



LAR CONSULTING ENGINEERS Co.



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Introduction

Lar Consulting Engineers, as one of the greatest company that delivers a wide and growing range of cutting-edge solutions for water and wastewater engineering in Iran, has more than 40 years of useful and effective experience in this field.

LCE was established in 1986 and has completed / is in progress on more than 600 projects. In addition, LCE has achieved different certifications (ISO 9001, ISO14001and ISO45000), provided modern hard wares and soft wares, and hired professional experts.

Our company delivers many services including feasibility study, basic design, detail design, Superior and Site supervision on construction and Environmental impact assessment in **tunnel, dam, hydropower plant, water transfer, water supply, irrigation and drainage, water and wastewater distribution networks, engineering of rivers projects and program.**

Having a flexible and responsive organizational structure and creating an agile management framework, our company is always ready to provide the best solutions for the above experiences and other similar cases anywhere in the world for our clients.

LCE has a headquarters with appropriate facilities in Tehran in an area of about 4000 square meters in 12 floors and over 300 Experts and has some branches in many big cities in Iran (Mashad, Gorgan, Sari, Tabriz, Bandar Abbas, and Karaj).

Consulting Engineers qualifications issued by I.R. Iran Management & Planning Organization:

- **Water and wastewater engineering (Grade 1)**
- **Dam engineering (Grade 1)**
- **Irrigation and drainage networks engineering (Grade 1)**
- **River engineering (Grade 1)**
- **Environmental engineering (Grade 1)**
- **structural engineering (Grade 3)**
- **Geographic Information Systems (Grade 3)**
- **Technical Inspection (Grade 3)**
- **Road engineering (Grade 3)**



Core Values

Honesty:

Honesty and commitment to the principles of professional ethics

Quality: Committed to quality and technical and engineering criteria in providing services

Social responsibility: Responsibility towards clients, society and the environment

Individual and organizational excellence: Improving the knowledge and capabilities of personnel and creating motivation in employees to achieve individual and organizational excellence and establish a learning organization.

Creativity and innovation: Creativity and innovation and the use of new scientific and engineering methods.

Engineering and Consulting Services

LCE provides engineering and consulting services at each stage of your projects, whatever their scope or size:

- Tunnel design for water transfer and supervision of construction
- Tunnel design for urban waste-water transfer and supervision of construction
- Roadway tunnels design and supervision of construction
- Dams design and relative installations and supervision of construction
- Hydroelectric plants and electro-mechanical equipment design and supervision of construction
- Operational and optimization studies on reservoirs
- Large bridges architecture and design and supervision of construction
- Studies on securing, exploitation, transfer of water and waste-water systems
- Roadway studies and designs and supervision of construction
- Large scale architectural schemes and urban development planning studies
- Designing large underground constructions and energy plant
- Designing pumping stations and water treatment units design and supervision of construction
- Simulation models related to irrigation and drainage design
- Designing diversion weirs and other relative installations,
- Studies for quality control of water and soil,
- Studies on water management in agricultural field
- Studies on the assessment and conservation of ground water, improvement of their conditions and mathematical models
- Studies on river engineering plans and coastal zone management
- Studies on flood management, sampling and assessment of flood control criteria
- Water Resources socio-economic studies
- Utilizing GIS and remote sensing systems in water resources plans
- EIA studies of projects
- Studies on Natural Resources, Watershed Management and Fisheries Projects
- Geology, geological engineering and seismic services
- Observation of geo-technique and geo-physics excavations and analysis of the conclusions
- Construction management and participation on international and domestic agreements/contracts.



Department & Work experiences

Lar consists of two main Technical-specialized and Headquarters sections, which are explained as follows:

1- Technical sections

1-1- Underground Structures Department

The contemporary science of engineering is facing an unknown world of risks and challenges in the depths of earth. The skilled engineers and experts of the executive unit have used the newest methods and most advanced existing specialized software to supervise construction of various tunnels in different dimensions and applications. By far, over 110 kilometers of tunnel in Tehran and approximately 50 kilometers outside Tehran have been supervised along with large subsurface structures. Many of them are being used now. This section started working from the beginning of establishment of the company. Its activity and capabilities include:

- Design and supervision of construction of all underground structures such as tunnel, underground power plant, chisel, and tunnel excavation by computer and traditional methods, construction of tunnels in intercity and intracity environments.
- Design and supervision of construction 160 kilometers of tunnel in water, electricity and wastewater industry of the country.
- Employing experienced engineers and experts inside the country and abroad, and the newest specialized methods and software in the field of designing and supervising large projects of the country.

Some projects of this department:

- Nosood water transfer tunnel in a length of over 48 kilometers.
- First plot of Karaj-Tehran water transfer tunnel in a length of 16 kilometers.
- Lovark-Sohanak water transfer line in a length of 20 kilometers.
- Lovark underground power plant
- East Tehran wastewater tunnel, 1.2 kilometers in length
- East Tehran wastewater tunnel, 3rd plot, 8.7 kilometers in length
- East Tehran wastewater tunnel, 4th plot, 9.4 kilometers in length
- Ghiasvand surface water collection canal and tunnel, 5.8 kilometers in length
- Electricity cable transfer tunnel from Gheytharieh station to Ozgol station, 6 kilometers in length.
- Tarasht-Kan electricity cable transfer tunnel, 3.45 kilometers in length
- Sheikh Bahaei- Mosala electricity cable transfer tunnel, 3.95 kilometers in length
- Ghoorkhaneh-Mosala electricity cable transfer tunnel watertight project, 7.5 kilometers in length
- Sadr-Gheytharieh electricity cable transfer tunnel watertight project, 1.5 kilometers in length
- Molasadra water transfer tunnel, 3.5 kilometers in length



- Gheshlagh water transfer tunnel, 2.6 kilometers in length
- South Tehran-Dasht Robotkarim water transfer tunnel, 12 kilometers in length
- Ghoochak water transfer tunnel, 5.6 kilometers in length

1-2- Dam and Hydroelectric Plant Department

Dam and hydroelectric plant activities are important sectors that the Lar Consulting Engineers International Investment is engaged in. The Company has an advanced technical know-how and scopes in the way of surveying and designing various types of concrete dams such as (arched, gravity, rolling, earth, concrete face), elastic dams and explosive ones. Moreover, in connection with hydroelectric plants it is capable to carrying out whole stages of the work from the pre-recognition stages to the constructional and operational phases. To date the Company has succeeded in concluding many projects related to dam constructions. Since the studies and designing of dams comprises of various technical engineering actions as a whole, the following technical points in such operations of dams and hydroelectric plants must be considered seriously:

- Soil and foundation section,
- Constructional section,
- Hydraulic section,
- Hydroelectric plant and hydro-mechanical equipment,
- Highly skilled supervision section.

Besides the above-mentioned points, dam and hydroelectric plant operations rely on services offered by other technical sectors of the Company such as environmental surveys or studies, water resources, geology, geo-technique etc. that are utilized.

Some projects of this department:

- Mameloo Reservoir Dam
- Kamal Saleh Reservoir Dam
- Astaneh Damghan Reservoir Dam
- Talaghan Reservoir Dam
- Namrood Reservoir Dam
- Sheesh Pir Reservoir Dam
- Badavli Reservoir Dam
- Baaghan Reservoir Dam
- Baraftab Reservoir Dam
- Astaneh Damghan Reservoir Dam
- Kaka Sharaf Reservoir Dam
- Kalat Reservoir Dam
- Kamal Saleh Reservoir Dam
- Kalovans Reservoir Dam
- Gabrik Reservoir Dam
- Mangel Reservoir Dam
- Parsian Reservoir Dam



- Studies relative to the formulation of minimum requirements of inspection and quality control of hydroelectric power equipments
- Plan to specify the site of the construction of dams by explosive methods in the location of the main tributaries of the rivers Karoon, Dezhayaghafars and Aland Azarbajan
- Studies relative to the Parsian Dam (Gurak)
- International collaboration in tenders relative to the Molla Sadra Dam and Hydroelectric Plant
- Issuing engineering services and technical assistance as of the supervision for the maintenance of dams and networks
- Collaborating in putting up tenders and selecting an international contractor. Financing , designing and executing the structural aspect of the dam and power plant of Talaghan
- Site selection for elastic dams of the river basins of the Caspian Sea
- Sheesh Pir Reservoir Dam
- Plan of the dam and hydroelectric plant of the basin of the Zohreh River**
- Rendering management services for the Talaghan Dam and Power Plant plan
- Chaat (Atrak) Reservoir Dam Plan
- Reviewing study of plan and first phase of controlling and reducing the Lar water escape
- Studies of the plan control system in a group and automation of the transfer network of water of the Lar Dam to Tehran

1-3- Water Supply Operations, Water and Wastewater Treatment Department

Water Supply Operations, Water and Wastewater Treatment Department of Lar Consulting Engineers is equipped with a skilled and experienced technical cadre that takes advantage of advanced software equipment and can be stated to be as one of the most efficient corps in the Country. The said consultants render engineering services in the fields of engineering designing, securing, attaining and water supply in addition to urban water and wastewater networks. To date this consultants have completed such schemes in various dimensions and or has under hand. The Company is competent to render engineering services overseas and in this sphere its activities have proved vital and successful.

Specialized sectors in regards to the above-mentioned are as follows:

- Water supply operations,
- Urban water and wastewater networks,
- Hydraulic Section,
- Water and wastewater treatment units,
- Pumping Stations.

Some projects of this department:

- Plan for surface water collection and burial of wastes of factories
- Plan of water transfer from wells of the Kahuristan Plain to the cement factory of Hormozgan (Bandar Khamir)
- Studies relative to the surface and groundwater resources of the International Imam Khomeini University (Qazvin)
- Plan to transfer the agricultural water from southern Tehran to Robat Karim
- Plan to transfer water from the tributaries of Dez to Shazand (Arak)
- Plan of water transfer from Talaghan to Karaj



- Studies, surveys and confirmation of the exceptional thickness of the steel pipe(s) related to the second pipeline of water transfer from Minab to Bandar Abbas
- Bandar Lingeh water transfer plan for a short term duration
- Studies on hydraulic systems of the Shibli transfer canal
- Plan studies of the second phase of the collection and transfer network of agricultural water from southern Tehran to Robat Karim
- Studies and surveys of the causes and repairs of the depleted parts of the concrete weir of the Minab Dam and the related installations in addition to the mode of repairs of the above-mentioned and the transfer path from Minab to Bandar Abbas
- The emergency plan of water transfer from the Latian Dam Lake to the entrance of the Guchak Tunnel
- Plan to secure and transfer water from the limits of Cheshmeh Khurzan to the city of Ashtian
- Water resources studies and the recognition phases of the irrigation and dredging network of the Maseleh Plain of Qom
- Plan to secure water for consumption purposes for Larak Island
- Plan for securing, transfer, conservation and distribution of urban water in areas of southern Tehran
- Executive operations of the plan concerning the connecting course of water transfer of Talaghan to the installations of the pre- treatment unit of Beelgan
- Planning network for the collection, transfer and wastewater treatment for the villages of the townships of Paveh, Javanrood, Sanger and Kangavar
- Water supply plan to three complexes in the Province of Kermanshah namely, Shadman, Garahsu, Ghalichkhani, Haft Ashtian and Relahrazavar
- Plan to fortify water constructions in the city of Qazvin as precautionary measures against earthquake(s)
- Plan for a wastewater pre-treatment system for the Yazdbaf Factory
- Plan for the wastewater treatment unit for the new city of Parand
- Plan to ensure beneficial exploitation of the transfer system of water from the Zaiyandeh Rood River to Yazd
- Plan regarding the quality, quantity and transfer of water for requirements such as consumption, sanitary and industrial use
- Excavation operations, laying of pipes and pumping tests of twenty (20) wells exploited in the southern part of Tehran and transfer of the same to Robat Karim and Shahriyar
- Water transfer plan from the Kamal Saleh Reservoir Dam to Shazand (Arak)
- Plan to secure and transfer water to the city of Saveh
- Plan to secure and transfer water to the newly founded city of Pardis
- Network plan for water distribution for the city of Ashtian
- Excavation operations and the laying of pipes for the wells of Saveh
- Plans for water transfer and water treatment from the Mameloo Reservoir Dam to the city of Tehran
- Plan to connect the transfer water pipeline of Ziaran to the Beelgan water intake
- Network plan for the collection, transfer and wastewater treatment of the villages of the townships of Sanger, Sahneh and Kangavar
- Network plan for the collection, transfer and wastewater treatment of the villages of the provinces of Kermanshah, Paveh and Javanrood
- Network plan for the collection of well waters of southern Tehran



- Plan for sanitary means of wastewater removal**in rural vicinities within the limits of the Latian Reservoir Dam
- Collaboration in various phases for the undertaking of tenders, planning and executing the tunnel for water transfer of the fifth water treatment unit of Agdasieh, Niavaran
- Water supply plan in the northern circuit of Tehran and to the service conservatory reservoir
- Plan to secure and transfer water to Saveh, water Transfer from the Seyed Qoli wells to the 10,000 mm³ reservoir of Saveh
- Comprehensive plan for securing and water transfer of the complexes in the southwest of Tehran

1-4- Irrigation and Drainage Department

With specialized and skilled expertise team and the day technology, this unit is responsible to provide the engineering services required in irrigation and drainage projects in the stage of supervision on manufacturing and providing operation manuals. This unit has by far managed to design and implement 460 kilometers of irrigation and drainage networks in different provinces of the country.

Some projects of this department:

- Robatkarim irrigation and drainage network project.
- Eslamshahr 1100-acre network project.
- Pumping stations first interval construction project on Robatkarim canal.
- Pumping stations second and third intervals construction project on Robatkarim canal.

1-5- Engineering of Rivers and Coastal Zones Conservation Department

Without doubt the rivers play a vital and key role in securing water for requirements that are varied, particularly in the spheres of development plans relevant to irrigation and agriculture. Though in this respect due attention was not paid so as to attain a sustainable efficiency in these ground by the authorities concerned, namely Water Resources Management Development authorities except for the last one or two decades. Today, the circuit of engineering activities in regard to rivers has widened and is extensive, in arenas such as the physical aspect and management. This upholds undertakings from management to the control and curbing of floods, erosion, sedimentation, inland waterway transport, programming and management of the quality and magnitude of water resources of rivers, in addition to the management of rivers, conservation, exploitation, paying due attention to the endemic ecosystem of the river, beautifying the same for recreational purposes and... are features that are encompassed.

The Lar Consulting Engineers from its initial stages of establishment was attentive and in close quarters with the technicalities involved with rivers in connection with the Water Resources Management of the Country and was aware of the important role that rivers played in the way of development and a sustainable exploitation of water resources. Thus, the said consultants took appropriate measures in forming an engineering section pertaining to rivers and coasts as one of the specialized aggregates of the Company.

This section in its course of activities and development of the Company, along with studies performed in various engineering fields relevant to the river and coast, as well as gaining experience and capacity building particularly in respect to the alignment of manpower. Besides taking full advantage of both software and hardware scopes that aided in the development and extensiveness of the Company and also



configured it as a specialized section of activities. In addition the said consultants are engaged in the executive and supervising operations of two plans relative to equipping the Minab and Aras Rivers, as well as a number of other plans that are under study.

Some projects of this department:

- Plan of west floodwall of Damghan Province
- Protection plan of the greater energy plant against flood(s)
- Flood control plan and the Minab River management
- Management plan of the Aras River (west)
- Management plan of the Mordab Rood River
- Management plan of the Gogan Rood River
- Reconstruction plan and repairs of water constructions of Shushtar in Khuzistan Province
- Comprehensive plan of flooding basins and river management of the provinces of Golestan and Khorasan
- Plan relative to water quality in the river network and Parsian Reservoir Dam
- Exploitation plan of sand and gravel from the Minab River
- Historical pilot dam plan (Pardisan)
- Management plan, determining surroundings and bed of the Roodan River

1-6- Water Resources Department

The main activities of the Lar Consulting Engineers in this respect are to offer engineering services in water and wastewater industries of the Country. Decisions in this concern rest on specification and estimations of parameters relative to water resources on one hand and a macro management in exploitations in order to attain the best from the said resources, on the other. Therefore, it is compulsory to recognize the distinctions of the quantity and quality of water resources. This feature reflected as one of the underlined factors of the above-mentioned Company that utilizes technical capabilities and scopes, taking advantage of both suitable hardware and software apparatus, in addition to rendering engineering services to other sectors, surveyed and accomplished various plans independently, besides having schemes underway. Specialized Groups of the Water Resources Sector are as follows:

- Meteorological and hydro-climatology studies,
- Hydrological studies (surface water),
- Exploratory studies and high supervision (excavations, well drilling, pumping, geo-physics and detectors),
- Hydrological studies (groundwater) and water balance,
- Hydro-geochemical studies and quality of water resources,
- Crust water resources and hard structures studies,
- Mathematical and quantity-quality simulation models studies of ground water currents,
- Studies relative to the planning and management development of exploiting water resources.

Some projects of this department:

- Statistical studies relative to surface and ground water of the sub-basin and those in the downstream of the basins of Firooz Abad – Dasht Palang



- Exploitation studies for best utilization from the Lar River for water transfer to Tehran and the preparation of a comprehensive plan of the Haraz, Babol and Talar Rivers in order to compensate water shortage in the Mazandaran Plain due to an absolute water transfer from Lar to Tehran
- Hard structure studies in the northern region of Tehran
- Environmental Impact Assessment (EIA) studies of the Mangel Reservoir Dam on the Dasht Amol water catchment
- Hard structure studies in the Talaghan Basin
- Hard structure studies in the Arak Basin (Meyghan Desert)
- Compiling study plans and preparation of water resources maps of the Aras River basin
- Simulation modeling studies ensuring maximum exploitation results relevant to surface and ground waters of the Damghan Plain
- Semi-detailed studies relative to ground waters of the plains of Gabrik, Sadij and Simulation modeling studies ensuring maximum exploitation results from ground water resources of the Gabrik Plain
- Studies as to the condition of radio-active properties of the ground waters of the site of the atomic energy plant (Bushehr)
- Statistical records of ground and surface water resources throughout in six areas of study under cover of the Regional Water Board of Hormozgan
- Compiling study plans and preparation of water resource maps of the Bandar Abbas - Sadij basin utilizing GIS
- Survey of the complete studies related to the ground waters of the site and limits of the Atomic Energy Plant of Bushehr
- Statistics relevant to the quality control plan present in the Water Resources Information Bank (surface and ground water), completion of the data gaps and rectification of the descriptive statistics by utilizing statistical methods
- Statistical recording of water resources (surface and ground water) in five basins of the Provinces of Mazandaran and Golestan
- Statistical studies of resources and utilization of surface and ground waters of the functional basin of the Tehran Province
- Studies related to securing water for residential townships located in the regions of Kermanshah, Islam Abad, Sanghar and geo-physics studies according to geo-electric methods
- Updating water resources atlas of the Aras River basin (utilizing GIS)
- Studies related to securing water for green space from surface water resources of the Shur River and groundwater resources within the proximity of the new city of Parand
- Studies in order to determine the surrounding quality of groundwater resources and programming the said operations throughout the Country
- Hydro-geological studies and mathematical models of the limits of Khandab
- Integrating study plans and preparation of water resources mapping in the Lut Desert Basin utilizing GIS
- Securing water for the Parand Compounded Cycle Energy Plant
- Flood studies of the Gorgan Rood River Basin

1-7- Environmental affairs Department

The environmental engineering section of Lar consulting Engineers Company employs the following units in order to realize its objectives: GIS and Remote Assessment, GIS, Remote assessment,



Cartography group, Laboratory Section, Water physicochemical analysis group, Aquatics identification group, Ichthyology group, Natural Resources Section, Aquatics and fishery group, Watershed management group, Desertification and fixation of flowing sand, Forest and pasture group, Environmental Section, Ecologic studies group, Study of pollutants, monitor, and control group, Socioeconomic studies group, HSE, environmental management, consequences assessment group, Environmental obligations and activities assessment supervision group

- **Environmental Laboratory**

With appropriate tools, equipment, and space and skilled technical team, the laboratory of this unit can measure and record physical and chemical factors of water, soil, and biologic elements in site or lab. The activities that are performed in this laboratory include in summary:

- Analysis of water and wastewater microbial and physicochemical parameters.
- Identifying and determining the fauna flora (aquatic and xenophile, protozoan, and multicellulars)
- Ichthyology (fish separation and identification)

Some projects of this department:

- Evaluation of the environmental effects of transferring water from Aras River to east and northeast regions of Uromieh.
- Evaluation of the environmental effects of Ahl Iman irrigation and drainage network and dam project
- Evaluation of the environmental effects of Roodbal dam project and affiliated installations
- Evaluation of the environmental effects of Abolfares reservoir dam project.
- Evaluation of the environmental effects of Dasht Bonab irrigation and drainage network
- Evaluation of the environmental effects of Emarat dam, irrigation network, and drainage project
- Evaluation of the environmental effects of Khodaafarin irrigation and drainage network
- Evaluation of the environmental effects of Parchin-Pasdaran correction road project
- Evaluation of the environmental effects of Baraftab reservoir dam project
- Evaluation of the environmental effects of the project for expanding exploitation of Aras River in the area of east Azarbaijan, and Golfaraj irrigation and drainage.
- Evaluation of the environmental effects of Badavli dam and Bazargan irrigation and drainage network
- Evaluation of the environmental effects of Aydoghmoosh reservoir dam project.
- Evaluation of the environmental and social effects of Ahvaz water supply and wastewater network project, World Bank loan.
- Evaluation of the environmental and social effects of Shiraz water supply and wastewater projects, World Bank loan.
- Evaluation of the environmental impacts of Mijran reservoir dam project
- Evaluation of the environmental impacts of Kalpoosh dam project, and Danial irrigation and drainage network.
- Evaluation of the environmental impacts of Kamal Saleh reservoir dam project.
- Evaluation of the environmental impacts of Alamoot dam catchment (collaboration with Japan International Collaborations Agency).



- Evaluation of the environmental impacts of Namrood reservoir dam project.
- Evaluation of the environmental impacts of Mamloo reservoir dam.
- Feasibility studies of Atrak reservoir dam catchment.
- Environmental studies of comprehensive flood project of the catchments of Golestan and Khorasan provinces.
- Feasibility environmental studies of Azbareh Roodbar reservoir dam project.
- Environmental studies of potential project of reservoir pumping power plants in Tehran-Semnan regional electricity area.
- Environmental and demographic studies and application of the lands of location project of atomic power plant sites.
- Location and re-accommodation studies of the families settled in Gabric dam reservoir.
- Environmental management program of Mamloo reservoir dam catchment.
- Midterm quality monitoring network of water resources of Ardebil province.
- Identification, control, and reduction of pollution of catchment of Zarinerood River.
- Studying and designing quality monitoring network of Goldarchai River, Hasanloo reservoir dam, and the study limits of Oshnavieh, Naghadeh, and Piranshahr.
- Evaluation of the water quality of Zarinerood River catchment based on biological indexes (benthic materials)
- Evaluation of the quality of Godarchai river catchment based on biological indexes (benthic materials).
- Evaluation of the quality of Samboor river catchment based on biological indexes (benthic materials).
- Evaluation of the quality of Dinochai river catchment based on biological indexes (benthic materials).
- Emarat dam reservoir thermal and feeder-based layer modeling studies.
- Tazehkand dam reservoir thermal and feeder-based layer modeling studies.
- Mamloo dam reservoir thermal and feeder-based layer modeling studies.
- Namrood dam reservoir thermal and feeder-based layer modeling studies.
- Comprehensive studies of aquaculture regions in Takab.
- Aquaculture feasibility study project at Aydoghmoosh reservoir dam.
- Aquaculture feasibility study project at Golfaraj, Yekanat, Afshar, Daran, and Parsian plains.
- Aquaculture feasibility studies at Sahand dam network
- Detailed-executive catchment studies of Rak Lali castle catchment (Masjedsoleiman).
- Explanatory watershed management studies in Tangoieh and Goghar watersheds
- Study-executive projects for desertification of Hajiabad (Semnan) and Amirabad (Damghan).

1-8- Geology and Geo-Technique Department

As regards the above-mentioned section, the Lar Consulting Engineers are competent in this field and are equipped with an experienced and specialized team of experts with enhanced scopes and capabilities. The important activities and specialized services in this sector are as follows:



- Geological studies, preparing geological maps, geological engineering in the study area of the dam and lake construction, and rock bed in various sections according to the requirements of the project, plan and water tight profiles.
- Performing geological engineering studies that comprise of soil and rock mechanics, sustainability of inclines and seismic rendering suitable solutions that would prove to work out beneficially,
- Preparing geological engineering models in accordance with the surface, under surface, static and dynamic tests performed,
- Performing hydro-geological and crust studies comprising of surveys that exceed constructional features and the dam lake. Surveys of springs, rivers, surface level of ground water, surveys concerning the standing porous characteristics of soil and rock, results of the pumping, chemical-isotopic tests and detection. Geological surveys - stratification, land construction and determining the said in addition to evaluating the hydraulic connections according to the above-mentioned parameters,
- Recognition of the water escape passages in the reservoir and resolving the problem,
- Designing diaphragms in the dams,
- Designing fortifying and contiguous feeds in constructions affiliated to dams and tunnels,
- Preparing private Terms of Reference (TORs), estimations of these feeds, preparing a list of operational costs for implementing the diaphragms and the fortifying contiguous feeds,
- Formulating the TORs and the list pertaining to the cost of the geo-technique contracts of the plans relative to dam construction, tunnels, pipelines for the transfer of water, irrigation and draining networks, hydroelectric power plants and other large scale constructions,
- Supervision and management of the exploratory excavations and geo-technique tests,
- Preparing guidelines relative to laboratory tests, refinery and data evaluation,
- Analysis of the geo-technique studies and preparing a report of the said,
- Seismic studies (on an engineering scale), tremors of construction site, estimation of earthquake risks and determining these factors in relative to former acceleration, speed that must be computed within the various levels of tremors within the designing,
- Designing self-tremor monitoring pattern networks,
- Formulation of geo-physics program studies comprising of geo-electric/geo-seismic and micro tremors, suited to the study requirements relative to designing and supervision concerning the execution of geo-physics operations and the analysis of the conclusion.
- Organizing the localized geology data. Tremors on the construction site, the site itself and enacting the data in the environment based on GIS.
- Analysis of digital satellite data.

Some projects of this department:

- Geo-physics studies of the Sheesh Pir Reservoir Dam Plan
- Supervision of operations of the exploratory excavations Ghamrood tunnel (first sector)
- Supervision of geo-technique operations of excavations of the Sheesh Pir Reservoir Dam (Phase 1)
- Supervision of geo-technique operations of excavations of the Baghghan Reservoir Dam (Phase 1)



- Supervision of geo-technique operations of excavations of the Nousud Tunnel Plan –Sections 1 and 2 (Phase 1)
- Supervision of geo-technique operations of excavations of the Parsian Reservoir Dam
- Supervision of geo-technique operations of the transfer and purifying of water from the Mameloo Dam to Tehran (Phase 1)
- Complete studies of the first phase and geo-technique engineering services of the Gabrik Reservoir Dam Plan
- Supervision of geo-technique operations of the Pardisan Park
- Supervision of geo-technique operations of the archeological embankment of Shushtar
- Supervision of geo-technique operations of water supply to the city of Saveh
- Supervision of geo-technique operations of the Namrood Dam and Hydroelectric Plant (Phases 1 and 2)
- Geo-technique engineering services of the Astaneh Damghan Dam (Phase 1)
- Geo-technique engineering services of the Mameloo Reservoir Dam (Phase 1)
- Geo-technique engineering services of the Namrood Reservoir Dam (Phases 1 and 2)
- Supervision of geo-technique excavation operations of the underground power plant of Lavarak
- Supervision of geo-technique excavation operations of the diversion dam plan and the water transfer canal of Seemeen Dasht
- Supervision of geo-technique excavation operations of the Mangel Reservoir Dam
- Supervision of geo-technique excavation operations of the Badavli Reservoir Dam (Phases 1 and 2)
- Supervision of geo-technique excavation operations of the pipeline route of Lashgharak – Afjeh and the regulatory reservoir of Afjeh
- Supervision of geo-technique excavation operations of the Kaka Sharaf Reservoir Dam (Phase 1)
- Geo-technique engineering services of the Kaka Sharaf Reservoir Dam (Phase 1)
- Supervision of geo-technique excavation operations of the Kamal Saleh Reservoir Dam Plan (Phase 1)
- Supervision of geo-technique excavation operations of the Baraftab Reservoir Dam Plan (Phase 1)
- Supervision of geo-technique excavation operations of the Damghan Reservoir Dam (Phases 1 and 2)
- Geo-technique studies of the Damghan Reservoir Dam
- Supervision of geo-technique excavation operations of the Kalovans Reservoir Dam (Phase 1)
- Supervision of geo-technique excavation operations of the Kamal Saleh Reservoir Dam to Arak (Phase 1)
- Survey and evaluation on the basis of geological engineering, (earth) tremors and water tightening of the Talaghan Dam plans



2- Headquarters section

2-1- Human Resource and Financial unit

2-2- Project Management Office (PMO)

2-3- Information Technology

2-4- Marketing unit

2-5- Legal and Contracts unit

The headquarters departments of LCE include several units, the most important of which are the Project Management Office, Information Technology, Human resources, Finance, Marketing, and the Legal and Contracts unit.

These departments support the company's technical units use expert personnel up-to-date equipment and move towards achieving goals and visions. About 70 personnel are working in the above units.

The project management office is one of the vital units of the company and the macro management strategies of projects, programs and portfolios are audited and approved in this office in different periods of time.

Also, the identification of new standards and methods and how to implement them is done here. Finally, the evaluation of the performance of the company's units is done by this unit.

Participate in Projects under International bank financing

No	Project Name	Major Field of Study	Client	Region	Contract year	Name of International Bank
1	Improvement plan of Tajan, Zarineh Rood and Moghan Irrigation Network	Irrigation Network	Ministry of Energy	Iran - East Azerbaijan Province	2000	World Bank
2	Central Consulting Services of Irrigation Improvement plan	Irrigation Network	Ministry of Energy	Iran - Tehran Province	1997	World Bank
3	Second and Third Phase Studies of East Tehran Wastewater Tunnel	Designing and Supervision of Wastewater Tunnel	Tehran Sewerage Co.	Iran - East of Tehran Province	2002	World Bank
4	Environmental and Social Studies of Ahwaz and Shiraz Cities	Environmental and Social Studies	Engineering Company of Iran Water and Wastewater	Iran - Ahwaz and Shiraz Cities	2003	World Bank



Participate in International Projects

No	Project Name	Client	Partner	Region	Contract Start Date	Financing Provider
1	Studies of the Kan River Restoration and Development Plan	Engineering consulting organization of Tehran	CTI (Sub-consultant)	Northwest of Tehran City - Kan area	2017	-
2	Implementation of International Financing Tender for Karaj-Tehran Tunnel and First Phase of Sixth water treatment	Regional Water Company of Tehran	-	from Karaj to Tehran city	2006	China Exim Bank
3	Studies of the first phase of the Nosood Water Transmission Tunnel Project	Iran Water and Power Resources Development Co.	TBI (Final Controller of Reports)	Kordestan Province	2001	-
4	Second and third phase studies of the eastern wastewater tunnel of Tehran	Tehran Sewerage Co.	HALCROW Group Limited	East of Tehran Province	2001	World Bank
5	Tender and Selection of International Contractor of Finances Design and construction of Taleghan Dam and Power Plant Building	Regional Water Company of Tehran	Sino hydro (Contractor)	Tehran Province	2000	China Exim Bank
6	Engineering Services in International Tender for Ostor Dam and Power Plant	Melli Sakhteman co.	-	Tehran Province	1999	-



No	Project Name	Client	Partner	Region	Contract Start Date	Financing Provider
7	Environmental and Social Studies of Ahwaz and Shiraz Cities	Engineering Company of Iran Water and Wastewater	HALCROW Group Limited	Ahwaz and Shiraz Cities	2003	World Bank
8	Engineering Services to Client for International Bidding for Molla Sadra Dam and Power Plant	General Mechanic co.	CAITEC (Partner - Contractor)	Tehran Province	2003	China Exim Bank
9	Central Consulting Services of Irrigation Development Project	Ministry of Energy	Nespak	Tehran Province	1997	World Bank
10	Rehabilitation and Developmant Project of Tajan Irrigation Network - Zarineh Rood - Moghan (by World Bank financing)	Ministry of Energy	Nespak	Eastern Azarbayjan Province	2000	World Bank
11	Studies of the second phase of the LvarK Underground Power Plant project	Regional Water Company of Tehran	Smek (Project Controller)	East of Tehran Province	1989	UNDP



Participate in Projects under IsDB Projects

No	Project Name	Major Field of Study	Client	Region	Contract year	Duration
1	The client's consultant services for the execution of the West Tehran sewage tunnel construction project by EPC method	sewage tunnel	Tehran Sewerage Co.	Iran - Tehran City	2014	4 Years
2	The client's consultant services for the execution of the West Tehran sewage tunnel construction project by EPC method	sewage tunnel	Tehran Sewerage Co.	Iran - Tehran City	2024	2 Years



■ Participation in Scientific Association

- Value Engineering Association of Iran
- Iran Tunnel Association
- Iranian National Committee of Largest Dams
- National Irrigation and Drainage Committee
- Iranian Hydraulic Association
- Iranian Association for Environmental Assessment
- Iran Project Management Association
- Iran Concrete Association

