

Insert Project Name : Development of Al qudra lakes to protect biodiversity and wild habitat

Insert Project Location – Town/City, Country ; Al Qudra , Dubai , UAE

Insert names of Client(s)/Organisation(s) ; Dubai municipality

## **BIG Biodiversity Challenge Award Category: International Biodiversity Project Award**

### **Project overview (50 words max)**

Al Qudra Lake is a man-made reservoir that spans over 10 kilometers and has over 54 lakes , is surrounded by sprawling desert dunes, and is home to a variety of flora and fauna. The creation of Al Qudra Lake involved the excavation of several small to medium-sized interconnected lakes. These lakes are strategically positioned to mimic the appearance of a naturally occurring oasis. The water used to fill these lakes are supplied from desalinated water and treated sewage effluent further contributing to Dubai's commitment to sustainability.

Date completed :  
On Going



*Moon lake*



*Expo 2020  
lakes*



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## Project entry form

**What were the biodiversity conditions on site prior to the enhancement? (100 words max)**

Refer to:

- Baseline data
- Objectives from planning permission
- Work over and above requirements from planning permission
- Policy drivers – strategic and/or local

Al Qudra is the first unfenced nature conservation reserve in UAE. It is located in the desert area of Saih Al Salam in Dubai and comprises some 10% of total land area of the emirate. The saruq al Hadid archaeological site is situated within the reserve. Excavations revealed an extensive iron age metallurgical centre, with signs of occupation since the upper palaeolithic and neolithic eras. Artefacts unearthed at saruq al Hadid include bronze, copper and iron work, including bronze and iron tools and weapons, gold jewellery, beads, pottery, stoneware and seals. The desert houses the following range of species;

- Trees such as ghaf, samur and arabian gul trees
- Trees are used for roosting and breeding by species such as the desert eagle owl
- Desert shrubs such as the native haloxylon salicornicum (locally known as rimth), and small trees such as the haloxylon persicum (locally known as ghada)
- Breeding birds such as the greater hoopoe lark, black crowned Finch, Lark crested lark and southern grey shrike, cream colored cursor.
- A wide variety of animals including sand cat, houbara, barbery falcon, rupells fox, sand gazelle, arabian oryx, arabian sand gecko, egyptian spiny tailed lizard (Dhub), Desert monitor, arabian horned viper and the yellow spotted agama.

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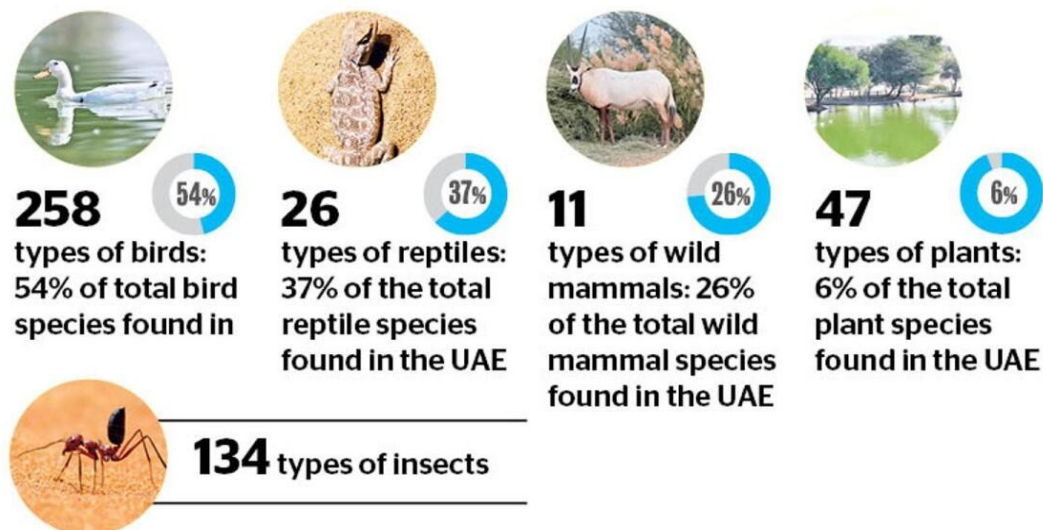
## What were the reasons behind this project? (100 words max)

- Response to BIG Biodiversity Challenge
  - BREEAM
  - Biodiversity Net Gain/offsetting
  - Mitigation
  - Discharging planning conditions
  - Corporate social responsibility
  - Organisational KPIs
  - Environmental, Social and Governance (ESG)
- 
- The primary purpose behind its creation was to create a sustainable environment for wildlife and to enhance the natural beauty of the surrounding desert landscape. Over the years, it has become a haven for a variety of bird species, including flamingos, swans, and various waterfowl. Birdwatchers and nature enthusiasts flock to the lake to witness these winged visitors in their natural habitat. Additionally, Al Qudra Lake serves as a recreational area for the public, allowing visitors to connect with nature, go biking on the surrounding tracks, or simply enjoy a peaceful day by the water.
  - The lakes of Al qudra supports large number of flora and fauna. The biotic components mainly includes the phytoplankton, zooplankton, hydrophytes, periphyton, macro-invertebrates, fishes both endemic and exotic, birds which includes local and migratory birds, thus picturing a rich biodiversity. It is noteworthy to mention that these natural wealth from these lakes are intimately linked with the livelihood of the local inhabitants of this region The Al Qudra Lakes are home to over 200 species of birds and other wildlife. Though that it is a man-made “environment”, animals find shelter here, and birds establish their lairs. Such animals as black swans, geese, grebes, ducks, flamingos, MacQueen’s bustard, steppe eagles, cormorants, herons, Common Kestrel, desert foxes, oryxes and gazelles can be found here.

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In addition, Al Qudra marks a place for the enjoyment of nature and captivating scenery. The lakes are home to mountain gazelles (*Gazella gazella*), sand gazelles (*Gazella leptoceros*) and Arabian oryx (*Oryx leucoryx*) amongst other mammals. In respect to birdwatching, there have been sightings for example of kestrels (*Falco tinnunculus*), red-wattled lapwings (*Vanellus indicus*) and grey herons (*Ardea cinerea*) as well as a large number of other bird species

The periphery of the lakes is covered with several indigenous and exotic trees planted by the Dubai Municipality. Among them are ghaf *prosopis cineraria*, acacia *ehrenberghiana* acacia *farnesiana*, acacia *a arabica*, ziziphus *spinachristi*, ziziphus *jujuba*, albizzia *lebbek*, pithecellobium *dulcis*, parkinsonia *aculeata* to name a few. A drip irrigation system waters the plants around all the 54 lakes . The al qudra lakes houses the following animals and plants :



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## What were the biodiversity measures taken? (300 words max)

Please consider the following:

- Is the project replicable?
- Has long term management been considered (>5 years)?
- Is it innovative? If so, how?
- Have new areas of habitat been created?
- How ecologically valuable is the habitat created?
- Will the measures result in biodiversity net gain?
- What contribution did this initiative make towards the local Biodiversity Action Plans?
- Have you engaged with workers and staff in the implementation of biodiversity measures?
- Have you engaged with the local community?
- Did you reuse waste materials?
- Did staff and workers volunteer additional time?

Sustainability is a vital element in the civic body's long term strategic plan and it commits civic body to integrate sustainability into its daily operations by routinely considering following principles in decisions and actions, as appropriate:

- Conserve, protect, restore, and improve the supply and quality of natural resources and environmental media (energy, water, materials, ecosystems/biodiversity, land, and air) over the long term
- Align and integrate programs, tools, incentives, and indicators to achieve as many positive outcomes as possible in environmental, economic, and social systems; and,
- Consider the full life cycles of multiple natural resources, processes, and pollutants in order to prevent pollution, reduce waste, and create a sustainable future.



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•A committee is formed under leadership of Director – Department of sewage and recycled water networks which includes professionals from various internal / external stakeholders like waste management, environment, drainage projects , sewerage treatment plant , horticulture , contracts and purchasing , public health and safety and NGO's. They evaluate various issues/kpi's related to risks , operations/maintenance and environment , health and safety , energy /water usage ,employees satisfaction, employee volunteerism, Gender , productivity, community awareness programs, csr programs , efficiency and cost of lake management quarterly . A balanced scorecard system is being used to align the business activities/ programs /policies to the vision and strategy of the organization and to improve internal and external communications and monitor organization performance against strategic goals.

•The creation of this innovative and artificial inland lake indeed lead to development of new ecosystem. The availability of water is attracting various forms of aquatic life, including fish, birds, and plants. Over time, a diverse range of organisms has been established , creating a unique ecological community. In contrast to the urban heat island effect caused by human activities in densely populated areas, the presence of a substantial body of water within the desert has a transformative impact on the environment by creating a micro-climate.. These lakes play crucial role in fostering a unique ecosystem and contribute to overall biodiversity of region. They act as natural reservoirs, attracting a diverse range of flora and fauna. The presence of water creates a cooling effect, mitigating the intensity of the surrounding heat and offering a refreshing oasis amidst the arid landscape. Over 200 indigenous birds and wild habitats in the surroundings of Al Qudra Desert are present . The al qudra lakes have become a gathering place for families, friends, and nature enthusiasts, fostering a sense of belonging and enhancing social cohesion. Al Qudra lakes has positively impacted the environment and, provided recreational opportunities, promoted environmental education, and strengthened community bonds . About 1.7 million tourist visitors visited al qudra lakes in year 2023 .



Love lakes



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### Further information (250 words max)

In your response, please consider the following:

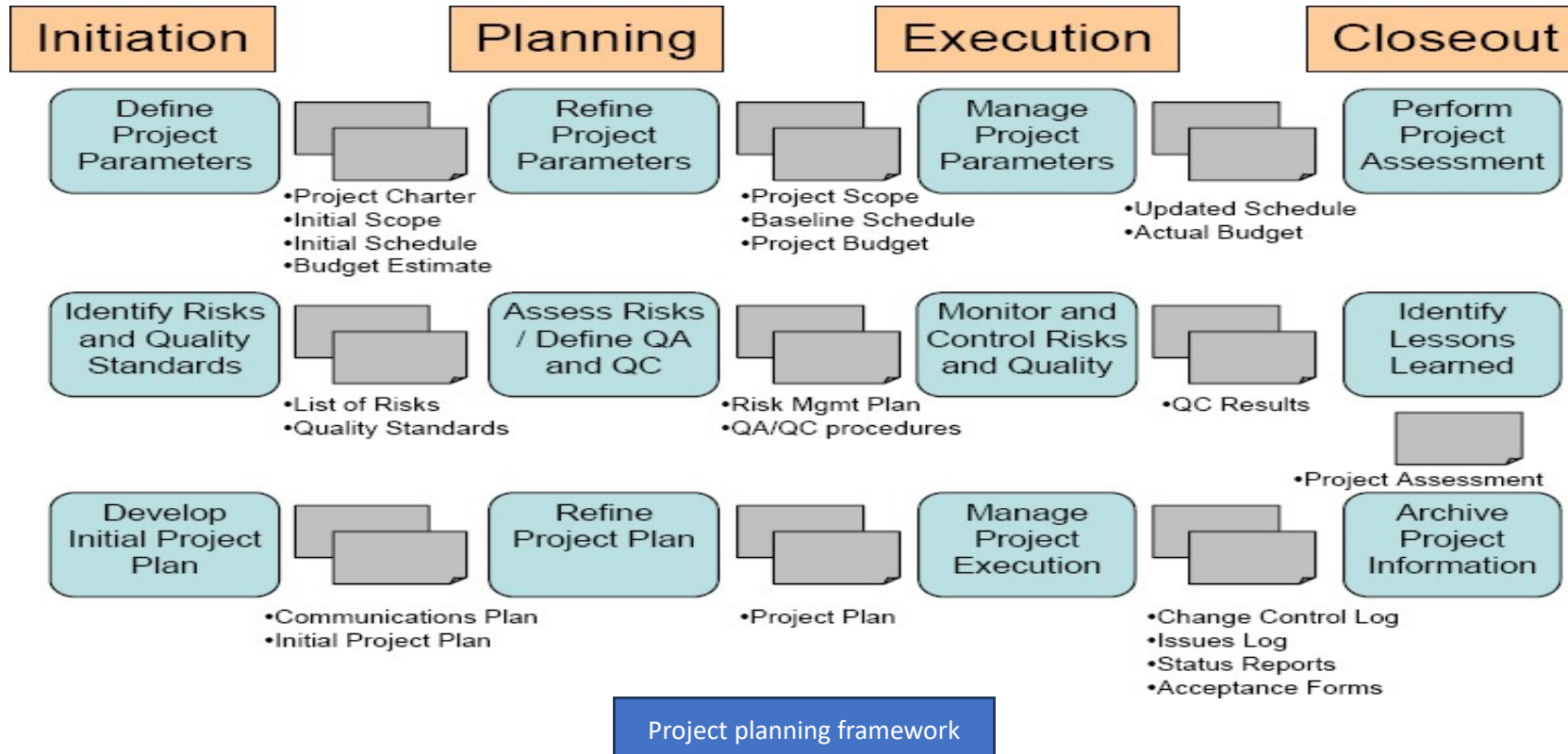
- Installation – how was it installed (step by step overview)?
- Monitoring both baseline and post installation – what processes are there in place if any?
- What is the legacy?
- Has there been a noted increase in biodiversity? Have objectives been met?
- Lessons learnt – would you do anything differently, tips for similar schemes?
- How did the project team benefit from taking the BIG Biodiversity Challenge?

The Al qudra lakes project is developed by the city's project management frame work by adopting the following:

- The development of comprehensive project plans with clarity in the responsibilities of various stakeholders
- The identification and adequate involvement of key stakeholders
- The use of standardized project documentation and procedures
- Appropriate reporting of project milestones to highlight the progress ,variations of the projects

Adopting the above frame work , The terms of reference(tor)/tender documents are floated on line( tejari system) and the scope of the work included the design , engineering , supply , construction ,commissioning handing over , operation and maintenance of the project . The terms of reference describes the concept, work , standards that are required, delivery schedule, terms and conditions of the contract , references required and the pricing document . The proposals are evaluated by the contracts and purchasing department as per the established evaluation criteria in coordination with the project manager as per the international standards. The proposals are evaluated against a number of important factors, including a financial and capability appraisal, system and procedures appraisal and so on in order to determine the most economically advantageous bid. The project is managed by the director of sewage and recycled water network department by using in house expertise. The following figure illustrates the project planning framework adopted by the department ;

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Flamingo lakes





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A project manager is nominated for the project and he is responsible for the following

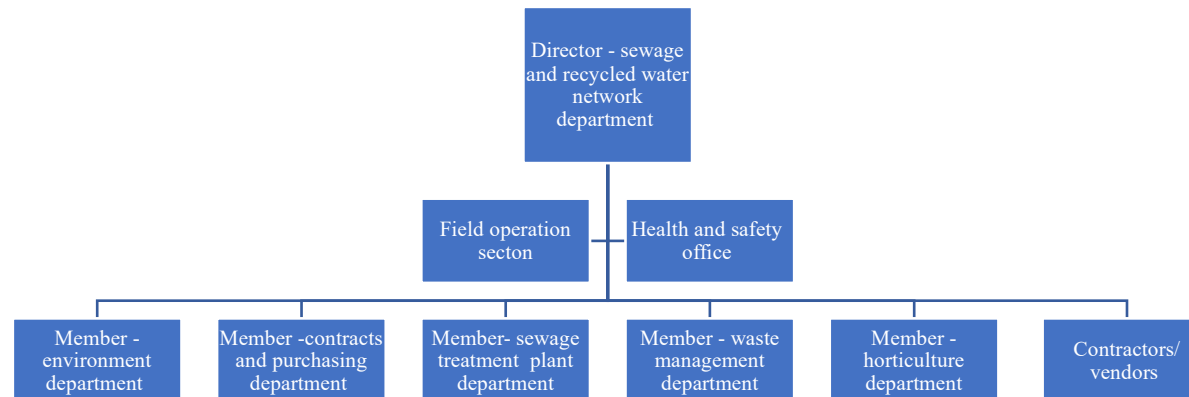
- Specifying project objectives and plans including delineation of scope, budgeting, scheduling, setting performance requirements, and selecting project participants.
- Building the project requirements, and managing the constraints of the project management triangle, which are *cost*, *time*, scope, and quality.
- Maximizing resource efficiency through management of human resources, materials and equipment as required.
- Implementing various operations through proper coordination and control of planning, design, estimating, contracting , construction, operation and maintenance in the entire process.
- Developing effective communications and mechanisms for resolving conflicts between the applicant and the successful bidder
- Coordination with other government departments/authorities like Environment , health and safety department , waste management department , contracting and purchasing department and horticulture department
- Development and implementation of procedures for quality management as per the international standards specified in ISO 9001: 2015
- Development and implementation of procedures for environment , health and safety management by adopting sustainable development approach in the project development areas.
- Development and measurement of various key performance indicators of various business processes related to the project management.

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## Project Team

- Client(s)/funder(s)
- Other design team members
- Volunteer organisations

The project committee is headed by the Director – Department of sewage and recycled water networks and the committee is composed of senior level officials from various departments and sections/units of the Dubai municipality and decides the work plan which focus on the lake management like funding and budgeting , water-based recreation, shorelines & habitat, water quality and quantity monitoring, organization governance , public outreach and education. In fact the funding to offset costs associated with developing or updating a lake management plan, to implement lake protection and restoration projects that reduce soil erosion from urban runoff or improve wildlife habitat within a lake, to projects that demonstrate innovation and emphasize community engagement are obtained from the government of dubai . The structure of the project committee is given below :



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## What was the motivation for carrying out the enhancement? (100 words max)

Either from an organisational, individual or group point of view – ie why did you do this one thing for biodiversity that goes over and above anything that was asked of you or your organisation?

Al Qudra Lake is a man-made lake created in the heart of the desert, providing a stark contrast to the surrounding arid landscape. It serves as an oasis in the desert, attracting a variety of wildlife and offering a serene and picturesque setting for visitors. Despite its artificial origins, the lake has become a thriving ecosystem that supports a diverse range of flora and fauna. It has attracted numerous bird species, including migratory birds, making it a popular spot for birdwatching and wildlife enthusiasts. Moreover, The lake has also become a popular destination for outdoor activities such as cycling, picnicking, hiking, and birdwatching making it a recreational hub for residents and tourists alike. The development of Al Qudra Lake has also led to conservation efforts in the area, aimed at preserving the natural habitat and promoting biodiversity.

The lake serves as a testament to the sustainable development in arid regions. Overall, Al Qudra Lake stands out as a unique and special destination in the desert, offering a blend of natural beauty, biodiversity, and recreational opportunities for visitors to enjoy.