



**Mahab Ghodss
Consulting
Engineering Co.**

Master Water's Might Engineer for Solutions Ensure Resilient Feature





CEO Message

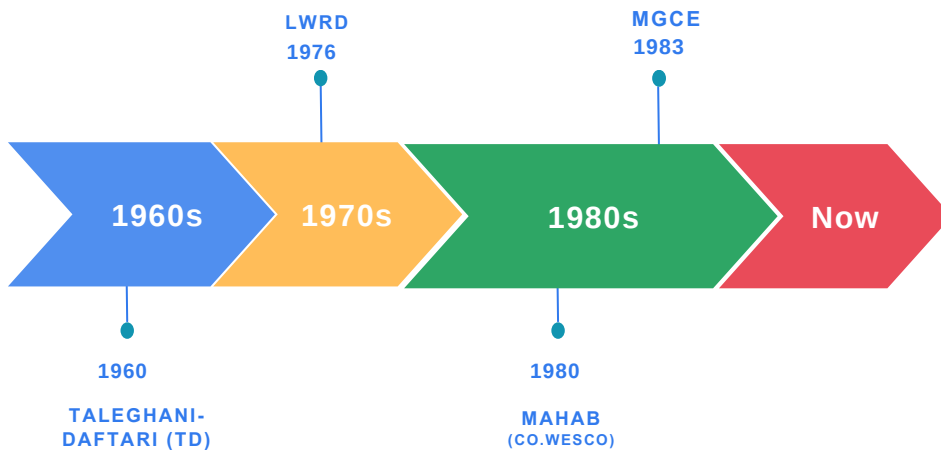
Over 2.2 billion people lack access to safely managed drinking water, and ongoing global warming is causing droughts and floods around the world. Four out of five individuals face water-related challenges on a daily basis. The engineering community has a responsibility that extends beyond governmental bodies; it must actively reach out to people and establish its role as a catalyst for change. This is why it is crucial for difference-makers to develop solutions for our most pressing problems.

As the managing director, I am honored to lead a dedicated team of professionals who are passionate about overcoming challenges and making a meaningful impact in the world. Our collective wisdom has guided us on this journey, and our legacy of excellence has supported us for over six decades.

At MGCE, our collaborative spirit and diverse expertise create a vision of positive change for the communities we serve through sustainable development. We understand the unique needs and challenges faced by our clients, which is why we strive to go above and beyond in our service. The positive impact we have on society and the long-lasting relationships we build with our clients exemplify MGCE's commitment to our mission.

Our Journey

With six and a half decades of unwavering commitment to water industry consultation, we have become the global choice for clients seeking unparalleled expertise on this remarkable journey.



Our Mission

The MGCE's family is driven by its passion for making a difference. We harness our collective wisdom and spectrum of expertise to tackle challenges head-on and deliver solutions that enrich lives and create lasting impacts. With our client-centric approach, sustainable practices, and culture of collaboration, we strive not only to meet but exceed expectations.

MGCE is Iran's No.1 International Engineering Consultants in Water Sector. With over 2000 projects in Water Supply, Management, and hydroelectric Energy, we cover the full project lifecycle, from feasibility to defect liability. As Employer Engineers, representatives, PMCs, and TRCs, we ensure clients receive dependable consulting services.

We are all over the world,
combining global expertise with
profound understanding of local
markets

Experience

+65 Years

Countries

+15

Project Experiences

+2000

Turnover

\$10 million



+1 000

Employees



+20

Avg.Experience(Y)



+150

Senior Experts



15%

Women



+300

Post-Graduate



Dam

- **Concrete**
(Double Arch, Arch, RCC, Gravity)
- **Embankment**
(Rock fill and Earth fill with Clay and Asphalt Core)
- **Concrete-faced rock fill**

Mahab Ghodss has been a distinguished leader in the engineering realm for over 65 years, specializing in designing and supervising various types of dams. Our team is renowned for overseeing the study, design, construction supervision, and contract management of more than 110 large dam projects, with heights reaching up to 325 meters.

We deliver comprehensive services, including pre-feasibility studies, feasibility and construction supervision, contract management and operation maintenance, safety/rehabilitation.

Our extensive experience across multiple dam constructions underscores our commitment to innovative and sustainable water resource solutions.

Mahab Ghodss is not just about constructing dams; we are at the forefront of sustainable water management, blending dam engineering with ecological harmony for the well-being of the planet and its inhabitants.

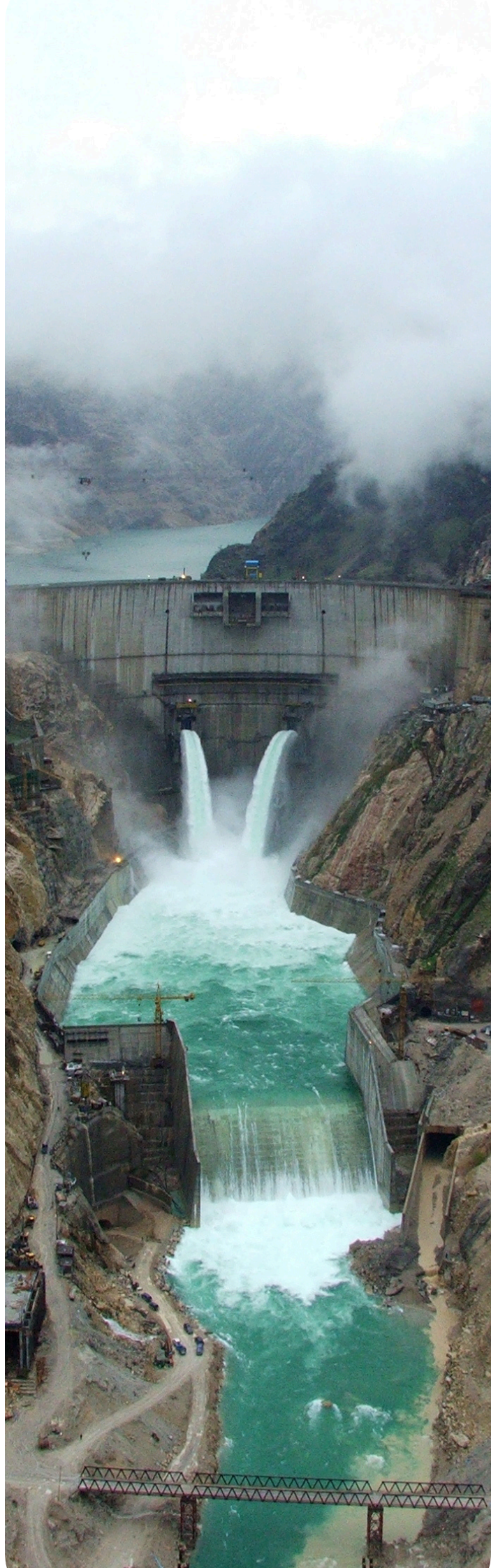
Indicators:

Standing tall Among the World's Concrete Dams with a height of 325 meter- Bakhtiary Dam of Iran

Bridging Sky and River - The 8th Tallest Double-Curved Dam- Karun IV of Iran

A Concrete Milestone- ICOLD Award-Winner with One of the World's Top 10 Largest Powerhouse Caverns - Karun III of Iran

Symphony of Soil and Structure, Iran's largest earth-fill dam- Karkheh of Iran





Karkheh

Project feature: With an area of 160 km², Karkheh Dam has the largest artificial lake in Iran. The feasibility studies, detailed design and construction supervision of Karkheh Dam & HEPP were performed by MGCE to generate hydroelectric power and supply irrigation water for the agricultural based economy of the southwestern region of the country.

Result: Currently, the project supplies irrigation water for over 345,000 ha area of the fertile southwestern lands of the country, and generates 934 GWh of hydroelectric energy per annum. It controls destructive floods, and reduces the hydraulic gradient as well.



Dariyan

Project feature: Sirvan is a strategic river for western border-lander of Iran. In order to harness this natural resource, MGCE was contracted to act as the designer and construction supervisor of Dariyan Dam & HEPP. In the project aims to convey water to the adjacent basins through Nosoud Tunnel for irrigating and supplying the downstream water right, control floods and generating hydropower.

Result: With the construction of this remarkable earthfill dam in 179 meters in height with a total volume of 338 MCM, we could meet the downstream water demands and generate 500 GWh hydropower annually.



Narmashir

Project feature: The authorities of Iran Ministry of Energy called on MGCE to design and supervision of Narmashir Dam for supplying drinking and irrigation water for the arid lands of the low rainfall zone of Kerman, in central region of Iran, with a population of over 7,000.

Result: The drinking and irrigation water requirements for the cities Bam and surrounding villages were met to a great extent following the design and construction of Narmashir CFRD with 111-m height dam.



Gotvand

Project feature: Khuzestan as one of the most fertile plains of Iran requires regulated water to develop farming. MGCE conducted the supplementary studies as well as the feasibility study, detail design and construction supervision of a 182-m high dam of Upper Gotvand.

Result: Using the latest international consultancy standards, our team took up the immense challenge posed by the saline geological formation existing in the dam reservoir, and succeeded to provide the downstream water demands, apart from controlling the floods and generating the highest power capacity among the other hydropower projects of the country.

Bakhtiari

Project Feature: Hydropower plants are of particular importance in Iran as they play an important role for regulating the country's electricity frequency. Since, severe sedimentation is threatening the power plant complex of the Dez dam, Iran Ministry of Energy appointed MGCE to study, design and supervise the construction of a some 284-m high Bakhtiari double curvature concrete dam upstream to act as a new reservoir, power generation source and check dam as one of the effective ways to solve this problem.

Result: This under construction dam and HPP are going to generate hydroelectric power and support a 800 MW power station. By trapping sediment, the dam is also expected to extend the life of the Dez Dam 50 km downstream.



Karun IV

Project Feature: Karun River, the longest river of Iran. Its catchment basin covers a variety of geographic phenomenon and yet the region has inhabitants countering water, job and health security. Karun IV has the highest double curvature concrete dam of Iran with 230-m height. MGCE developed the feasibility and detail design studies and supervised the construction activities of the project aiming at generation of hydropower and controlling the Karun River destructive inundations.

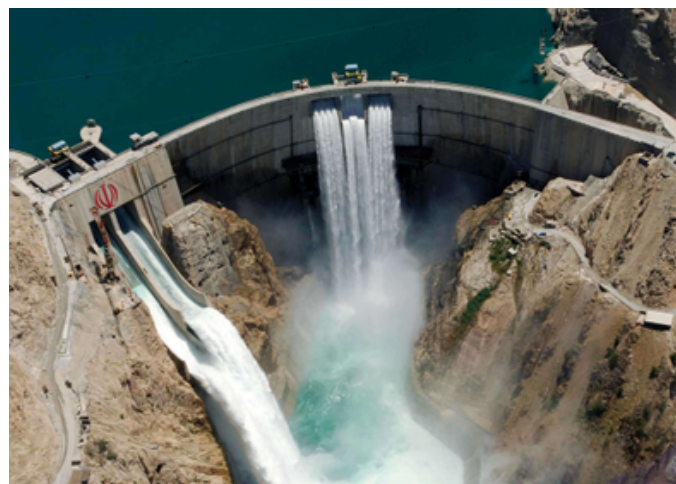
Result: The project led to the generation of 2,107 GWh hydropower per annum and helps to make use of the preservable volume of water for agricultural purposes of the country.



Karun III

Project Feature: A 205-m high double curvature concrete dam of Karun III is constructed across Karun's nation's lifblood. The supplementary studies and detail design studies of the Project were awarded to the JV of MGCE and Acres International to provide clean power and irrigation water for the southeastern arid lands of the country.

Result: The project is now generating 2,000 MW hydropower energy with the capability to expand to 3,000 MW via a huge underground powerhouse complex and supplies 1,100 MCM irrigation and drinking water per year.

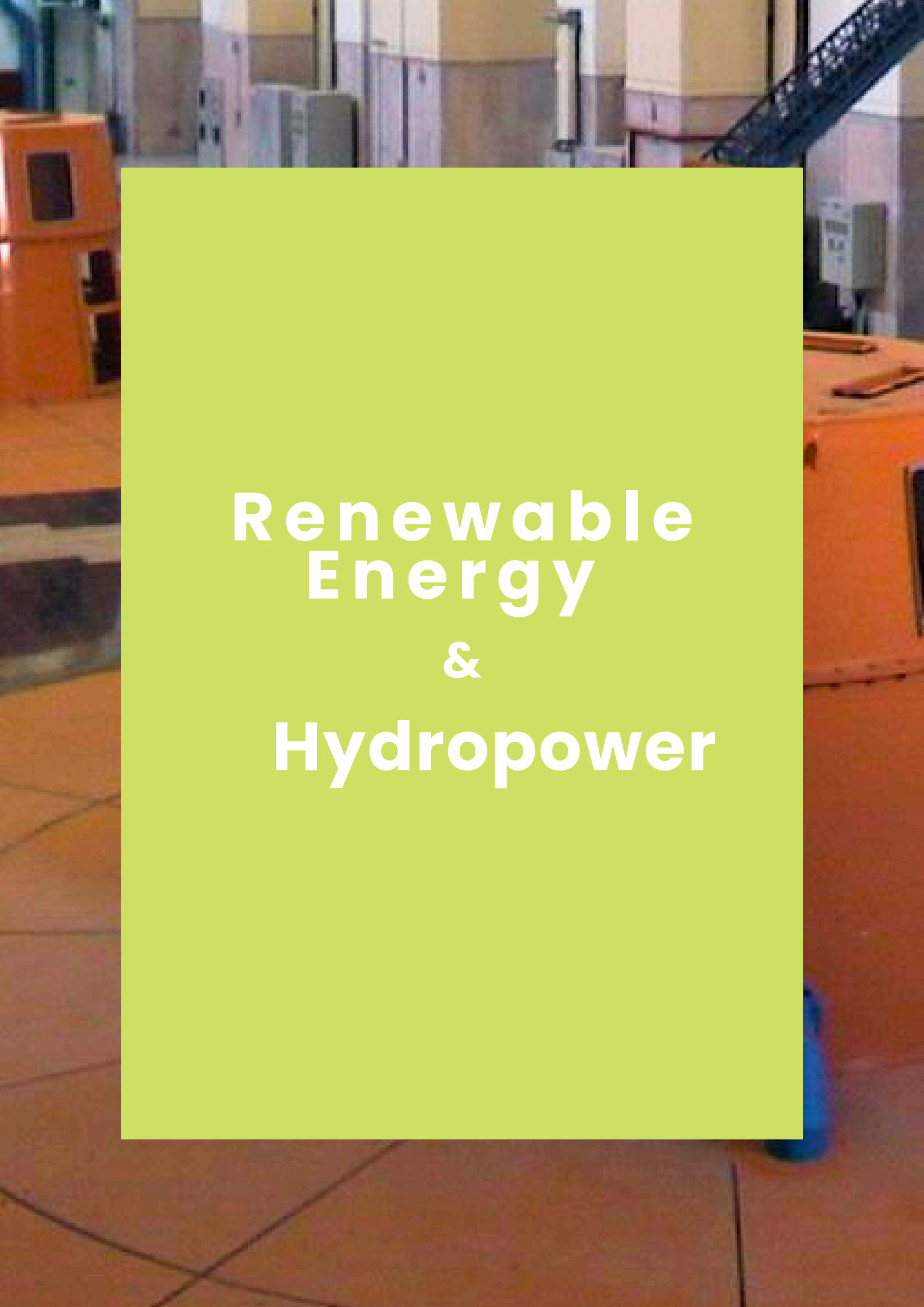


Chamshir

Project Feature: Zohreh river in Central-west region of Iran stems from Zagros mountains. Chamshir as the largest RCC dam of Iran with 149-m high and the Middle East tamed this masterpiece of nature. MGCE rendered the engineering and construction supervision services of the dam whose reservoir breed life to the downstream lands by mitigating the water salinity to a great extent.

Result: The project regulates some 1.8 billion cubic meters of the river water, irrigates 110,000 ha agricultural lands and generates 176 MW hydropower for the local people and the national grid.



The background image shows a control room with several large, light-colored control panels and a staircase on the right. A large, solid green rectangular overlay covers the center of the image, containing the title text in white.

Renewable Energy & Hydropower

In an era where climate change poses significant challenges, the hydropower and Renewable Energy Department of Mahab Ghodss is at the forefront of developing strategies that contribute to meeting energy demands while minimizing environmental impact.

Our team, boasting a 65-year legacy in the hydropower plant industry, is committed to carbon emission reduction through the study, design, and supervision of various hydropower plants including Reservoir, Run-Of-River, and Pump-Storage with installed capacities of up to 2000 MW and a combined total of 17,000 MW. This impressive figure represents approximately half of the total designed capacity in Iran, underscoring MGCE's pivotal role in the nation's pursuit of renewable energy solutions.

MGCE's approach is not merely about meeting today's needs; it is also about anticipating and shaping tomorrow's energy landscape. We ensure that future generations inherit a world where energy is abundant, clean, and in harmony with nature.

Indicators:

The two giants of Iran's renewable energy sector, the Karun III and Gotvand, 2,000 MW each

World's deepest pressure shaft – Uma Oya of Sri Lanka

The largest underground powerhouse cavern in Iran and one of the 10 largest powerhouse caverns in the world- Karun III





Karun III

Project Feature: Deficiency of water and electricity in Iran convinced the government to call for MGCE-Acres Joint Venture to perform the supplementary and detail design studies of the mega hydropower project of Karun III.

Result: With installed capacity of 2,000 MW and extendable to 3,000 MW at peak power generation, the average annual hydropower generated by the project is 4,172 GWh. This plant with its largest generators of Iran has sustained peak power consumption hours during summer in addition to supporting the gridline of the whole country.



Gotvand

Project Feature : Following the notification of the contract of Upper Gotvand project to the JV of MGCE-Coyne et Bellier, MGCE conducted the supplementary studies as well as the construction supervision of Upper Gotvand mega project focusing on generating electricity for Iran's national grid.

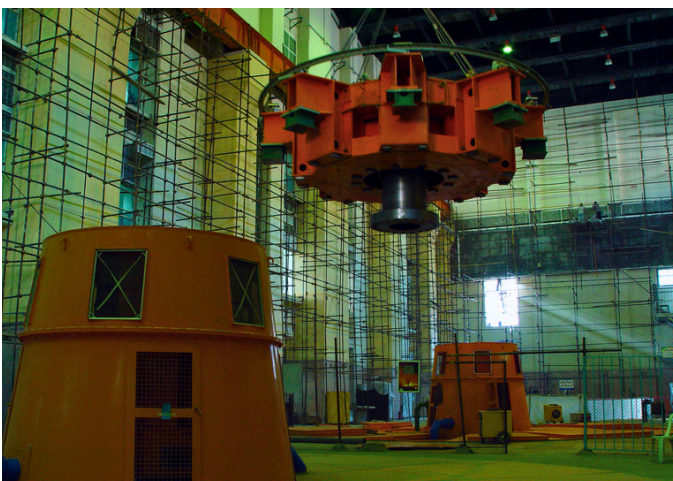
Result: With peak power generation at an installed capacity of 1,000 MW extendable to 1,600 MW, the average annual power generated by the project is 4,250 GWh. This has resulted in the development of the hydropower generation for peak power consumption hours through its huge overground powerhouse complex.



Karun IV

Project Feature : Karun as one of most highlighted rivers of Iran is a great potential for clean energy. In contrast it can have major impact on the downstream region at the flood season the Karun IV Dam was designed and supervised by MGCE to develop generating electricity for Iran's national grid during the peak power consumption hours.

Result: With peak power generation at an installed capacity of 1,000 MW, the average annual hydropower generated by the project is 2,107 GWh. This project has led to the generation of clean hydropower energy for the country through four 250-MW powerhouse units.



Karkheh

Project Feature : The Karkheh with its lake which is the widest in Iran is a critical infrastructure project that provides substantial hydroelectric power energy and irrigation while also presenting environmental challenges that need to be managed. Its role in supporting local agriculture and energy supply highlights its importance in Iran's development strategy.

Result: MGCE could develop more than 500 MW hydropower capacity in this complex which generates 934 GWh of hydroelectric energy per annum. The hydropower is a remarkable master piece in engineering and the dam It Controls destructive floods, and reduces the hydraulic gradient as well.



The background of the slide is a photograph of an industrial setting. On the left, there is a large, vertical, cylindrical metal structure, possibly a part of a power plant or a tunnel boring machine. The surface is metallic and shows some signs of wear and discoloration. To the right, there is a yellow cart or piece of equipment on wheels. The overall scene is brightly lit, suggesting an indoor industrial environment.

Underground Powerhouses & Tunnels

- Water Conveyance Tunnel
- Caverns
- Shafts

In an age where infrastructure resilience is paramount, the Geotechnical group at Mahab Ghodss stands as a vanguard in addressing the engineering challenges posed by the Earth's materials. Our team leverages principles from soil mechanics, rock mechanics, and geology to tackle complex projects involving caverns, shafts, and underground structures.

Our group studied approximately 150 kilometers of water conveyance tunnels, ensuring efficient transport. Beyond construction, we employ various excavation techniques, including drill & blast (D&B), the innovative New Austrian Tunneling Method (NATM), and the efficiency of mechanized tunneling (TBM).

MGCE's innovative approach harnesses the Earth's bedrock to create a resilient and sustainable urban environment, enhancing the quality of life while preserving green spaces above ground

Indicators

Uncharted Depths Defined the World's New Standard in Hydropower, World's deepest pressure shaft – 628 m- Uma Oya of Sri Lanka

Iran's Hidden Giant, the largest underground powerhouse cavern in Iran and one of the 10 largest in the world- Karun III

Karst Excellence, ICOLD Bronze Recipients, Safeguarding Springs for Future Generations- Navigating Water vertically 120 Meters Under Natural Pressure– Bel spring of Iran

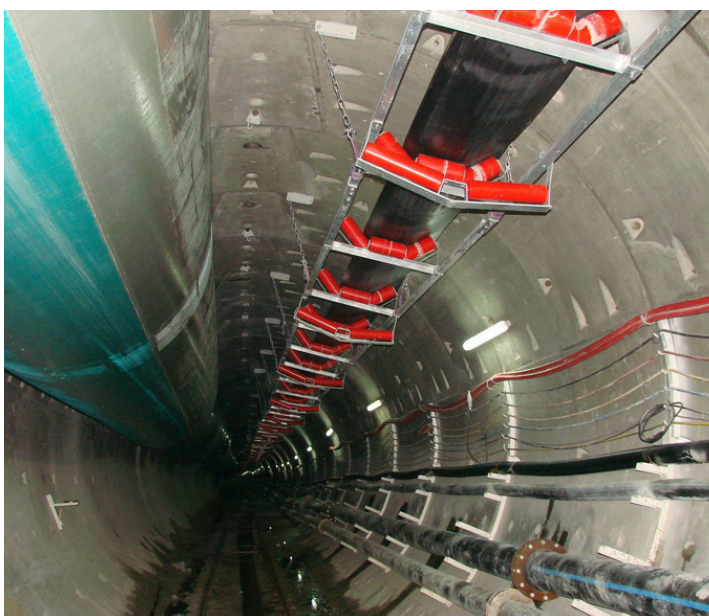




Uma Oya

Project Feature: Water is more than just an important resource to Sri-Lanka and its people, it makes up an integral part of the national identity. 90 percent of this 22 million populated country is covered by river basins. Uma Oya Multi-Purpose Development Project aimed to supply potable water, hydro electricity and irrigation systems.

Result: MGCE's role led to 230 GWh/y electricity generation, a 15.2 km long headrace tunnel, a 618 m deep power shaft and to transfer potable water for 837,000 people. It was this project which helped 100% electricity accessibility in the country.



Garmsiri

Project Feature: With a long-term mean annual rainfall of 141 mm, Iran is classified as one of arid and semi-arid regions of the world. Focusing on managing the western water resources of the country, the project Owner called on MGCE to design and supervise the construction of a set of diversion dams and 9 water conveyance tunnels with total length of 49.5 Km along Garmsiri water conveyance system.

Result: Based on long-term supply of drinking, industrial and agricultural water in the region, the project develops economy, social sustainability and political and security conditions allowing for the environmental issues.



Dez – Qomrud

Project Feature: The city of Qom, a religious center of Iran near the capital, was facing a growing problem of clean and safe drinking water shortage, since the sources of water supply were not sufficient to meet the demand of the city drinking water. So, MGCE was commissioned by the Government of Iran to study, design and supervise the construction of an about 35 km long inter-basin water conveyance tunnel from Dez to Qomrud.

Results: The project brought about improving the quality of life by permanently supplying safe drinking water to the city of Qom and the neighboring villages and to improve the environmental conditions.



Uma Oya

Roads & Metro

- Freeway
- Access Roads
- Relocation Roads
- Metro Lines

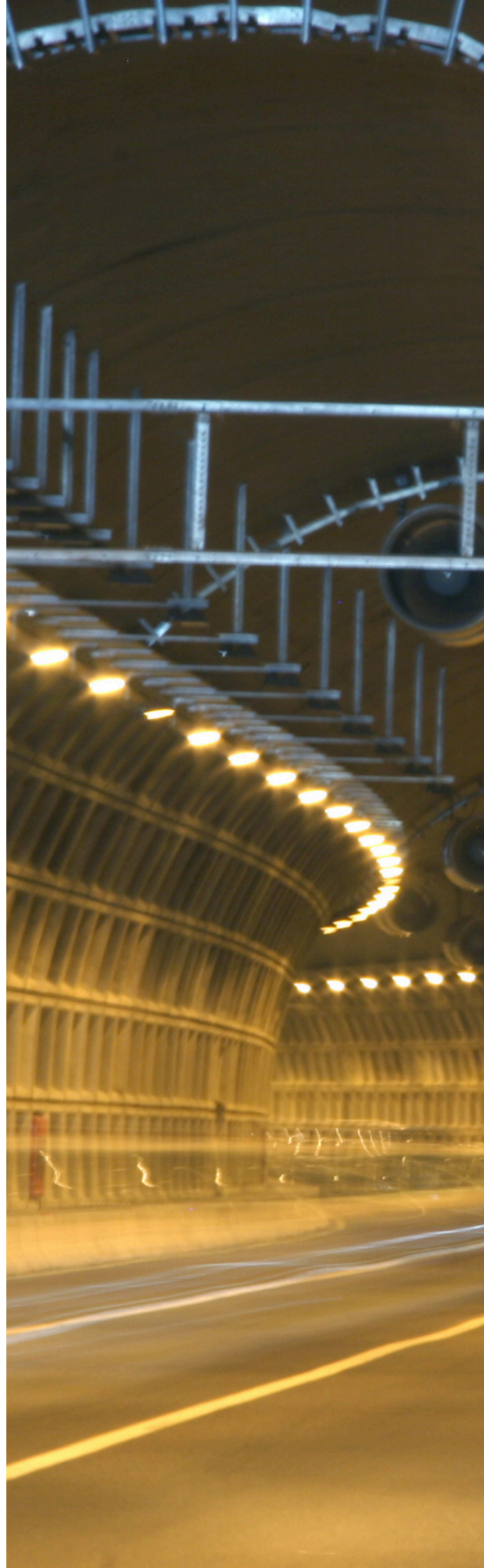
The Mahab Transportation Department understands that robust transportation networks are the lifeblood of economic growth. Through meticulous planning, maintenance, and development, Our team of experts ensures seamless connectivity across cities, towns, and rural areas. Whether it is enabling trade, supporting tourism, or facilitating daily commutes, Mahab's efforts enhance the quality of life for millions.

Our Transportation Department has left an indelible mark on the region's mobility landscape. The extensive network of freeways (over 400 kilometers), access roads (spanning 2,770 kilometers), and relocation roads (covering 339 kilometers) seamlessly connects urban centers, rural areas, and major highways. Additionally, our commitment to sustainable urban mobility is evident through the construction of 70 kilometers of metro lines, effectively reducing congestion and emission.

Mahab's eco-friendly approach enhances transportation efficiency and plays a vital role in safeguarding our planet for future generations.

Indicators

Paving the way for economic Transformation- Nagpur-Mumbai expressway of India





Line7 Metro-Tehran

Project Feature: Tehran as the capital is the scene of many travels especially in the morning. The urban Line 7 Metro with 24 stations is the deepest line of Tehran Metro. It passes both residential and metropolitan area. The engineering services contract of this 27 km long line was awarded to MGCE to perform the feasibility studies, detail design and construction supervision of this project.

Result: This Metro line with over 50,000 passengers per day is considered as one of the busiest lines of Tehran Metro Complex.



Line 2 Metro-Karaj

Project Feature: Karaj is the largest and most populated city neighboring Tehran which suffers from heavy traffic loads. The development project of Line 2 of Karaj Subway including 24 stations and a 27-km long subway line got off the ground, having notified the feasibility studies, detail design and construction supervision contract of the project to MGCE by the project owner.

Result: This subway line with over 35,000 passengers per day is considered as the second busiest lines of Karaj Subway Complex.



Haram to Haram Freeway

Project Feature: Mashhad as the religious capital of Iran is one the most popular destination of travels. Some regions on the way has significantly damaged roads. Haram Ta Haram with a length of 980 km is considered as the longest and most important high-traffic under construction freeway of Iran. This makes access to Mashhad safe and easy. The engineering services of some lots of this project including 4 junctions, 70 underpass, 6 bridges and 920 waterways was commissioned to MGCE to perform the feasibility studies, detail design and construction supervision of this project.

Result: This project maintains the transportation sector through connecting 4 main provinces of the country.



Resalat tunnel

Project Feature: To alleviate the urban rush hour traffic in the Resalat highway of Tehran, the government contracted MGCE to study, design and supervise the construction of a 2-km long tunnel in the heart of metropolitan area of Tehran.

Result: Connection of Resalat to Hakim highway by this tunnel has mitigated the traffic congestion of the two other parallel highways to a great extent.



Metro Tehran-Line7

A close-up photograph of a black sprinkler head with a blue cap, spraying water in several directions onto a lush green lawn. The water droplets are captured in motion, creating a blurred effect. The background is a soft-focus green field under bright, natural light.

Irrigation Drainage & Agriculture

- Irrigation and Drainage
- Water Conveyance
- River Engineering
- Flood Protection
- Agriculture Studies

In the face of our arid climate and the urgent impact of global warming, Mahab Ghodss Consulting Engineers (MGCE) recognizes the critical need for effective water management. Our commitment to community well-being drives us to tackle this pressing issue head-on. To achieve this, we've assembled a dedicated team of experts within our irrigation and drainage department. These professionals have successfully designed nearly 10 million acres of irrigation and drainage schemes across 400 projects, offering a diverse range of services.

We consider topography, soil type, and water availability to create efficient irrigation and drainage systems. But our commitment doesn't end there. We also provide expert supervision during construction, ensuring that irrigation and drainage networks, canals, and diversion dams are implemented to the highest standards.

Mahab strategic initiatives are designed to not only expand irrigable territories but also to empower communities, bolster agricultural productivity, and ensure a stable food supply. We recognize that effective water management is a cornerstone in the fight against hunger and poverty. Therefore, we are committed to implementing sustainable irrigation solutions that contribute to a resilient agricultural sector, capable of supporting the nation's food requirements while uplifting the socio-economic status of farmers.

Indicators

The Green Revolution- Azadegan Plain of Iran- 150,000 ha irrigation scheme

The holistic ecosystem-based Management of water bodies & lands in border regions- Alborz of Iran- 50,000 ha

The Rebirth of the Land- Reclamation Initiative Breathes Life into 60,000 Hectares- Master plan for Izeh Baghmalek of Iran





Alborz

Project Feature: Mazandaran, northern district of Iran is a vital producer and exporter of citrus fruits and rice. In light of its outdated irrigation system circumstances, production and efficiency is effected harmfully.

Result: The World Bank and the local community trusted MGCE's experts to perform an integrated social and water resource study to rehabilitate this 110,000 acres scheme.



Abadan & Khorramshahr Island

Project Feature: The Arvand River is crucial for Khuzestan district in southwestern border of Iran due to its strategic and economic importance, facilitating international shipping and supporting regional agriculture and fisheries. Salt water of Persian Gulf subjects the fresh water of this river to harm and moreover puts the life of the regional inhabitants to risk.

Result: MGCE professionals and its European partners serve the community by building three saltwater barriers on the river and conveying the potable and irrigation water. For the sake of this effort now 272,000 acres of irrigation scheme and its farmers have access to fresh water.



Garmsiri

Project Feature: Iran Government seek Food, job and economical security in the western border. Farming Potential was seen in Kermanshah and Ilam province so a mega project was defined in this region.

Result: MGCE's studies and design led to a 400 Km water conveyance line for the 35,200 acres irrigation scheme. The supply of potable water and improvement in farming has covered the government goals and inhabitants security.



Qizil Ouzan River

Project Feature: Qizil Ouzan is a wide and strategic river in northwestern regions of Iran. it's 48,600 km² catchment basin is the home to some exquisite natural landscapes and populated areas which made it a national capital. Human Encroachments on river bed and flood subject the morphology of this important river to damage.

Result: MGCE's expertise and experience came in handy for modeling the hydraulics of this river and its basin. 309 km of this river was studied thoroughly so a strategic plan was compiled for flood protection and water management of the area.

Kan River

Project Feature: The Kan River is the main river of the capital, but encroachments into its corridors have posed significant threats to the region. This situation jeopardized the livelihood and safety of the local inhabitants, prompting the involvement of MGCE.

Result: Our experts conducted comprehensive studies to develop a hydraulic model of the river. The next steps involved organizing and protecting the riverbanks as well as stabilizing the riverbed. These efforts successfully stabilized the river and improved its morphology.



Einkhosh and Fakkeh

Project Feature: Einkhosh and fakkeh plains in western border regions of Iran have economically vulnerable community. The circumstance is in despite of its rich soil and access to fresh water. The potential exploited and MGCE stepped in.

Result: ISDB and government jointly trusted MGCE's abilities to design and supervision the execution of water conveying system and irrigation scheme. 323 MCM water is directed from Karkheh dam to this 35,000 acres irrigation area. The modern irrigation system positively improved the efficiency of farming and quality of life in the region.



Boilapoosh and Khatour

Project Feature: Khatour River is one the important water resources which flows for 200 Km in northwest of Iran and joins the Urmiah river. The inhabitants depend mainly on farming for their day to day livelihood and they use ground water and river's fresh water both. This caused environmental impacts effects on the Urmiah Lake.

Result: MGCE stepped in to design and supervise the implementation of Boilapush diversion dam and its irrigation system to serve a 6,500 acres area and its farmers. The developed conveying system prevents lowering the groundwater level and improves the farming efficiency in the area.



Northern Plains of Karun

Project Feature: Karon river and its catchment basin is the most important water resources of Iran in central and southwestern regions. Government had strategic profiles for the region considering its rich soil and abundant water resource.

Result: MGCE as one the most reliable partners of government put its experts to work so it could achieve an integrated water management scheme for the resilient and sustainable development. Comprehensive studies were taken place for water conveyance system, Irrigation development, Argo-tourism potentials, fisheries, industries and socio-economic aspects. The plains were as broad as 1,829 million acres.





Water & Wastewater Networks and Transmission line

- Water Supply
- Water Treatment Plant
- Water Distribution Network
- Wastewater and Surface
- Water Collection and Treatment

Water is more than just a crucial commodity; It supports life and it should be cherished. MGCE believes that its experience and legacy of expertise shall be immersed in the matter of water circulation and re-circulation. That is why a department of professionals is focused on water and wastewater management. We have managed to achieve records of 7,500 km of water transmission lines and distribution networks for pipes up to 2,400 mm wide across 50 cities, the establishment of 40 water treatment plants, the laying of 22,000 km of sewerage lines serving 24.5 million people, and the construction of 25 wastewater treatment plants. Our efforts have also extended to surface water collection, covering 371,000 acres with an extensive network of 19,000 km of canals and pipelines.

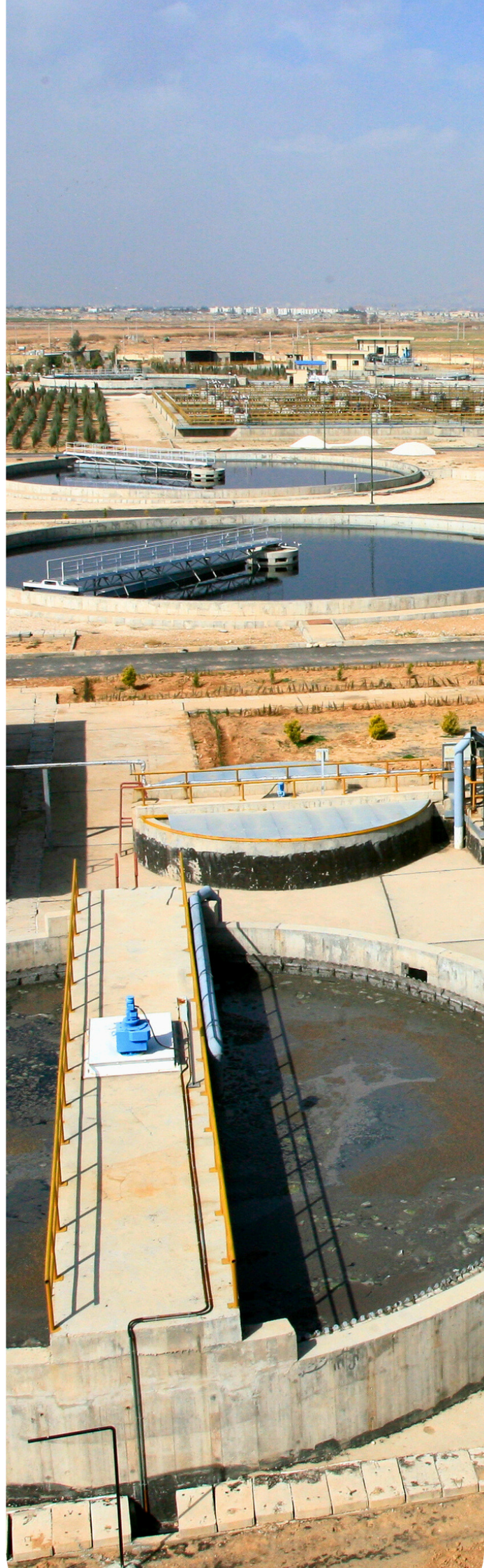
Our department's range of services is all-encompassing, beginning with reconnaissance and extending through pre-feasibility and feasibility studies, culminating in detailed design and construction supervision. Our expertise is applied across a diverse array of projects that include not only water supply systems and water treatment plants but also comprehensive water distribution networks. Furthermore, we adeptly handle wastewater collection and treatment plants, alongside surface water collection systems.

At MGCE, our approach to water supply and wastewater management is rooted in a profound respect for community needs and environmental sustainability.

Indicators

The Lifeline of Prosperity; 762 KM Water Transmission Line Fueling Economic Growth Across Persian Gulf Provinces- Moharam of Iran. The Foundation of Hygiene, Elevating Health Standards for 11.5 million inhabitants, Sewerage Network and Wastewater Treatment project in the Capital of Iran.

The Currents of Change, 578 KM KM Water Transmission Line, a Lifeline for Urban and Rural Dwellers - Ghadir of Iran.





Ghadir Project

Project Feature: Khuzestan is a strategic province of Iran from petroleum, transition and agricultural aspects. This district has harsh weather in some areas and its people were countering water security issues. It was incumbent of MGCE to act as an engineering body and to serve this community.

Result: Through 600 km of 2400 mm pipes potable water was transferred to 4.7 million people which strongly addressed the quality of life and health in the region.



Moharam Project

Project Feature: Southern and southwestern provinces of Iran always are subjected to water security as a menace. They have petroleum, transition and agricultural importance for government and their people shall be a priority.

Result: MGCE was trusted by the government to take a role in easing a part of this menace. Our experts could manage to design and supervise the execution of what is called “the longest water transmission project of country”. It took overseeing 900 km of pipelines up to 1800 mm in diameter to cover 5 metropolis, 11 cities, 36 towns, 47 suburbs and 1200 villages. The project significantly improved local health, social, and economic conditions by supplying water to 2.3 million people.



Tehran Wastewater Management

Project Feature: Tehran as the capital of Iran was facing a population growth and degeneration in its waste water collection and treatment system. The exigency of 18 million inhabitants demanded for a mega project to rehabilitate, develop and improve this system in the whole city.

Result: MGCE committed to this society for 25 years, through 20 contracts which led to master planning, designing, and construction supervision of 9,000 kilometers of sewerage and 6 new plants.



Shiraz Wastewater Management

Project Feature: Shiraz, a key cultural and tourist city in Iran, it is home to a lot of Iranian historic artifacts and destination of an abundant of tourists. Its population is growing too. That is why its sewer network needed to be expanded and new wastewater treatment plants to be built.

Result: A project was funded by the World Bank, and MGCE was trusted as the designer and supervisor, ensuring minimal impact on historical and cultural sites. the sewer network expanded by 3500 kilometers and 4 new treatment plants constructed, resulting in water resource preservation and improvement in public health.



**Ghadir Water Supply
Project**

A surveying instrument, likely a total station or theodolite, is mounted on a red and yellow tripod. The instrument is white and black, with a yellow warning label that reads "Laser Beam from this instrument is Class II Laser". The background shows a rocky, hilly landscape with sparse green vegetation under a clear blue sky.

Geomatics

- Topographic Mapping
- Cadastral
- Land surveying
- Geospatial Information System (GIS)
- Remote Sensing Services
- Photogrammetry, Aerial Mapping by UAV

In the realm of engineering, technology has been a game-changer, particularly in surveying. Mastery of cutting-edge technologies empowers engineers to leverage them for project benefits. A meticulous survey underpins risk management, comprehensive alternative analysis, value management, and assures quality assurance. Geographic Information Systems (GIS) and remote sensing stand out among these technologies for their widespread application. At MGCE, we have not only mastered these technologies but also strived for their advancement. Our esteemed professionals in the Department of Geomatics bolster all our projects with their expertise, having produced maps for over 7 million hectares serving various need.

The Department of Geomatics boasts on-field specialists offering a spectrum of services including Topographic Surveying, Cadastral and Geodetic Surveying, GIS & Remote Sensing, Hydrographic and Bathymetric Survey, Photogrammetry Services, and Aerial Mapping using UAVs. Our proficiency ensures that every project is undertaken with utmost precision and attention to detail.

Our state-of-the-art facilities and deep-seated expertise lay the groundwork for success across all project types that require an understanding of terrestrial dynamics. With MGCE's Geomatics Department at the helm, projects are assured a robust start, informed by precise knowledge of ground fluctuations.





Garmsiri

Project Feature: Western border-landers are vulnerable in economical, water security and job security aspects. Especially while it is a post-conflict area, still exposed to damages of war. This district asks for particular focus of government.

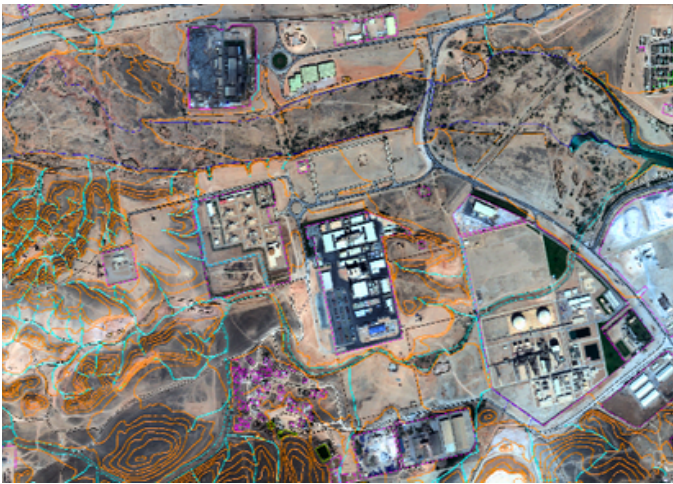
Result: MGCE's geomatics experts could collide experience and technology to execute topographic and cadastral mapping for an area of 582000 acres with 1:2000 precision. Further steps in progress of project could only benefit from this achievement.



Karun IV

Project Feature: Karun IV is one of the highest dams in Iran with 230 m height. It is a multipurpose dam which affects livelihood of so many people by hydro-electricity, potable water and irrigation system. Monitoring the displacements of this infrastructure has a high priority in risk management parameters of the dam.

Result: Dam site has a harsh geography and not accessible. A 3-Dimensional geodetic observation process using new methods of calculations have been used to conduct a thorough geodetic survey on dam displacement.



Salaleh Oman

Project Feature: Salaleh is the most strategic port in Dhofar state of Oman. As important as it is, the monsoon rains and floods subjected the port and the region inhabitants to damage. MGCE was up to constructing flood protection dams in the area but neither aerial images nor maps were available.

Result: MGCE relied on its Geomatics department to generate 1:5000 topographical maps using high resolution stereo satellite images of the 74000 acres region. This had the main affect on assessing the catchment area and choosing the dam sites.



Jegin, Shamil and Niyan dams

Project Feature: Dams are exposed to sediments especially in southern regions of Iran due to its extreme weather. It has profoundly negative effect on water management systems as the dam reservoir hydrology and morphology may change undetected.

Result: MGCE experts managed to generate hydrographic maps from the bed of reservoir by HD max Hi target echo sounder. The data was highly beneficial for water resource management later.



Salaleh- oman



Integrated Studies for Water Resources, Environment, Economy & Society

- Water Resource Management
- Basic Studies (groundwater
Meteorology, Climatology
Hydrology, Sedimentation)
- Environmental
- Social and Economic Studies

All of MGCE's endeavors in conquering water's might through Predominant Dams, Vast water supply systems, Water and wastewater treatment plants, and Agriculture and irrigation schemes won't meet their main purpose unless an integrated study is applied for water resources, environment, economy, and society. We are committed to serving our community, protecting the environment, and guaranteeing a sustainable future. This is why a distinguished department of experts supports all MGCE's projects from start to end, ensuring conformity with sustainable development and ecosystem preservation

The integration of four disciplines within one department is the cornerstone of developing strategic planning, master planning, and the application of the IWRM approach. Our range of services includes basic studies such as hydrology, meteorology, and groundwater assessment, complemented by watershed management that involves stakeholder engagements and resettlement action plans. Our economic studies are comprehensive, providing bankable reports that underpin the financial viability of our projects.

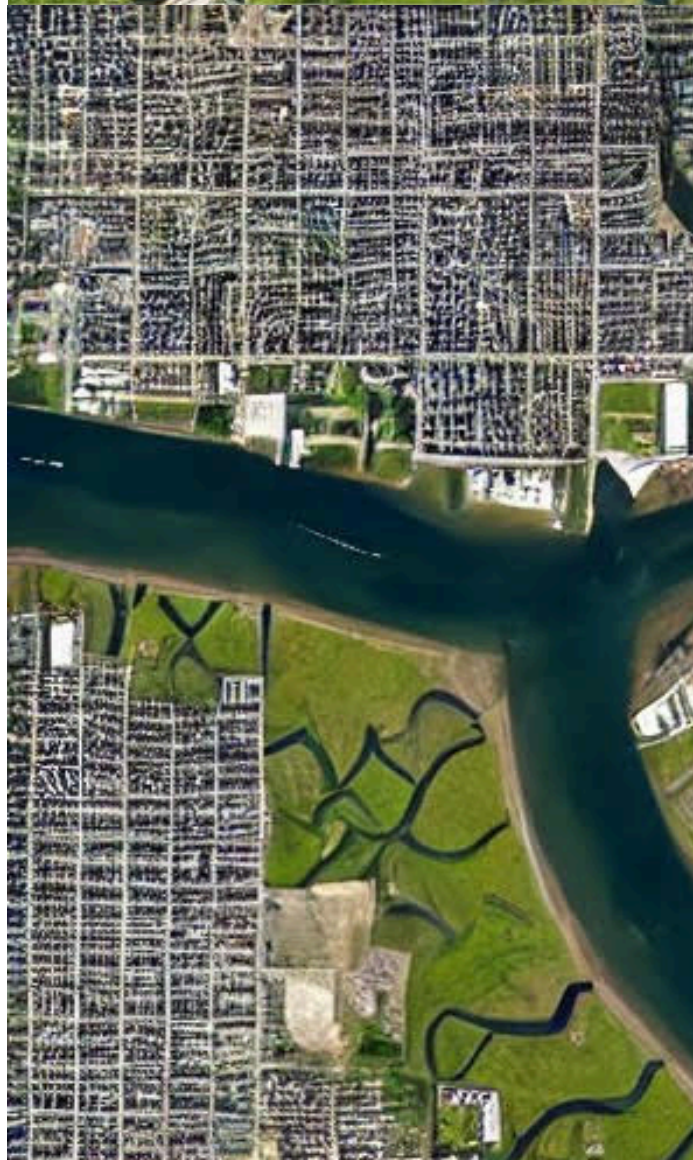
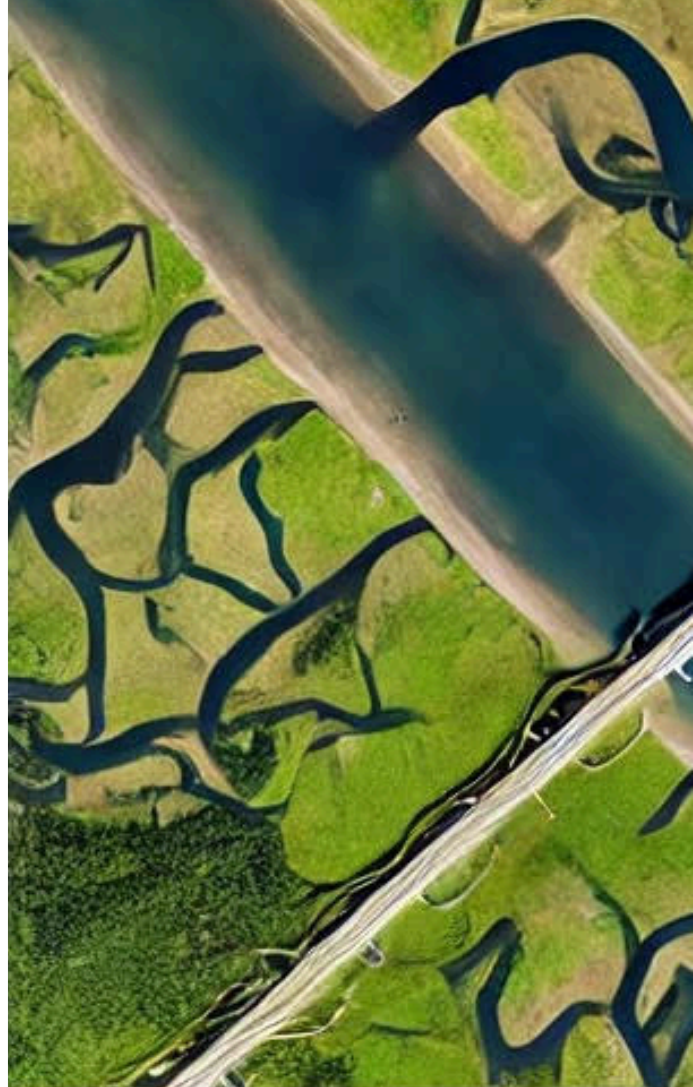
The IWRM department ensures effective solutions for sustainable development through a combination of all relevant disciplines. We meticulously assess project impacts on social communities, prioritize the most economical solutions, and adhere to the greenest and most environmentally-friendly practices. Our holistic approach guarantees that every project we undertake not only meets current needs but also preserves resources for future generations.

Indicators

The Foundation of Sustainable Progress, Master Planning Harmonizes Resource Allocation and Stakeholder Interests- Caspian Sea and Urmia Lake Regions of Iran

The Green Convergence, Uniting Local Knowledge and Adaptive Practices for Sustainable Farming in South India

The Reservoirs of Tomorrow: Securing Aquifers through Strategic Recharge- Karian Plain of Iran



Karkheh-River

Project Feature: Karkheh river basin in the south-west region of Iran embraces 6 provinces in an area of 12.6 million acres. Many sources of contaminants prone human and wild life to harm and diseases.

Result: It took concerned experts of MGCE, 85 water stations and 13 sediment stations to exploit the origins of pollution. Preventive and reductive practices were prioritized and executed to assure safety of water for human, agriculture and aqua life.

Gamsiri

Project Feature: Gamsiri basin in the west nourishes an area of 5 million acres with clean water for drinking and irrigation. Many lives and micro-economy bodies are under its influence and optimization of usage was crucial.

Result: A thorough survey was done by MGCE so a complex model could be generated, manifesting all usage and supply of water in Surface and underground levels. A 400 Km transmission line and 18 reservoir dams were deemed feasible and implemented in order to make sustainable water management and modern irrigation possible for the livelihood of the region.

Caspian Sea and Urmia Lake

Project Feature: Urmia lake and its catchment basin is the Achilles heel of sustainability in a vast region of Iran in north and north-west.

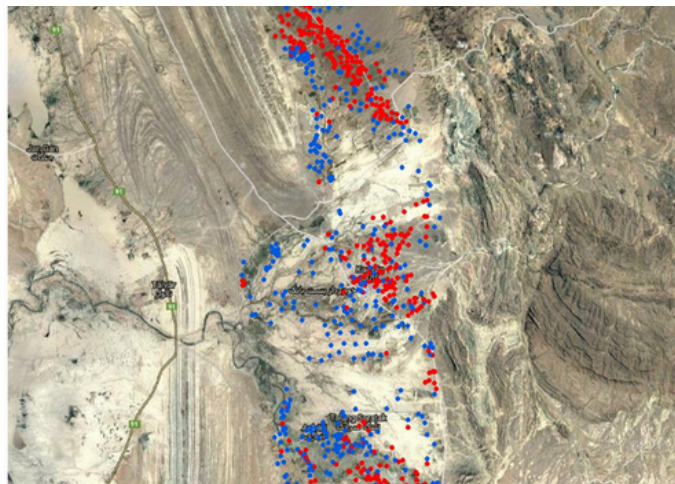
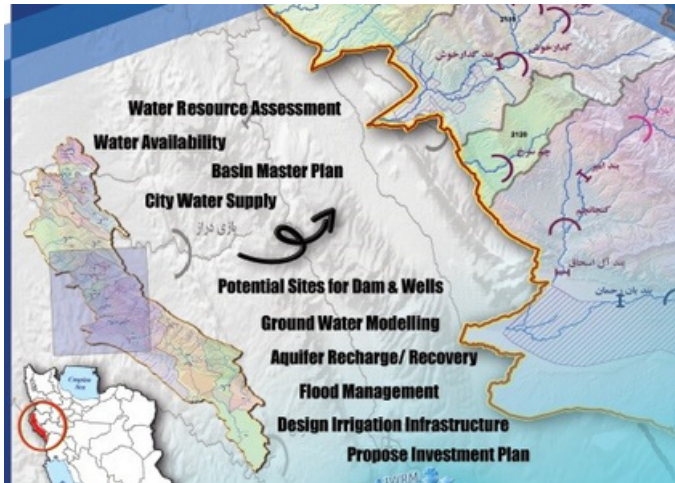
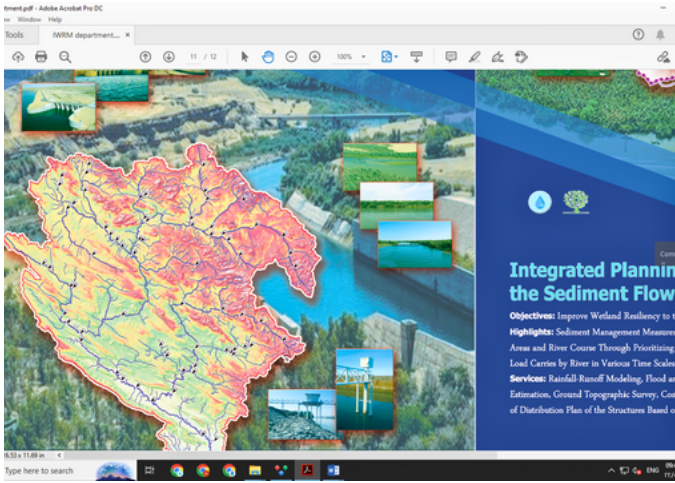
Result:MGCE managed the impossible by conducting a comprehensive hydrological, meteorological socioeconomic, environmental and water management survey in an area of 54.4 million acres within 14 provinces.

This led to a complex and dynamic decision making system for governing body. This one of a kind DSS forecasts the agricultural, potable and industrial water for legislator.

Karian

Project Feature: Karian plains in southern provinces of Iran and its alluvial aquifer were facing serious decrease of 10 m in ground water levels. The menace could be stemming from the upstream dams.

Result: Complementary studies and groundwater modeling was executed by MGCE for artificial recharge systems to save the wetland and its inhabitants.





Garmsiri

A map of Central Asia is shown in the background, with a large green rectangular overlay in the center. The text 'Overseas Business' is written in white, bold, sans-serif font on the green background. The map shows various cities and regions in Central Asia, including Ashgabat, Bishkek, Dushanbe, and others, with labels in Cyrillic script. The green overlay is positioned over the central part of the map, partially obscuring some of the geographical details.

Overseas Business

Mahab Ghodss Consulting Firm (MGCE) has successfully executed exceptional projects across 15+ countries worldwide. As we expand our global network, our unwavering commitment remains: providing clients with high-quality services that transcend borders.

MGCE's global reach and experience, combined with our marketing team's expertise, allow us to blend technical know-how with a deep understanding of the countries and communities where we operate





Sri Lanka- Moragahakanda

FS DD CS

Project Feature: The Master Plan by UNDP/FAO emphasized developing Sri Lanka's northern dry zone. As the Owner's Engineer, MGCE handled the study, design, and supervision of the Moragahakanda Dam to provide drinking and irrigation water and generate hydropower for the 81,422 ha area.

Result: The completed reservoir supplies 520,000 m³ of water annually and generates around 40 MW of electricity for downstream areas.



Sri Lanka- Kalu Ganga

FS DD CS

Project Feature: Kalu Ganga lies within the Mahaweli River's catchment, Sri Lanka's longest river. Since the region's inhabitants rely on farming, MGCE was entrusted with supporting their irrigation scheme.

Result: Through MGCE's design and supervision, a 68 m high gravity dam and two saddle dams were constructed to contain the reservoir and meet the water needs of 3,000 resettled families.



Nepal-Bheri Babai

FS DD CS

Project Feature: The Bheri Babai Diversion Multipurpose Project, Nepal's first inter-basin water transfer initiative, was designed to provide year-round irrigation to 51,000 hectares. MGCE handled the study, design, and supervision of the project headworks.

Result: Now completed, the project supports rural development, providing irrigation and benefiting over 30,000 households in southern Nepal.



India-Bajoli Holi

FS DD CS

Project Feature: The Bajoli Holi project, the most upstream hydroelectric plant on the Ravi River in Himachal Pradesh, India, aimed to harness the river's energy potential. MGCE, in JV with Geodata, provided design review, engineering, and construction supervision despite seasonal delays due to snowfall.

Result: The completed project now delivers 180 MW of hydroelectric power to the Indian national grid, tapping the potential of one of Himachal Pradesh's largest rivers.

Oman-Salalah Flood Protection

FS DD CS

Project Feature: Salalah, the primary port of Dhofar in southern Oman, required protection against severe flooding caused by tropical cyclones. MGCE, in collaboration with a local partner, provided consultancy services that included feasibility studies, detailed designs for five dams, and construction supervision for two of the dams, which range in height from 20 meters to 70 meters.

Result: The project significantly enhances flood protection for industries and communities located downstream of Wadis Adawnib and Annar



Germany-Stuttgart

FS DD CS

Project Feature: MGCE contributed to studies for the Stuttgart Subway and urban development project, part of the Stuttgart–Augsburg rail upgrade and the Main Line for Europe (Paris–Vienna).

Result: The project focuses on a renewed Stuttgart Hauptbahnhof, with 57 km of new railways, including 30 km of tunnels and 25 km of high-speed lines.



Germany-Hirschhagen

FS DD CS

Project Feature : The Hirschhagen Tunnel, a 4.2 km twin-tube tunnel on the A44 in Hesse, Germany, is now the longest motorway tunnel in the state and the second longest in the country. MGCE contributed to its study and design.

Result: The completed tunnel improves connectivity and can handle around 37,800 vehicles daily, enhancing traffic flow and reducing congestion.



Equatorial Guinea-Djibloho

FS DD CS

Project Feature: Following a ten-fold rise in energy consumption in Equatorial Guinea (2000–2013), the government commissioned MGCE to conduct feasibility studies for the Djibloho gravity dam to meet the nation's electricity needs.

Result: The completed project powers a 120-megawatt station, providing electricity and regulated irrigation water to local communities.





Ilesha - Nigeria

FS CS DF

Project Feature: Ilesha, a commercial and agricultural hub in southwest Nigeria, is projected to reach 700,000 inhabitants by 2032. MGCE was tasked with securing their potable water supply.

Result: MGCE designed and supervised the construction of 700 l/s transmission lines, a water treatment plant, two pump stations, and three main reservoirs, ensuring long-term access to the Kajola River for Ilesha's growing population.



Rushikulya River- India

FS CS DF

Project Feature: The Rushikulya River basin in southern Odisha, India, spans 2 million acres, where population growth and climate change disrupted water allocation, creating tensions among residents.

Result: MGCE introduced an integrated water management framework for stakeholders, balancing economic, environmental, and social factors to promote sustainable agricultural development.



Sri Lanka - Uma Oya

FS CS DD

Project Feature: Water plays a vital role in Sri Lanka's national identity, with 90% of the country covered by river basins. The Uma Oya Multi-Purpose Development Project was designed to provide potable water, hydroelectric power, and irrigation.

Result: MGCE's involvement enabled the generation of 230 GWh/year, the construction of a 15.2 km headrace tunnel and a 618 m power shaft, and potable water supply for 837,000 people. This project also contributed to achieving 100% electricity access across the country.



Tajikistan-Sangtude

FS DD CS

Project Feature: Vakhsh with its 20 billion m³ annual discharge is considered the largest river of Tajikistan. MGCE was called to participate in Sang Tudeh II Dam to obtain hydroelectric energy from this vast river.

Result: Every step from geological survey to construction supervision were conducted in association with the EPC contractor to achieve 994 GWh clean energy annually, for Tajik people in winter and to be exported in summer.

Oman - Bani Khalid

FS DD CS

Project Feature: Wadi Bani Khalid faces aging pipelines, frequent wadi-crossing breaks, limited pumping capacity, and dependence on tanker stations. After detailed inspections, NAMA Water Services assigned the MGCE in collaboration with local partner, designing and supervising the construction to deliver a modern, fully integrated and upgraded water distribution system.

Result: The project delivers new pipelines, upgraded pump stations, improved networks, and new reservoirs, along with protective solutions for vulnerable wadi areas. These upgrades enhance supply reliability, reduce risks, and support sustainable growth in residential and tourist zones.



Qatar - Al-Wakrah

FS DD CS

Project Feature: The old airport area in Al-Wakrah, Qatar, faced water supply challenges due to outdated infrastructure and growing demand.

Result: MGCE designed and supervised a 36,000 m³ reservoir, 2,300 m³ water tower, upgraded pumping stations, and pipelines, ensuring reliable supply, improved water quality, and operational efficiency.



Tajikistan-Ayni

FS DD CS

Project Feature: Tajikistan relies on hydropower for 98% of its electricity. MGCE conducted feasibility studies for the Ayni Dam on the Zarafshon River at the request of Tajikistan's energy authorities.

Result: The completed run-of-the-river project now supplies additional hydropower to the national grid, significantly supporting Tajikistan's electricity needs.





Azerbaijan-Khoda Afarin

FS DD CS

Project Feature: The Aras River, a vital water border between Iran and Azerbaijan, holds significant geopolitical importance for both nations. To harness its resources sustainably, both governments entrusted MGCE with the study, design, and construction supervision of the Khoda Afarin Embankment Dam and HEPP.

Result: The project now irrigates 75,000 hectares and generates 200 MW of power, benefiting communities across both Iran and Azerbaijan.



Sri Lanka-Wee Oya

FS DD CS

Project Feature: Sri Lanka entrusted MGCE with the Climate Resilience Improvement Project for Wee Oya to design solutions addressing flood and drought risks in vulnerable river basins.

Result: The project will protect downstream areas from flooding and ensure a reliable drinking water supply for the local community.



Qatar-Al Gharafa

FS DD CS

Project Feature: Al Gharafa, a commercial hub in western Doha, and Al Wakrah, a trading and fishing center in southern Doha, faced an urgent need for a reliable potable water supply due to Qatar's arid climate.

Result: MGCE completed the project with a 65 km main pipeline, 2,360 manholes, tower tanks, and filling stations, covering a 2,000-acre distribution network. The system now provides potable water for 650,000 residents, meeting demand through 2024.



Sri Lanka-St. Sebastian

FS DD CS

Project Feature: Colombo, Sri Lanka, faced severe flooding due to intense rainfall, reduced storage, debris blockages, and limited outflow capacity.

Result: MGCE and DHWA completed the project, managing design review, contracts, and supervision. A new pumping station at St. Sebastian North Canal with a 30 m³/s capacity now improves flood management and drainage.

Zimbabwe-Osborne

FS DD CS

Project Feature: In Mainland Province, Zimbabwe, many consumers turned to costly and harmful energy sources like fossil fuels and firewood. MGCE was commissioned to conduct detailed design studies for a mini-hydro plant utilizing renewable water from a nearby dam.

Result: The project resulted in the construction of a mini-hydropower complex, providing Eco-friendly energy to local consumers.



Oman- Izki

FS DD CS

Project Feature: Floodwater in Wilayats Samail and Izki is lost to the sea or desert, prompting the Sultanate of Oman to commission MGCE for a feasibility study and detailed design of recharge dams to address ongoing water shortages.

Result: The project will capture floodwater, mitigate groundwater deficits caused by over-extraction for agriculture, and ensure water availability to support future economic growth.



Oman-Liwa

FS CS DF

Project Feature: Liwa and Shinas willayats in Al Batinah North Governorate, Oman, face significant water supply challenges. Only 40% of Liwa and 54% of Shinas are covered by existing networks, leaving about 100,000 residents in urgent need of extended services.

Result: In 12 months, MGCE will study and design to ensure a continuous water supply, improving both the quantity and quality of services for the willayats' residents.



Sudan-Atbara and Ad-Damir

FS DD CS

Project Feature: Atbara and Ad-Damir, two major Sudanese cities along the Nile, faced challenges with their water supply infrastructure, struggling to meet rising demand and maintain quality.

Result : In a two-year contract, MGCE assessed the water system and supervised construction, leading to improved access and reliability for over 200,000 residents, enhancing their health and living conditions.





Why Mahab Ghodss

”

1. A Concrete Marvel Reaches for the Sky

The world's highest double curvature concrete arch dam- Bakhtiary of Iran 325 m



”

2. A delve into uncharted territories within the Earth

The World's Deepest Pressure Shaft Unveiled- Uma Oya of Sri Lanka- 628 m

We are not just engineers; we are true pioneers in infrastructure development. But, do not just take our word for it—let us demonstrate.

Join us as we delve into our innovative design and groundbreaking projects that push the boundaries of engineering excellence.



”””

3. A Green Milestone in Ecosystem Preservation

Karst Mastery safeguarded Bell Spring inside of Darin Dam in Iran Navigating water 120 m vertically- Bronze recipient award for Innovation (ICOLD)

What Our Clients And

Building on our outstanding projects that demonstrate our commitment to engineering excellence, we now highlight the voices of those who have experienced the Mahab difference firsthand.

Project Director of Ogun State Water Corporation:

“We appreciate all your contribution and efforts rendered so far in "Ilesa Water Supply and Sanitation Project", indeed you are great. Your expertise and pragmatic actions speak on daily basis which will continue to linger in the memory of coming generation”.

Here’s what our esteemed clients have to say about our partnership:



Project director of Ministry of Irrigation Sri Lanka:

“Mr. DC S. Elakanda expressed his satisfaction with MGCE’s performance in Sri Lanka, particularly on the Uma Oya project. He emphasized the need for continued collaboration on water projects and praised the quality of MGCE’s completed work.”

Stakeholders Says About Us

Considering the praise from our clients and the meaningful projects we've completed, let's hear from the local stakeholders whose communities have been positively impacted by our work.

Their words express the tangible benefits and positive changes achieved through our commitment to sustainable development and social responsibility.

Common Stakeholder of "Garmsiri" portfolio:

"Now we can make the best use of our resources to support our families. Our lives will never be the same."

Rural father of five:

"The jobs we were given for this dam project helped put food on our table"



Common stakeholder of "Karun III" portfolio:

A local in Ahwaz city: "We have experienced lights-out much less after the Karun power plants' set-up"

SOLU

Understanding the uniqueness
of each client's needs

Limitless diversity in expertise

Overcoming each challenge
head-on

Sustainable development for the
future of community

What Mahab Ghodss

TION

Non-stop dedication to the
professionalism and ethics

Optimize the alternatives to
achieve the best results

Integration of experience and
innovation

Teamwork at its finest through
the culture of collaboration

Delivers to you



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Consulting Engineering

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