



G. KARAVOKYRIS & PARTNERS CONSULTING ENGINEERS S.A.





Introduction

G. Karavokyris & Partners Consulting Engineers S.A. is a Société Anonyme established in Greece. They have been active as a private firm since 1961 and they were registered as a Société Anonyme in Athens on November 15, 2004 (Legal Registration Number: 57637/01/B/04/486).

They operate in Greece and abroad offering comprehensive consultancy and design services to the public and private sector in the fields of water engineering, hydrology and the environment. The firm is registered in Greece with the Ministry for the Environment, Town Planning and Public Works as consultants in the fields of water engineering at the highest available grade (grade E), environmental studies, geotechnical engineering, geological studies and structural engineering. The firm is also a member of HELLASCO (Hellenic Association of Consulting Firms)--the Greek member of the European federation of consulting firms (EFCA) and FIDIC.

G. Karavokyris & Partners are well recognized in Greece as a leading firm of consultants, and enjoy a reputation for timely completion of services within budget, with a high degree of professional competence providing a service specifically in accordance with a client's requirements.

Clients include

- European Commission bodies, such as:
 - *The European Union Cohesion Fund*
 - *EC– Community Research (CR)*
- major Ministries, such as:
 - *The Greek Ministry of Infrastructure, Transport and Networks;*
 - *The Greek Ministry of Environment;*
 - *The Greek Ministry of Agriculture;*
 - *The Greek Ministry of Development;*
 - *The Ministry of Regional Development and Public Works of Bulgaria;*
 - *The Ministry of European Integration of Romania;*
 - *The Ministry of Agriculture of Cyprus;*
 - *The Ministry of Agriculture and Animal Resources of Rwanda;*
 - *The Water Resources Management Authority of Kenya;*
 - *Nile Basin Initiative*
- public and private utility companies such as:
 - *Water Supply and Sewerage Company of Greater Athens (EYDAP);*
 - *The Public Power Corporation of Greece;*
 - *The National Railways Organization of Greece;*
 - *Egnatia Motorway Company;*
 - *New Athens International Airport;*
 - *Ken Gen (Kenya Electricity Generating Company Limited)*
- many prefectures and local authorities, as well as major contractors and developers.



Many of the projects involved are co-funded by the European Commission or the World Bank.

A brief History of the Firm

G. Karavokyris & Partners have been involved in the design of water engineering projects since 1961.

Throughout these years they have carried out design for some of the largest water and environmental engineering projects in Greece such as,

- in the 60's: detailed design for the Lower Acheloos irrigation and drainage works involving areas of 20,000 hectares, canals with discharge capacity up to 70 m³ /s, pumping stations with capacity up to 30 m³ /s, control works, sprinkler irrigation networks etc.
- in the 70's and 80's: detailed design for the Mornos project involving a 126 m high earthfill dam and a 192 km long aqueduct (74 km in tunnels and 10 km in inverted siphons) supplying water to Athens (client: Ministry of Public Works, Greece).

Recent projects include the Evinos - Athens water supply scheme (design and build type contract), involving a 129m high earthfill dam and a 29 km long water transfer tunnel and the main Athens Wastewater Biological Treatment Works on Psyttalia island which treats one million cubic meters of waste water and the associated sludge per day. Both these projects are now completed and in operation.



Evinos Dam



Athens Wastewater Biological Treatment Plant on Psyttalia Island

Technical and Managerial Organization

The firm is wholly owned by its directors, all engineers with full time participation in the design activities of the firm.

Besides a significant level of experience, the technical and academic level of the engineering staff of the firm is very high, with most individuals being in possession of at least one post-graduate degree in the field of water or environmental engineering. In addition to the permanent staff, the firm co-operates on specific projects with other specialists, individuals or firms, as required.



Almost all professional personnel are fluent in English, which is the second working language of the firm. A few of the personnel are fluent in French and a significant number have a good working knowledge of the language. The firm has also a small number of personnel either skilled or capable of working in German and Serbo-Croat.

Activity Areas

The firm provides design and consultancy services, mainly in the fields of water engineering and water related environmental engineering and, more specifically, in the areas of water supply, water resources management, sewerage, waste water treatment, irrigation and dam engineering.

Activity Locations

The firm carries out projects in Greece, Cyprus, Kenya, Tanzania, Rwanda, Uganda, South Sudan, Zambia, Mauritius, Bulgaria and FYROM. In the recent past it has also been active in Romania and Albania. In the past the office carried out substantial design work in Libya and Algeria.



Quality Certification

G. Karavokyris & Partners Consulting Engineers Ltd has a certified Quality Management System, fully conforming with the requirements of both ELOT EN ISO 9001 : 2008 and ELOT EN ISO 14001:2004. The Quality Management System of the firm has been certified by the International Quality Network IQCert. All the firm's operations are managed in compliance with this system.

GK Consultants quality system is documented in a Quality Policy, a Quality & Environmental Manual and a Manual of Procedures. The Quality & Environmental Manual addresses all applicable elements of ISO and cites specific documents from the Manual of Procedures where detailed project quality technical support or quality system requirements must be addressed.

Professional Indemnity

All consulting activity of the firm, including dam design, is covered by an annual P.I. cover contract.

A Selection of Projects

The firm has been involved in major civil engineering projects. These include:



Dams and Major Water Supply and Irrigation Projects

- Evinos Scheme for the Water Supply of Athens (Aghios Dimitrios dam, 127 m high, 29 km long water transfer tunnel, 3 Km 2000 mm diameter pipeline). This was a design and build project. Services included feasibility and detailed design, site investigation, construction drawings and consultancy services to contractor for construction and impoundment.
- Construction Supervision of the Diversion Tunnel of Acheloos River to Thessaly (7 m dia, 17.5 Km), Smokovo Dam (rockfill, 103 m high) and Leontari water transfer tunnel (3 m dia, 4.2 Km). Services included inspection and analysis of instrumentation to investigate conditions, design modifications, bidding documents, construction and impoundment supervision.
- City of Patras (3rd largest city in Greece) Water Supply Scheme from the rivers Piros and Parapiros – Detailed Design and Construction Supervision for: Asterion Dam (77 m high zoned earthfill dam), river intake and 10.5 km long, 1100 mm diameter diversion pipeline, 0.5 m³/s water treatment plant, bulk water supply network to Patras and the adjacent coastal area (96 Km total lengths, steel & HDPE). Feasibility, site investigation, detailed design, tender documents, construction supervision.
- Detailed Design and Construction Supervision of Solea Dam (53 m high earthfill dam) and Irrigation Network (including 8.5 Km of ductile iron pipelines) in Cyprus. Site investigation, feasibility study, detailed design, tender documents and construction supervision.
- Mavromati Dam (48 m high earthfill dam) for the Water Supply of Surpi Municipality. Feasibility study, site investigation, detailed design and tender documents.
- Feasibility study and final design of four dams and irrigation networks in Rwanda.
- Feasibility Study of Four Dams and irrigation networks in Larissa Prefecture, Thessaly. Detailed Design of Deleria dam (60m high, hardfill).



Patras Water Supply - Asterion Dam



Patras Water Supply - Water Treatment Works

- Site Investigations, Detailed Design and Bidding documents for Luda Yana Dam in Bulgaria.



- Masterplan, Feasibility Study and Detailed Design for the Irrigation of Xanthi and Komotini Plains from Nestos River (10 km long, 15 m³/s irrigation canal, pressure pipelines, pumping stations).
- Archaggelos and Kammitsi Dams in Aradippou Area, Cyprus (29 m and 20 m high, respectively, hardfill). Supervision of site investigation, feasibility study, detailed design, tender documents.
- Mylorema Flood Protection Dam in Northern Greece (64 m high earthfill dam). Feasibility study, site investigation and detailed design.
- Kleidi-Dafnoula Aqueduct (Detailed design and cost estimate of a 10.5 Km long, 1800 mm diameter steel pipeline).
- Identification, design, preparation and contracting of large business-related infrastructure projects proposed for financing under future (2003-2006) Phare ESC programmes in Romania. An inspection was made of the 5 lakes on the Colentina River (Baneasa, Herastrau, Floreasca, Tei, Pantelimon II) for bank protection works and rehabilitation of the respective dams.



Smokovo Dam

- Construction Supervision / Technical Consultant for Marmaras Dam in Northern Greece.
 - Kazantzis Irrigation Dam (43 m high zoned earthfill dam). Feasibility, detailed design and tender documents.
 - Gyrtoni Barrage Dam at Pinios River.
 - Myrtos Dam (45 m high dam, part earthfill and part RCC), Ierapetra Irrigation Water Development & Management Works.
 - Feasibility Study of Dendra Dam in Thessaly.
- Technical Consultancy Services in Assisting the Hellenic Ministry of Environment, Planning and Public Works on the Programming and Implementation of Works to be funded by the EU Cohesion Fund for the Water Supply Projects for Athens
 - Water Supply of the city of Ioannina
 - Masterplan and Feasibility Study for the Water Supply of Aegina and Agistri islands using sub-marine pipelines (14 km long, max. sea depth 94 m, HDPE 3x560 mm, pressure 10 bar), land pipelines (length 41 Km), 14 pumping stations, and 19 water storage tanks
 - Final design for the Construction of a sub-marine pipeline connecting Aegina Island with the water supply network of Athens
 - Final Design of the New Water Supply Pipe Serving the Island of Salamina through Attica via a sub-marine Pipeline connecting Nea Peramos with Faneromeni Area in Salamina



- Water Supply Projects in Eastern Attica (Neos Voutzas water storage Reservoir with a volume of 36,000 m³ and a pumping station with a power rating of 4,000 kW)
- Preliminary Design & Feasibility Study for the Water Supply of Corfu from Water Sources in Delvine, Albania (60 Km 900 mm diameter steel pipeline)
- Final Design of Storage Reservoirs for the Water Supply and Irrigation of Northern Aegean Islands
- Design of reservoirs and irrigation networks at the Municipalities of Farre and Olenia in Peloponnese
- Design of Vathia Gonia Reservoir for the storage of recycled water in Cyprus
- Final Design of Cooling Water Transport Pipe from Gratini Dam to Komotini Power Station

Hydro-Power Plants

- Provision of Consultancy Services to KenGen for Dams Safety Inspections in Hydro Power Stations in Kenya
- Feasibility Study and Front End Engineering and Design Study for the Rupingazi Hydro Power Project (3 MW) in Kenya
- Refurbishment of Louros Hydroelectric Powerplant (10.4 MW)
- Detailed design for the construction of a 4.1 MW mini-hydro scheme at Voreino in Northern Greece
- Detailed design for the construction of a 4 MW mini-hydro scheme at Gitani in Northwestern Greece
- Design of 8 mini-hydro schemes of up to 4.4 MW at various rivers of Central and Western Greece
- Feasibility Studies and Planning Applications for Five Small Hydroelectric Powerplants (5 MW each) on Arachthos River
- Feasibility Studies and Planning Applications for Kambas Small Hydroelectric Powerplant (4.1 MW)
- Design of Aggitis mini-hydro scheme (1 MW)
- Design of Lepiana mini-hydro scheme (1 MW)
- Consulting Services for carrying out a study of the existing dams in Cyprus and their operational mode, to investigate the potential for production of electricity
- Study for the utilization of Pindos water potential with water transfer to Arachthos and Pamvotida basins and hydroelectric production
- Feasibility Studies for 3 mini Hydropower Plants near Edessa

Water and Environmental Management Projects

- Development of Management Plans for the River Basin of the Water District of Thessaly, in accordance with the Water Framework Directive (2000/60)



- Development of Management Plans for the River Basin of the Water District of Epirus, in accordance with the Water Framework Directive (2000/60)
- Development of Management Plans for the River Basin of the Water District of Western Sterea Ellada, in accordance with the Water Framework Directive (2000/60)
- Implementation of the Water Framework Directive (2000/60) in Cyprus
- Supportive Measures for the Implementation of 2000/60/EC Directive in Greece
- Development of Systems and Tools for Water Resources Management of the Water Districts of Attica, Sterea Ellada, Epirus and Thessaly for the implementation of the Water Framework Directive (2000/60)
- Consultancy Services for Identification of a Multipurpose Water Resources Management and Development Project in the Aswa Basin (Uganda-South Sudan)
- Physiographical Baseline Survey and Sustainable Catchment Management for the Upper Tana Catchment (in Kenya)
- Water Development Masterplan for the whole of Etoloakarnania Prefecture
- Water Development Masterplan for the whole of Fokida Prefecture
- Technical Consultancy Services for the preparation of “Water Development Masterplan of Preveza Prefecture”
- Water Resources Management of Lefkada Prefecture
- Strategic Environmental Study for the implementation of Articles 11 and 13, and the implementation of Public Consultation - Article 14 (1) (c) of the Water Framework Directive (2000/60/EC) in Cyprus
- Water Resources Management Study of Pinios River Basin
- Consultant in the INTEREG project for the water management plan of Nestos river
- Water management and environmental study of Prespa Lake and the surrounding International Park
- Study on the Interaction between Mikri Prespa Lake and River Devolli (Albania – Greece)
- Water Resources Management Plan for Geropotamos Municipality in Crete Island
- New Athens International Airport – Water Management Services
- Investigation of the Potential Utilization of stormwater in Cyprus
- Environmental rehabilitation and sustainable development of lake Koronia (Client: European Commission – Cohesion Fund)

Flood Control and Sewerage, Stormwater and Wastewater Management Projects

- Masterplan for the management of sewage and stormwater drainage in the city of Thessaloniki
- Masterplan, Detailed Design and Tender Documents for the stormwater drainage, sewerage and wastewater treatment works for the western suburbs of Greater Athens in Thriassio



- Project Manager for the main Athens Wastewater Biological Treatment Plant on Psyttalia Island
- Kifissos River Management – Flood Protection of Section from Estuary to Kokkinos Mylos
- Kifissos River Flood Defence Works
- Kifissos Catchment Flood Management - Modifications of original designs and new Flood protection / Stormwater Drainage designs inside Kifissos River Basin
- Detailed design, tender documents and construction supervision for a stormwater drainage system in Larnaca, Cyprus



Wastewater treatment plant of New Athens International Airport



Kifissos River Flood Defence Works

- Automated Fire and Flood Hazard Protection System (Auto-Hazard Pro)
- Emergency Flood Defence Works for Areas in Attica influenced by the Fires in Parnitha – Emergency Intervention Works for Giannoulas Stream in Thriassio
- Wastewater treatment plant of New Athens International Airport – Design, Supervision and Technical Assistance in Operation
- Design of the water supply, drainage and sewerage networks for the whole Industrial Area of Platigiali Astakos
- Sewerage of Aghia Anna in Ag.Ioannis Rentis Municipality
- Preparation of Hydraulic Design Reports and Reports on Connections with the Existing sewerage networks in sub-sections of the project “Underground Railway Line 3 Extension”
- Eurymenon Municipality Sewage Treatment Plant
- Sewerage of Aspropirgos Avenue
- Sewerage, Transport, Treatment and Disposal of Wastewater of Koropi and Paiania
- Solid Waste Treatment Plant of Fokida Prefecture



Current Activity Abroad

The firm is currently active abroad in the countries of Kenya, Tanzania, Rwanda, Uganda, South Sudan, Zambia, Mauritius, Cyprus, Bulgaria and FYROM.

□ **Cyprus**

The firm has a continuing presence in Cyprus in the last five years, having been involved in many major projects. It has also established an office in Nicosia.

- Consulting Services for the implementation of Articles 11, 13 and 15 of the Water Framework Directive (2000/60/EC) in Cyprus
- Consulting Services for the evaluation of the results of the Surface Waters Monitoring Programmes regarding Article 8 of the Water Framework Directive (2000/60/EC)
- Strategic Environmental Study for the implementation of Articles 11 and 13, and the implementation of Public Consultation - Article 14 (1) (c) of the Water Framework Directive (2000/60/EC) in Cyprus
- Design of Solea Dam (53 m high earthfill dam) and Irrigation Network, currently under construction
- Design of Archaggelou and Kammitsi Dams in Aradippou
- Consulting Services for carrying out a study of the existing dams and their operational mode, to investigate the potential for production of electricity
- EIA for Mylouri Dam
- Design of Vathia Gonia Reservoir for the storage of recycled water
- Investigation of the Potential Utilization of stormwater in Cyprus
- Detailed design, tender documents and construction supervision for a stormwater drainage system in Larnaca



Solea Dam in Cyprus



□ **Kenya**

The firm has established a project office in Nairobi.

- Physiographical Baseline Survey for the Upper Tana Catchment
- Provision of Consultancy Services for Dams Safety Inspections in Hydro Power Stations
- Feasibility Study and Front End Engineering and Design Study for the Rupingazi Hydro Power Project
- Dam Safety Panel of Experts - Kenya Water Security and Climate Resilience Project



Upper Tana Catchment, Kenya

□ **Kenya and Tanzania**

- Feasibility studies of two small-medium multipurpose storage reservoirs of Norera and Borenga in Kenya and Tanzania respectively in the Mara River Basin

□ **Tanzania**

- Feasibility Study, Detail Design and Tender Document Preparation for Mara Valley and Ngono Water Resources Development Projects

□ **Rwanda**

- Dam and Irrigation Sites Final Design (LWH Project)
- Feasibility Study & Final Design for Gatsibo-8 and Nyanza-23 LWH Sites
- Prefeasibility Study, Feasibility Study, and Detail Design of Multiple Land Husbandry, Dam and Hillside Irrigation Sites for 3,500 ha irrigation in different parts of Rwanda

□ **Uganda and South Sudan**

- Consultancy Services for Identification of a Multipurpose Water Resources Management and Development Project in the Aswa Basin

□ **Zambia**

- Irrigation Development SUPPORT Project (IDSP) - Consulting services for Feasibility studies & participatory planning of group 1 sites and prefeasibility studies of group 2 sites

□ **Mauritius**

- Consultancy Services for Land Drainage and Water Shed Management Study

□ **Bulgaria**

- Site Investigations, Detailed Design and Bidding documents for Luda Yana Dam

□ **FYR of Macedonia**

- Gevgelija Waste Water Treatment Plant Project