnical section

HYDRAULIC TUNNELS	L
Fortore Tunnel (FG) *conventional and shield excavation*	16 km
Tunnels for **Tarbela Dam** outlets (Pakistan) *4 tunnels ∅ 18 m*	5 km
TaloroTunnel (NU) *TBM + conventional excavation*	
Orange Fish Tunnels (Sud Africa)	80 km
Toro Plant Tunnel (Cile) *conventional excavation – deep tunnel: max overburden 1500 m*	7 km
Bilancino Dam bottom outlet tunnel (FI)	1 km
Sappanico and Bolignano Tunnels (AN)	2 km
Castagnara Reservoir on Metramo River bottom outlet and diversion tunnels (RC)	6 km
Umiray Tunnel (Filippine) *Double shield TBM – max overburden: 900 m*	13 km
Pont Ventoux – Susa (TO) Tunnels *TBM + conventional excavation – max overburden: 700 m*	20 km
Nuovo Canale Viola Tunnel (SO) *Double shield TBM – max overburden: 800 m*	15 km
Suleikan Tunnel (Iran) *Double shield TBM – max overburden: 900 m*	58 km
Mavi Tunnel (Turkey) *Double shield TBM – max overburden: 400 m*	17 km
Nosud Tunnel (Iran) *Double shield TBM – max overburden: 1150 m*	8.85 km
Suruc Tunnel (Turkey) *Double shield TBM – max overburden: 80 m*	17 km
Torito Tunnel (Costarica) *Double shield TBM – max overburden: 180 m*	3.5 km

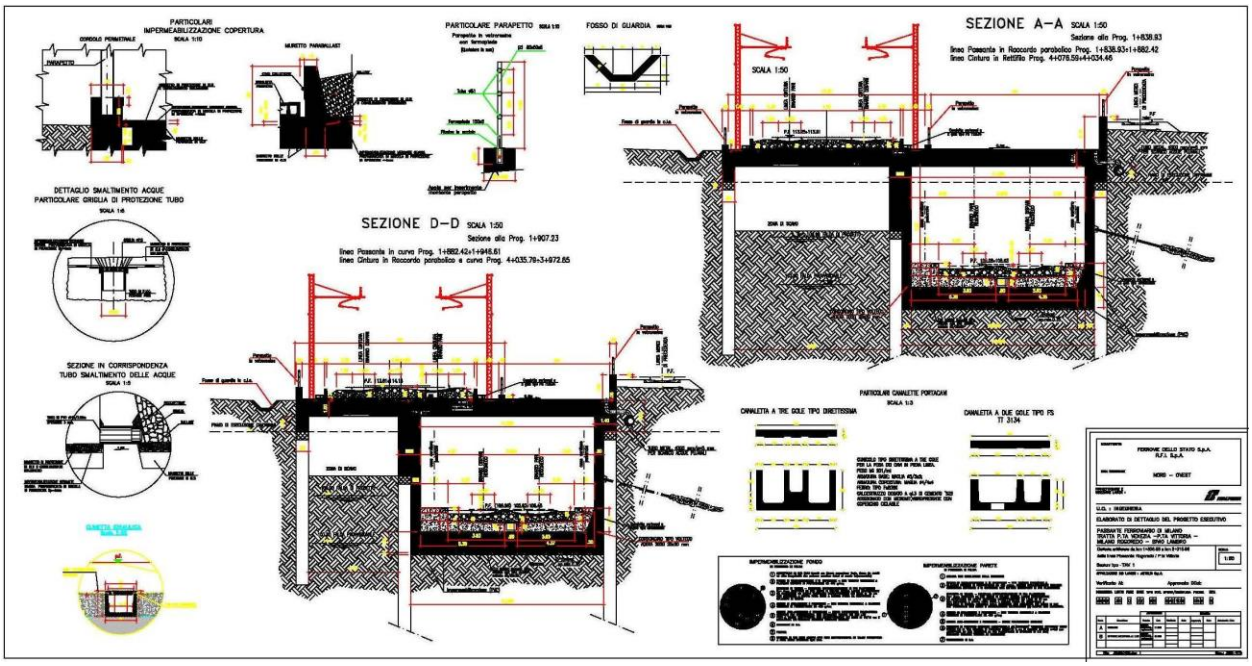
Subways

Roma, Italy Roma, Italy	Line A Section from Termini to Osteria del Curato Line B Section from Termini to Piazza Bologna *Shield TBM excavation whit precast lining*
Milano, Italy	Green Line – *Section whit open shield and injections*
Messina, Italy	Urban crossing
Milano, Italy	"Passante" Section P.ta Venezia-Porta Vittoria Section Milano Rogoredo-Bivio Lambro
Brescia, Italy	Marconi and S.Faustino Stations
Vancouver, B.C. Canada	Canada Line Rapid Transit Project
Milano, Italy	Underground Technological Structure Sereni (MM4)

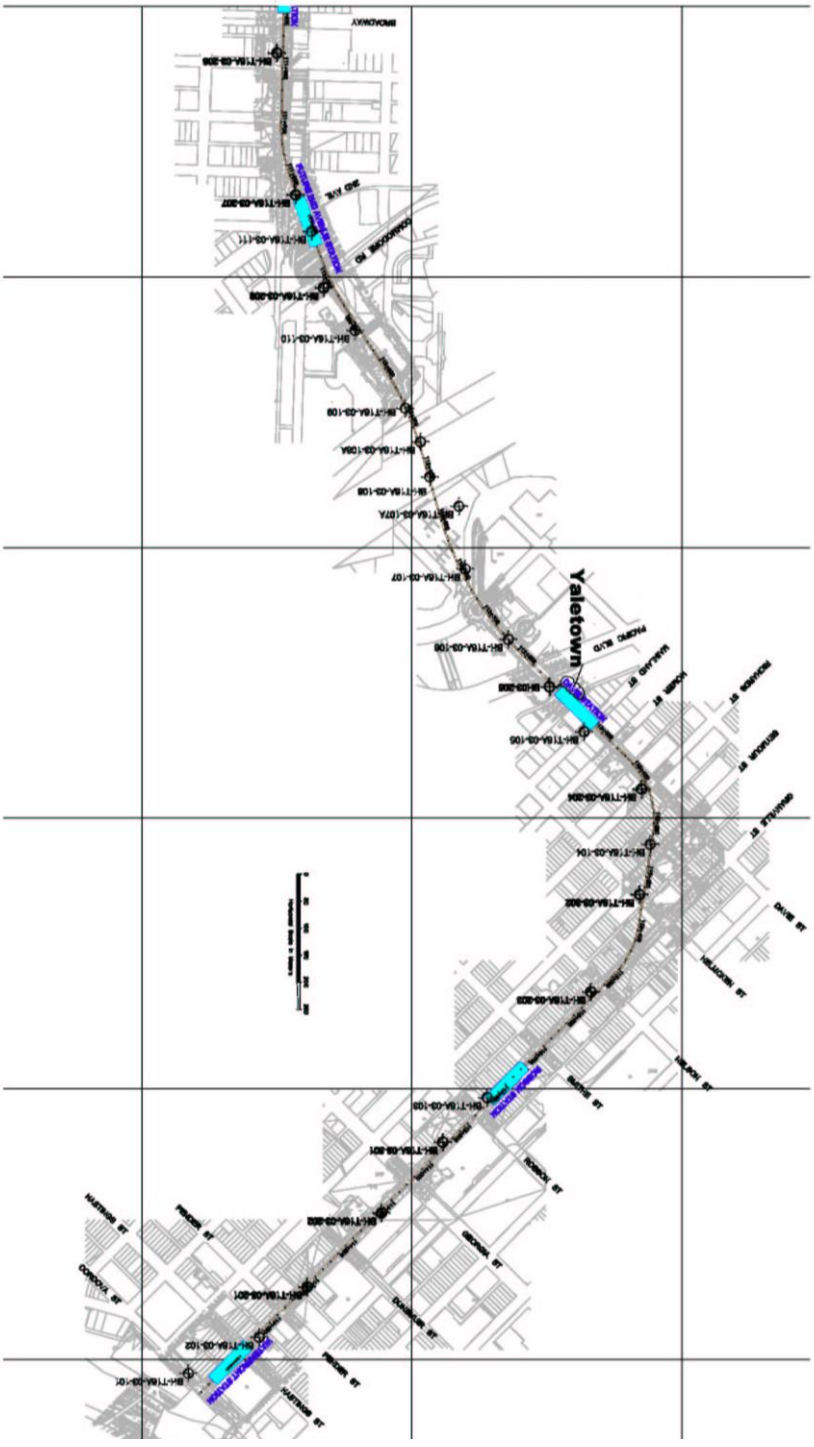


Line B underground - Rome

“Passante di Milano” – Hydraulic jack driven structure (10000 t)



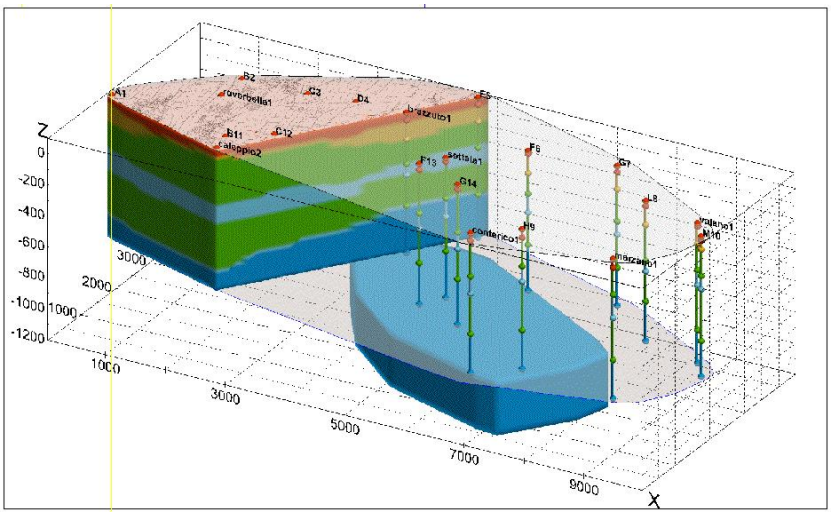
“Passante di Milano” – Artificial tunnel



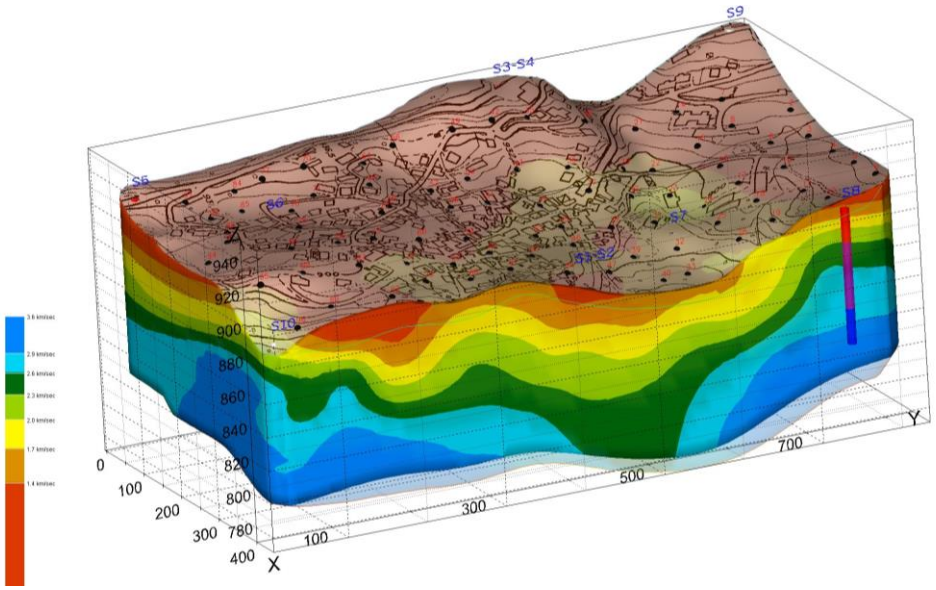
Vancouver - Canada Line Rapid Transit

Water research

Studies and geological applications for **water research** purpose **in arid climates** have been performed mainly basing on geological modelling and geophysical investigations. Geoelectrical, electromagnetic and seismic methods have been successfully applied to investigate the subsoil at high depths (till 1000 m or more) and to finalize **2D-3D subsoil hydrogeological models** for basin geometry reconstruction and for assessing aquifers location and potential (for example in Libya, Kenia, Chad and Mali).



Example of hydrogeological 3D model reconstructed from vertical electric soundings (VES)



Example of subsurface 3D model reconstructed from seismic velocity waves

Works Supervision

WORKS	OWNER
Milano-Bologna High Capacity railway line Lotto 4A-Modena	Consorzio CEPAV UNO
Roma-Napoli High Speed railway line - between km 118+542 and km 150+0.14 and Interconnection to Cassino	Consorzio Iricav Uno
Giudea Cofferdam	Comune di Pistoia
S.Casciano Dam	Consorzio di Bonifica della Val di Paglia Superiore (VT)
S.Casciano irrigation network	Consorzio di Bonifica della Val di Paglia Superiore (VT)
Bilancino Dam	Consorzio Risorse Idriche (FI)
Suio gate-structure Dam	Ente Nazionale per l'Energia Elettrica (NA)
Lentini Reservoir Connection Canals	Consorzio di Bonifica del Lago di Lentini (SR)
Bolignano, Barcaglione, Castellano and Sappanico Tunnels - Ancona New Aqueduct	Azienda Municipalizzata Servizi (AN)
Vizze gate-structure Dam	EDISON - Milano
Nuovo Canale Viola	AEM S.p.A. - Milano
Premadio II Hydroelectric Plant	AEM S.p.A. - Milano
S.Giacomo Dam	AEM S.p.A. - Milano

Roma-Napoli High Speed railway line

MAIN CLIENTS

Acquedotto De Ferrari Galliera
AE Bolzano
A2A Milano (already AEM Milano)
AGIP
Amministrazione Provinciale Catanzaro
Amministrazione Provinciale Cuneo
Amministrazione Provinciale lmperia
Astaldi
Astaldi Estero
Autocamionale della Cisa
Autostrada Ceva-Savona
Autostrada dei Fiori
Autostrada del Brennero
Autostrada Messina-Catania
Autostrada Messina-Patti
Autostrada Piacenza-Cremona
Azienda Municipalizzata Ancona
Azienda Naz. Autonoma delle Strade (ANAS)
B.C.A. - Johannesburg
Bonifica S.p.A.
Borie-SAE, Parigi
Bouygues,Parigi
Camera di Commercio ltalo-Giordana
Cassa per il Mezzogiorno
CMC
Cogefar
Comune Parabiago
Comune Pavia
Comune Pistoia
Comunità Montana Alta Val di Vara
Condotte d'Acqua
Consorzi raggruppati di Bonifica (RC)
Consorzio di Bonifica 10 Siracusa
Consorzio del Parco Adda Sud
Consorzio del Tanaro
Consorzio della Capitanata
Consorzio della Val di Paglia
Consorzio della Val d'Orcia
Consorzio di Bonifica del Salso Inferiore
Consorzio di Bonifica del Velia
Consorzio di Bonifica di Paestum
Consorzio Ferrofir
Consorzio Pegaso
Consorzio per la Bonifica Pontina
Consorzio Risorse ldriche,Firenze
Dipenta
Edison
Eiffage - Paris
Eisenbau, Essen
Enel
Ente Delta Padano
E.ON Italia
ERG S.p.A.
ESA - Palermo
Falck
Ferconsortium
Ferrovie dello Stato (FS)
Fiat
Fiat Engineering
Grandi Lavori Fincosit
Grassetto Costruzioni
IREN Torino (already AEM Torino)
Iricav 1
ltalstrade
LTF - Torino-Chambery
Magneti Marelli
Metropolitana di Roma
Metropolitana Milanese
Ministere de l'hydraulique- Algeri
Ministero degli Esteri-Dipco
Ministero dei Lavori Pubblici
Ministero dell'Agricoltura e delle Foreste
Ministero delle Comunicazioni di Libia
Montedison
Municipalità di Bengasi (Libia)
Municipalità di Tahruna (Libia)
OSSA – Obras Subterraneas
Pontello
Pont Ventoux S.c.a.r.l.
Razel (Francia)
Regione Friuli-Venezia Giulia
Regione Lombardia
Regione Piemonte
Rete Ferroviaria Italiana (RFI)
Salini Impregilo
SELI
SNC Lavalin (Canada)
Società Ponte Stretto di Messina
Solvay
Sondel
Spie-Batignolles, Parigi
Studio Lombardi - Locarno
Tarbela Joint Venture
Telemenia Curraj (Albania)
Telt – Tunnel Euralpin Lyon Turin
Torno Internazionale
Vianini