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Introduction:

Ghala Co. officially commenced its activity in 1992 in the area of performing the developmental and non-developmental national and local projects of the field water and hydraulic structures, roads, airport runways, buildings, mines, installations and equipment, concrete and steel reservoirs, environment, agriculture, drilling, grouting, etc.

We have been serving the country for the past 22 years by performing more than 25 small and large projects in West Azerbaijan province. Disregarding the dimension of projects, they have been implemented with an eye on needs of the region. All the projects have been performed employing qualified local human force which have always been regarded the most important part of the Company, also using the most efficient machinery in favor of performing high quality job.

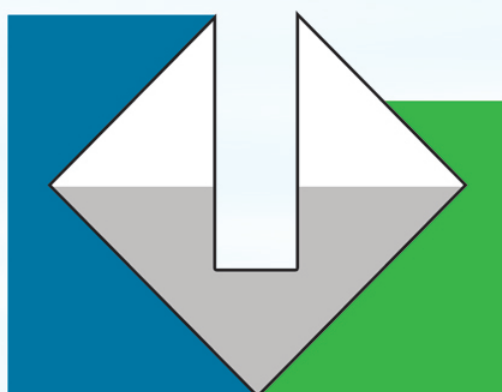
In present, Ghala Co. holds Grade-1 in the field of water and Grade-2 in the field of Installations and Equipment approved by the Deputy President in Planning and Strategic Supervision Affairs. This Company has successfully implemented its projects by employing technical and experienced human force in different fields of water industry contractorship, and has always been proud of such committed, meritorious, and skillful personnel.

Our Technical Staff includes: 10 MS Civil Engineers, 57 BS Civil Engineers, 8 Mining Engineers, 7 Surveying Engineers, 4 Architectural Engineers, 2 legal advisors, 4 financial affairs expert and advisor, and a large number of technicians, craftsmen, drivers of heavy and semi-heavy vehicles/machinery, repairmen, foremen and laborers. Observing the professional code of ethics, provides contractor services preserving the occupational prestige and has selected Quality Management System (ISO 9001:2008) as an effective tool, targeting the continuous improvement of its activities. We deem ourselves committed to the observing the requirements of the foregoing standard in attaining to the principal objectives of the Company, part of which is:

- 1-Increasing the effectiveness of company's processes and permanent improvement of the processes
- 2-Understanding the needs and expectations of the customers (Owners) and increasing their satisfaction.
- 3-Noticing the experts and permanent improvement of their knowledge and skill
- 4-Optimized use of all available resources of the Company in providing more desirable services
- 5-Observing the timetables, and timely completion of projects







GHALA CO.

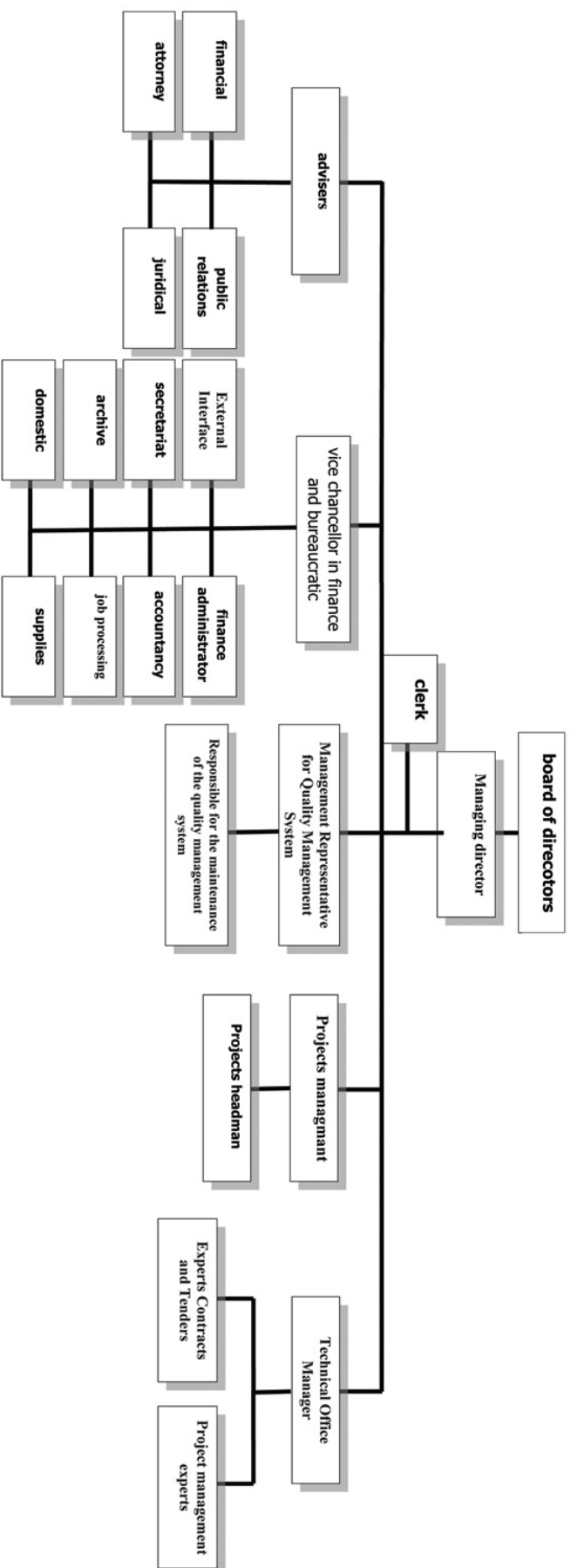
Members of Directors Board:

Directors Board	job	work experience
Masoud RAHIMI ASIABI	Managing Director	27 year
Mokhtar RAHIMI ASIABI	Chairman of Directors Board	33 year
Mansour AHMADI AZAR	Vice-Chairman of Directors Board	30 year

Statistics staff

degree of education	Field of Study	Number of Staff
MA	Civil Engineering	11
BS	Civil Engineering	57
BS	Mining Engineering	8
BS	Surveyor	7
BS	Architectural Engineering	4
BS	Legal Advisers	2
BS	Financial Advisers	4
Associate Degree	Technical technicians	100
BS	Administrative staff	10
Associate Degree	Administrative staff	15
Or high school diploma	Drivers	150
Or high school diploma	Service personnel and labor	200

Ghala Company organization chart



PART OF MACHINERY AND EQUIPMENT

Machines super heavy

Row	Type Machines	Number
1	Hidrofrez BG-40	1

Machines heavy

Row	Type Machines	Number
1	Bulldozer	6
2	Graders	3
3	Loader	7
4	Excavator	10
5	Cranes	2
6	Roller	3
7	Drills vaguns	1

Half heavy

Row	Type Machines	Number
1	truck	37
2	trailers	1
3	Truck mixer	3
4	Tractor	5

Equipment

Row	Type Machines	Number
1	Compressor	4
2	Baching & Concrete and Sand Washing	3
3	Generator	4
4	drilling and injection set	2
5	Shotcrete pumps	3
6	Fuel tanker	5
7	Water tanker	6
8	Bending and cutting of reinforcement set	2
9	Concrete pump	1
10	Diesel intake system	1
11	Rollers stretching	3
12	Camera mapping	14
13	Weld engine	12
14	Btunyr	5

Machines style

Row	Type Machines	Number
1	Cars and vans	20



Scope of Operations:

Implementation of SiminehRud Storage Dam, including the substitute road of the right bank, cut off wall, Spill way, drinking water intake tunnel, amendment of alluvial foundation of the dam site, hydromechanical equipment and instrumentation, dam body in the length of 1356 m, with of 12 m, and height of 47.5 m

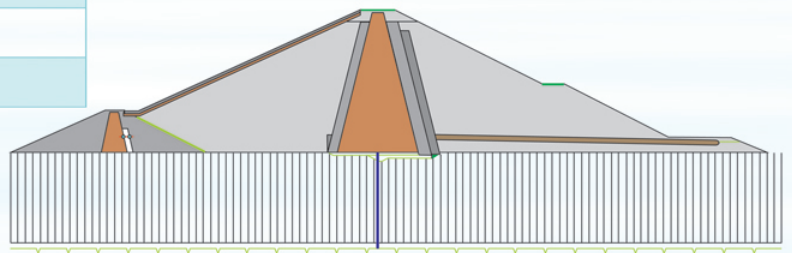
Client: West Azerbaijan Regional Water Authority

Consultant: MahabGhodss Consulting Engineers Co.



Major Quantities:

Earth removal	1,500,000 m ³
Earth Fill	4'300'000 m ³
Closed Space Excavation	900 m ³
Surface Stabilization	125'500 m ²
Spudding	52'865 m
Grouting	16'500 hours
Cutoff wall	9'431 m ³
Reinforcement	1'847'000 Kg
Formwork	22,000 m ²
Concrete Placing	44'990 m ³



FOUNDATION WATER-TIGHTENING SYSTEM AND GROUTING OPERATIONS OF SIMINEH ROUD STORAGE DAM

Water tightening system of this dam consists of a plastic concrete cutoff wall and grout curtains in the abutments. Max depth of the cutoff wall is 30 m. Hydrofrez* will be employed for implementing the cutoff wall with the following details:

Area of the cutoff wall made of plastic concrete	11789 m ²
Length of the cutoff wall	547 m
Thickness of cutoff wall	0.8 m
Overall length of drilling and grouting operations	53 Km
Max depth of the cutoff wall	31 m
Diversion system	Culvert
Length of the culvert	200 m
Length of the intake pipe	360 m
Diameter of the intake pipe	1.2 m
Diameter of Bookan drinking water intake pipe	0.7 m

FOUNDATION WATER-TIGHTENING SYSTEM AND GROUTING OPERATIONS OF SIMINEH ROUD STORAGE DAM

Geotechnical studies of SiminehRoud storage dam shows the problem of liquefaction in its alluvial foundation. To amend and improve the foundation, substitutive compaction method will be used for the first time in Iran employing the Vibrofloatation system which is part of the BG40 machine. Therefore, to improve the foundation, reduce the potentiality of liquefaction and increase the foundation compaction so that N(60) of the foundation material increases from the mean 15 to more than 25 in an area of about 12 hectares, and creating stone columns in distances of 2.5 m, the columns will be constructed in square form in the plan. Grain size of the materials used in this method will be between 1 cm to 10 cm.



Nazlou Storage Dam

The earth/ rock fill Nazlou storage dam with a vertical clay core, is under construction on the river with the same name which is one of the largest rivers in West Azerbaijan province gravitating from west to east. The dam site is 25 Km northwest of Urmia.

Client	West Azerbaijan Regional Water Authority
Consultant	Absaran Consulting Engineers Co.
Contractor	Gilban-Ghala Consortium
Duration of Contract	60 months



Main Purposes of the plan:

- Regulating 273 MCM of the flow of Nazlou River to irrigate the lands of Nazlou, Rowzeh, Kahriz and Ghoushchi Plains
- Nazlou River flood control to prevent flood damages
- Supplying 38 MCM of water for the industries and drinking purposes for the settlements on the north of Urmia Plain
- Satisfying the environmental needs of Nazlou River
- Improving the economic and social conditions in the north of Urmia Plain



GENERAL SPECIFICATION OF THE DAM

Type of Dam	Earth Fill with Vertical Clay Core
Dam height from river bed	98 m
Crest length	427 m
Crest width	12 m
Crest elevation	1502 m above mean sea level
Reservoir capacity	170 MCM
Length of dam access road	11 Km

Elements of the Plan:

Hydraulic structures of Nazlou dam consist of a bridged open spillway on the right abutment for flood discharge, two tunnels on the right abutment for the temporary diversion of the river water during dam construction. The right tunnel will be used as water intake from the reservoir and the left one as bottom outlet during dam utilization. Two vertical shafts and inlet structures have been realized for operating the tunnels.

Water Diversion System:

Bottom outlet and Irrigation Tunnels:

Number of diversion tunnels: 2

Length of Inlet Structure: 105 m

Length of bottom outlet tunnel: 480 m

Length of Irrigation tunnel: 515 m

Final inner diameter of bottom outlet tunnel: 4 m

Final inner diameter of irrigation tunnels: 4 m and 5.5 m





Body and overflow:

Earth removal	500,000 m ³
Earth Fill	4,250,000 m ³
Drilling and excavation in rock	3,200,000 m ³
Concrete Placing	92,000 m ³
Reinforcement	7'000 ton
Formwork	70,000 m ²
Type overflow	Free Overflow
During overflow	526 m



Improvement of the Alluvial Foundation

This dam is water tightened by plastic concrete cutoff wall in the foundation and grout curtain in the abutments. Deepest part of the cutoff is 68 m. Hydrofrezwill be used to build the cutoff wall considering the depth of the cutoff and the foundation material.



Area of the cutoff wall made of plastic concrete	6'700 m ²
Length of the cutoff wall	160 m
Max depth of the cutoff wall	68 m
Thickness of cutoff wall	0.8 m
Overall length of drilling and grouting operations	150 Km
Overall length of grouting galleries	560 m

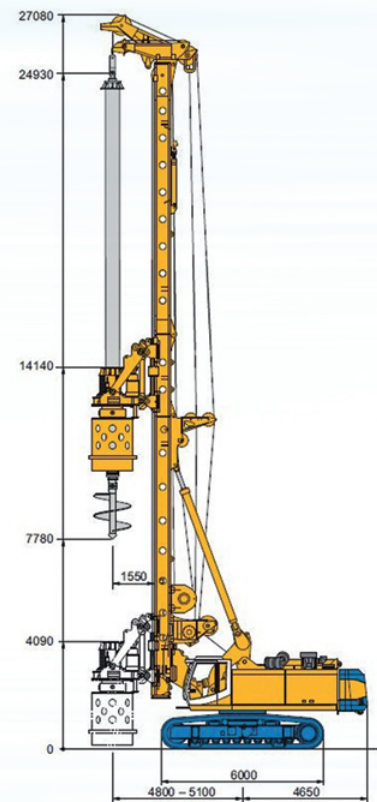


Bauer's BG40 Multipurpose Mast for the first time ever in Iran



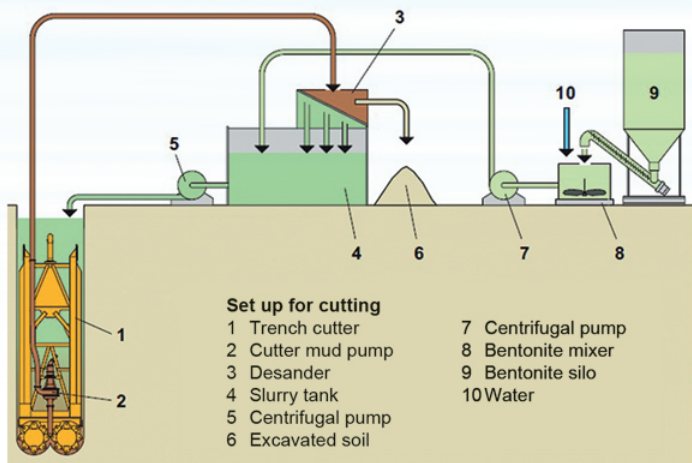
This package includes BG40 drilling mast equipped with rotary means and KDK390 drill bits to drill for high diameter in situ piles as well as excavation means to build deep diaphragm walls complete with grouting accessories and desander.

BG40 mast is one of the most successful experiences in the arena of deep-foundation machinery in the farthest points of the world that has a weight of 145 tons when using 18 m, four stage telescopic BK40/470/4/60 Kelly bar bit able to drill up to a diameter of 2.8 m and depth of 60 m.

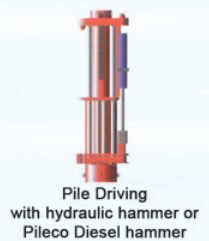


One of the other accessories mountable on this mast is Bauer Cutter BC40 which is known as the most prevalent heavy Hydrofrezon the glob and can substitute for cutter wheel with various width excavating panels 0.8 m to 1.5 m in which case it will have a maximum weight of 41 tons. This cutter is halved by HDS80 mounted on BG40 and can excavate up to the depth of 80 m with mud pump capacity of 450 m³ per hour. The mud pump operates with the help of grouting package, desander, and bentonite mixer MAT and complete the grouting cycle.

This package is the 200th Bauer Hydrofrezordered in the world and is ordered by Gilban-Ghala consortium with a total weight of 235 tons as a unique machine in the Middle East at the service of national dam making industry.



MAT grouting and mud purification accessories including two packages of BE250-60 desandereach with a capacity of 250 m3 per hour which is mounted on a 35 m3 mixer tank MAT RBH35 in line with SC1500K mixer 1500 cubic decimeter per hour and booster KBKT in bentonite grout and desander cycle.



Implementation of Simineh Rud Storage Dam

Scope of Operations:

Excavation of diversion culvert, floor preparation and implementation of consolidation grouting, culvert concrete placement, design and preparation of construction materials and manufacturing the hydromechanical equipment

Contract Duration: 29 months

Client: West Azerbaijan Regional Water Authority

Consultant: MahabGhodss Consulting Engineers Co.

Major Quantities:

Earth operations	379'000 m ³
stabilization & surface improvement	2'080 m ²
Reinforcement placing	1'974'000 Kg
Formwork	18'000 m ²
Concrete Placing	29'000 m ³



IMPLEMENTATION OF POLDASHT FLOOD PROTECTIVE DYKE (EMBANKMENT)

Scope of Operations:

Implementation of homogenous embankment in the length of 4'000 m, a trapezoidal section drainage, three concrete culverts, manholes and slide gates, increasing the stone wall in the length of 1'000 m, implementing embankments in the length of 600 m, retaining wall and parking, ramps and u-turn places

Contract Duration: 18 months

Client : West Azerbaijan Regional Water Authority

Consultant: YekomConsulting Engineers Co.

Major Quantities:

Demolition	5'850 m ²
Earth Removal	250'000 m ³
Earth Fill	200'000 m ³
Rip Rap	215'000 m ³
Wall construction	1500 m ³
Concrete Placing	500 m ³



Workshop Mobilization and Implementation of Renovation Operations and Restoration of Ghotulu Diversion Dam and Repairs of Longitudinal and Transverse Profiles and Stone and Concrete Lining of Ghotulu and Gogtappeh Canals

Scope of Operations:

Renovation Operations and Restoration of Ghotulu Diversion Dam and Repairs of Longitudinal and Transverse Profiles and Stone and Concrete Lining of Ghotulu and Gogtappeh Canals in the lengths of 5.7 Km and 4.5 Km respectively complete with the stone and concrete lining of the canal, preparation and installation of hand rails, steel gates, as well as the structures designed for the route.

Contract Duration : 28 monthes

Client: West Azerbaijan Regional Water Authority

Consultant: AbkhanConsulting Engineers Co.

Major Quantities:

Earth operations	245'000 m³
Stone Masonry	36'000 m³
Reinforcement placing	105'000 Kg
Formwork	7'800 m²
Concrete Placing	8'000 m³



Implementation of Hasalou Dam North Pumping Station

Scope of Operations:

Renovation Operations and Restoration of Ghotulu Diversion Dam and Repairs of Longitudinal and Transverse Profiles and Stone and Concrete Lining of Ghotulu and Gogtappeh Canals in the lengths of 5.7 Km and 4.5 Km respectively complete with the stone and concrete lining of the canal, preparation and installation of hand rails, steel gates, as well as the structures designed for the route.

Contract Duration : 24 monthes

Client: West Azerbaijan Regional Water Authority

Consultant: pooyabConsulting Engineers Co.

Major Quantities:

Earth Removal	117'000 m ³
Earth Filling	126'000 m ³
Formwork	5'340 m ²
Concrete Placing	2'500 m ³
Steel Works	360'000 Kg



IMPLEMENTATION OF SPILLWAY AND STILLING BASIN OF KHORASANEH EARTH FILL DAM

Scope of Operations:

Khorasaneh Storage Dam has been constructed for the purpose of using the surface water resources of Sardar River catchment area. By operating this dam irrigation needs of TazehGhaleh, Otmish, Ali Kand, and Espougheh will be met, and irrigation of 2000 hectares in ordinary situation and 8000 hectares by construction of canals will become possible.

In the route of assisting the incomplete projects in the region, Ghala Co. has implemented the appurtenant structures of Khorasaneh Dam including the spillway, stilling basin and its bridge within less than six months with the highest quality and made the operation of this dam possible.

Client	West Azerbaijan Regional Water Authority
Consultant	AshnabConsulting Engineers Co.
Duration of Contract	12 months
Reinforcement	184 ton
Formwork	5,500 m ²



Implementation of Bridge (Paved Ford) downstream of Bookan Storage Dam

Scope of Operations:

Implementation of Bridge (Paved Ford) downstream of Bookan Storage Dam in the length of 180 m.

Contract Duration: 6 months

Client: West Azerbaijan Regional Water Authority

Consultant: MahabGhodss Consulting Engineers Co.

Major Quantities:

Earth operations	110'000 m ³
Stone Masonry	4'400 m ³
Reinforcement Placing	25'000 kg
Steel Works	86'000 Kg
Concerete Placing	8'000 m ³



Scope of Operations:

Implementation of five pre-fabricated chambers on the piers of the spill way, man-passage bridge on the spill way piers, watchman's chamber, water supply pipeline in the length of 400 m, restoration operations of the dam compound

Contract Duration: 4 months

Client: West Azerbaijan Regional Water Authority

Consultant: MahabGhodss Consulting Engineers Co.

Major Quantities:

Steel works	47'000 Kg
Concrete Placing	100 m ³
Manufacturing and installation of power unit chambers	of five sets
pvc and galvanized steel pipes	900 m



Workshop Mobilization and Implementation of Renovation Operations and Restoration of Longitudinal and Transverse Profiles and Stone and Concrete Lining of Yuvalar, Kashtiban, and Balderlou Canal Branching from it

Scope of Operations:

Implementation of Renovation Operations and Restoration of Longitudinal and Transverse Profiles and Stone and Concrete Lining of Yuvalar, Kashtiban, and Balderlou Canal Branching from it, in the lengths of 4.5 Km and 4.6 Km and 3.4 Km respectively, complete with the stone and concrete lining of the canals, preparation and installation of hand rails, steel gates, as well as the structures designed for the route.

Contract Duration: 30 months

Client: West Azerbaijan Regional Water Authority

Consultant: Abkhan Consulting Engineers Co.

Major Quantities:

Earth removal	278'000 m ³
Earth Fill	281'000 m ³
Stone Masonry	67'000 m ³
Formwork	24'000 m ²
Concrete Placing	32'000 m ³
Steel Works	640'000 Kg



Other projects carried out the ghala company

- 1-Implementation of Zang Abad Diversion Dam in Piranshahr
- 2-Implementation of Darreh Daei Diversion Dam and Canal in Aligoudarz
- 3-Implementation of Serah Miandoab Branch/ Bank Mellat
- 4-Implementation of the venue of Urmia Labor and Social Affairs Department
- 5-Implementation and lining of left bank canals of Mahabad Plain
- 6-Implementation of service roads, drainages, and structures of left bank of Mahabad Plain
- 7-Implementation of Water Conveyance Pipeline and Distribution Network of Shiblou Tribal Town
- 8- Implementation of Flood Control Facility at Ghashgha Bolagh of Khoy
- 9- Implementation of Rip Rap of Urmia Shahid Keshtgar Dam in Urmia
- 10-Implementation of the Takab Water Conveyance Line Band
- 11-Implementation of Water Conveyance Canal to Bonab Plain
- 12-Implementation of Keshmesh Tappeh Diversion Dam and Sedimentation Basin of the Artificial Recharge Facility in Macoo
- 13-Implementation of A, B Wastewater Networks of S-Zone of Urmia
- 14-Pipe Laying Operations of Feeder Line/ Zone-4 of Mahabad Water Supply Network
- 15-Implementation of Flood Control Facility on the Right Bank of Simineh Rud River (in Miandoab)
- 16-Zangmar River Training at the Connection Vicinity to Aras River in Poldasht

