



Paradise City Pvt (Ltd)



**ENVIRONMENTAL IMPACT ASSESMENT OF PARADISE CITY
PROJECT, MOUZA BADHANA AND NAUGAZI, ISLAMABAD**

Final Report

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Project Procurement International (PPI)

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Executive Summary

Title of the Project

This report presents the findings of “Environmental Impact Assessment of Paradise City Project, Mouza Badhana and Naugazi, Zone-II, Islamabad.

Location of the Project

Paradise City is located at Mouza Badhana and Naugazi, Zone-II, Islamabad and is accessible from Fatehjang Road.

Name of Proponent and Organization Preparing the Report

M/s Paradise City (Pvt.) Ltd. is the proponent of the project.

In order to comply with the regulatory requirement of federal environmental laws of the government of Pakistan, M/s Paradise City (Pvt.) Ltd., the proponent of the project, has acquired the services of M/s Project Procurement International, an Environmental and Management Consultancy Firm, to conduct an Environmental Impact Assessment (EIA) of the project.

Policy, Legal and Administrative Framework

The Project has been reviewed against the environmental legislation applicable in Pakistan. However, the laws, regulations, and guidelines particular for the proposed project include:

- Pakistan Environmental Protection Act, 1997
- Pakistan Environmental Protection (Review of IEE and EIA) Regulations, 2000
- National Environmental Quality Standards (NEQS), 2000

M/s Paradise City (Pvt.) Ltd, being the proponent of the project, will ensure that the design, construction and operational phases of the project will be in accordance with the recommendations made in the EIA report, and the Environmental Management Plan will be implemented.

The Environmental Management Plan will be made a part of the agreement to be signed between M/s Paradise City (Pvt.) Ltd and the contractor for the construction of the proposed project.

Need for the Project

Paradise City Project will provide a healthy living environment for the upper-, middle- and lower-class groups so that they can live in a comfortable environment with the most state-of-the-art facilities.

According to the World Bank’s Report (2009), Pakistan is facing a severe housing shortage. The housing shortfall in Pakistan (2014) is 10 million units, and it is expected to double in the coming decade (including depletion of some of the existing housing stock).

With the passage of time, the existing capacity of residential units in the twin cities of Rawalpindi and Islamabad has been saturated up to their optimum level due to the rapid increase in population.

The aim of the project is to provide affordable housing facility to high, middle and low-income groups. Paradise City, synonymous with its name, strives to set new qualitative standards in the housing sector of Pakistan by building environment-friendly



infrastructure/public facilities conforming to international planning standards. The company has allocated a sector for Low-income plots for the Prime Minister's Low-Income Housing Program.

The project will address the housing problems directly, and its linkage with the construction industry will rotate the economy of Pakistan. Additionally, the project will reduce the pressure on already overcrowded housing in Pakistan, particularly in Rawalpindi & Islamabad.

Outline of the Project

M/s Paradise City (Pvt.) Ltd intends to develop a modern housing society in Mouza Badhana and Naugazi, Zone-II, Islamabad. The proposed project will be built on a piece of land having an area of 1900 Kanal.

The total area allocated for Paradise City is 2,453 Kanal. However, in Phase-I, a total of 1,900 Kanal area will be developed.

The Paradise City Project will comprise 1,470 residential plots of various sizes, residential apartments, and 17 commercial plots, which will be developed in eight blocks, namely Block A, B, C, D, E, F, G and H.

The development works of Paradise City Project includes provision of roads, culverts, water supply network, sanitary sewerage network, stormwater drainage works, sewerage treatment plant, electrification network, natural gas distribution network, laying of telephone lines, street lights, overhead and underground water tanks, construction of tube wells etc. Furthermore, Paradise City has reserved areas for the construction of a Graveyard, Theme Park, Hospital and Mosques in the Layout Plan of the project.

The estimated project cost is Rs. 2 billion and will be completed in 3 years.

Environmental Baseline Conditions

In order to assess and evaluate the impacts and related mitigation measures at the project area, existing conditions of the physical, biological and socio-economic environment were studied as under:

Physical Environment

Topography: Islamabad, with a total area of 906 square kilometres, lies between 33°-43' North latitudes and 73°-04' East longitudes. Islamabad is located on the Northern edge of the track known as Potohar Plateau. The Potohar Plateau has an uneven land and is gradually rising in elevation from 500 to 600 meters above sea level, and the highest point is 1,600 meters above mean sea level. The land gradually slopes towards the South. The land is composed either of alluvium (clay or silt) or of gravel caps. A large part of the area is undulating, and at various places, it is badly dissected by gullies and ravines. The Kurang River has been dammed at a place named Rawal to form the Rawal Lake. Another dam has been built on the Soan River to form the Simly Lake.

The Project site is located near Tarnol, which is located about three miles northwest of Islamabad and can be reached by Highway N5. The Project site comprises undulating land with natural vegetation cover.

Geology and Soil: The Potohar region has a complex geological history of mountain formation, alluvial-loessic depositions, and erosion cycles. Limestone is the characteristic rock of the Margalla range. In age, it ranges from the Jurassic to Triassic.



It is usually reddish or bluish-white in colour mixed or alternating with its beds of red or bluish clay or shades or sandstones.

The deposits contain small-sized rounded pebbles of sandstone, quartzite or granite, and sand mixed or alternating with clayey deposits. They have been described as alluvial deposits, but it is equally probable that they have a glacial origin.

The geophysical well logging of a trial bore for water supply at the Paradise City indicated that three types of lithologies composed of a mix of shale, the mix of sandstone and a mix of shale and sandstone in alternate layers in the deep horizon had been encountered. The permeable layers comprise a mixture of sandstone, and the mixture of sandstone and shale at different horizon have a low yield of water.

These permeable layers also meet the limited yielding aquifer in the area. A large part of the area is undulating and at various places dissected by gullies and ravines. In general, the area studied by the resistivity survey has indicated low/weak characteristics of formations in the deep horizons and meet the low/limited yielding aquifer in the area.

Land Use: The project site comprises undulating land with natural vegetation cover. There is a rainfed nullah passing through the project site from the northeast towards the southwest.

Surface Water: The major surface water source in the project area is a rainfed nullah flowing through the project site from the northeast towards the southwest direction.

Ground Water: The ground water level ranges from 500-600 ft. in the project area. The proponent has carried out a geophysical well-logging of trial bore for water supply at the project site. The trial bore was probed using RES/SP Sonde up to a vertical depth of 600 feet. The results indicate that the groundwater is available up to a depth of 600 feet at the project site.

Climate: The temperature of the capital territory, Islamabad, ranges between -1°C to 46°C . The coldest month is January when the mean maximum temperature is 18.3°C , and the mean minimum is 3.8°C . From February to May, the temperature rises at a rate of 5.0°C per month. The highest temperature reached in May when the mean maximum temperature remains 39.1°C .

The average daily wind speed is 3.78 Km/h, while average relative humidity remains 60.5%. Islamabad receives 114.57 mm of rain on an average monthly basis. The project site is located in a barani area, and rainfall mild's temperature in the region.

Air Quality: There are no major anthropogenic sources of air pollution in the project area. Presently the Project Site is surrounded by residential area and rainfed agricultural lands. Furthermore, there is no industry near the project area. The project area is covered with shrubs, herbs, and trees, along with agricultural crops in the fields. Air quality can be considered good due to the absence of significant pollution sources.

The ambient air quality analysis at the project site was carried out on 16-17 March 2021. The time average concentration of NO_2 , NO, NO_x , SO_2 , CO, O₃, Lead, PM_{2.5}, PM₁₀, and TSP were found to be $10.42\ \mu\text{g}/\text{m}^3$, $6.91\ \mu\text{g}/\text{m}^3$, $17.33\ \mu\text{g}/\text{m}^3$, $10.58\ \mu\text{g}/\text{m}^3$, $0.60\ \text{mg}/\text{m}^3$, $15.39\ \text{mg}/\text{m}^3$, $0.062\ \mu\text{g}/\text{m}^3$, $28.53\ \mu\text{g}/\text{m}^3$, $99.25\ \mu\text{g}/\text{m}^3$, and $162.78\ \mu\text{g}/\text{m}^3$ respectively. The ambient air quality for all the parameters monitored is below the NEQs limits.

Noise and Vibration: There is low to moderate traffic in the project area. A noise monitoring was carried out on 16-17 March for 24 hours, and it was found that the

noise level at the project site was 55.0dBA during daytime and 45.0 dBA during nighttime which was found to be within the limits of NEQs.

Ecological Environment

Flora: The Project area consists of uneven land composed of alluvium (clay/silt) formed of alluvial deposits laid by the past and present river system in varying thickness.

M/s Paradise City (Pvt.) Ltd conducted a topographic survey of the project site, and it was found that there are 267 trees on the project site. Every effort would be carried out to protect trees during the design phase. If tree cutting is unavoidable, then every effort will be made to transplant the tree within Paradise City.

The vegetation is representative of Dry Subtropical Scrub Forest, which is dominated by *Acacia Modesta* (Phulai), *Ziziphus mauritiana* (Ber), etc. Other associates existing in varying proportions include *Melia Azadirachta* (Dharek), *Dalbergia sissoo* (Tahli-Shisham), *Acacia nilotica* (Kiker). In the undergrowth *Cannabis sativa* (Bhang), *Calotropis procera* (Desi Ak) and *Parthenium hysterophorous* (Gandi Booti) are predominant.

Fauna: The project area in its original form constitutes the habitat of wild fauna consisting of a host of animals and birds. Species found in Islamabad include Jackal, Wild hare, Hedgehog, Rat, Wild boar, Porcupine, Shikra, Grey partridge, Black partridge, Quail, House Sparrow, House Crow, Koel, Common myna, Spin tailed lizard, Krait etc.

Socio-Economic and Cultural Environment

Paradise City is located in Zone II, Islamabad. Most of the project area is surrounded by villages, rainfed agricultural fields, and barren lands.

Population: Tarnol has an estimated population of approximately 20,000.

Language: The main languages in the project area are Urdu, English, Punjabi, Pashto, and Saraiki, while few people speak other languages too. The most widely spoken languages are Urdu and Punjabi.

Education: There are many educational institutions for boys and girls present in Tarnol with all basic infrastructure and highly qualified staff. There is a combination of private and public schools in the project area, such as Meesaq Schools Pakistan Tarnol Campus, Wisdom Model School and College Tarnol, Al Suffa Grammar School and Academy etc.

Public Health: Public and private medical facilities are available in the project area. These medical facilities include Kashmir General Hospital, Khyber Hospital, Khan General Hospital, Themina Care Hospital etc. However, the majority of the people prefer to go to PIMS hospital Islamabad.

Drinking-Water Supply: The source of drinking water in the project area is groundwater, as many of the villages and colonies in the vicinity of the project site has installed bore wells to extract drinking water.

Employment: People of various employment background belong to Tarnol; however, the majority of the people in the project area are labour. However, most residents work in the heavy machinery and stone crushing trades and some commute to Islamabad or Rawalpindi.

Housing Patterns: There are many housing societies located in the vicinity of the project site, such as Sector G-16, Sector F-17, Niazi Colony, Bhadana Village, and Nougazi Village.

Religious and Archaeological Sites: There are no religious or archaeological sites located in the vicinity of the project site. However, if any artifact is found, the Pakistan Archaeological department will be notified.

Other Facilities: All other amenities of life like electricity, natural gas, telephone, a police post, post office and bank etc., are present near the Project area.

Public Consultation

During the public & stakeholder consultation, meetings were held with the CDA Environment Department, Emergency and Disaster Directorate, Environment & Social Safeguard Section of IESCO, university academia (NUST), Environmental consultants/practitioners, real estate dealers, and community living around the project site. The project activities that impact the physical, biological and socio-economic environment of the project area were highlighted to them. Stakeholders concerns regarding various aspect, existing environment, and impacts of the project were noted, and mitigation measures are proposed in the EIA report.

Generally, the people of the project area are in favour of the project and stated that the proposed project would provide affordable residential plots to the public as well as create employment opportunities for the local community. As the people living in the vicinity of the project area are mostly labours, carpenters, and welders, the proposed project will provide them employment. The community living in the project area cited there is a drainage issue in the project area, and Paradise City Management should develop a robust drainage system. Similarly, the community urged the relevant authorities to fix these issues in the surrounding areas as well.

Major Impacts and Recommended Mitigation Measures

Physical Environment

Impacts: Soil-related issues include soil erosion, slope stability, and soil contamination. The land excavation and filling, construction activities and maintenance of equipment/vehicles may cause these issues. The quality of soil would be affected, as soil contamination would occur because of the disposal of untreated wastewater or direct disposal of chemical and onsite preparation of materials. Oils, chemical spills, and waste from campsites may also deteriorate the quality of the soil.

Dumping of construction wastes/excavated material in the surrounding area may limit the use of land in the project area. The solid waste may be generated due to different construction activities, and it will mainly include surplus excavated and construction material.

Land-use change is expected during the construction phase, one at the burrow areas and others where the spoil or mucking material will be disposed of.

Construction machinery and project vehicles will release exhaust emissions containing Carbon Monoxide (CO), Oxides of Sulfur (SO_x), Oxides of Nitrogen (NO_x), and Particulate Matter (PM). In addition, various burning activities involved in road construction will also cause air pollution.

These emissions can deteriorate the ambient air quality in the immediate vicinity of the project site. Furthermore, construction activities such as excavation, land levelling,

filling and vehicular movement on unpaved tracks may also cause fugitive dust emissions.

Noise and vibration will be generated by construction machinery and vehicles.

The quality of water may deteriorate in the area. During the deep excavation, the aquifer may be hit, and the quality of water will be depleted. Because of the preparation of construction material on-site, leachate may be produced and percolated through the soil. It may then reach the water table and contaminate the water that may be consumed by the local people.

Paradise City Project is being developed on undulating land, which is lying vacant in an area with a mixed commercial and residential setting in Tarnol. The residential areas in the proximity of the project site are of small size and do not have adequate facilities. There is a need to implement mitigation measures during the construction and operational phase to minimize the potential negative impacts on these areas.

Mitigations: Soil erosion can be minimized by appropriate land clearing, levelling, and grading. Excavated slopes will not be left untreated/unattended for long durations, and appropriate slope stabilization measures will be taken as per the design.

For the domestic sewage from the contractor's camp, a septic tank with a soaking pit will be constructed having adequate capacity. Waste oils will be collected in drums and sold to the recycling contractor.

The recyclable waste from the project site (such as cardboard, drums, broken/used parts, etc.) will be sold to recycling contractors, or where appropriate, to reuse/recycle. The hazardous waste will be kept separate and handled according to the nature of the waste. While storing, hazardous waste will be marked.

Appropriate sewage treatment mechanisms such as septic tanks along with soakage pits of adequate sizes will be incorporated in the design for the treatment of sanitation water where the municipal sewage system is not available or does not exist.

Water quality analysis will be carried out at the project site and at the campsite quarterly during the construction phase.

Ecological Environment

Impacts: The site preparation and construction activities may necessitate the removal of the natural vegetation from the areas where project activities will be carried out, resulting in damage and/or loss of vegetation and clearing of other indigenous and introduced species, as well as undergrowth species, comprising bushes, grass, etc. The construction crew can also indulge in tree/shrub cutting to obtain fuelwood for the camp.

The loss of natural vegetation will potentially have adverse impacts on the faunal resources and habitats of the area. Smoke, chemicals, dust particles, and noise generated by heavy machinery are scary factor for wildlife. Rodents, hedgehogs, porcupines would lose their dwellings. In addition, wildlife may be disturbed by the illumination and presence of the people. The construction of the project will ultimately cause them to leave the area and move to other locations.

Mitigations: Paradise City Project will implement recommended mitigation measures to ensure minimal impact on the aesthetic beauty and vegetation of surrounding areas.

The plantation plan is recommended for the beautification of the project area. It will not only provide an aesthetic view but will also improve the natural vegetation cover and sequester carbon dioxide from the atmosphere.

All preventive measures will be adopted to control the spill-over of chemicals and other effluents on the ground to protect soil fauna and ensure microbial activity in accordance with NEQS.

The measures to restore natural vegetation loss in the area will benefit the area's fauna as well. The project staff will not be allowed to indulge in any hunting or trapping activities. Nighttime construction works will not be undertaken. Illumination levels at the site will be minimized as far as possible.

Appropriate diffusers will be used to restrict the illumination within the project site. Blasting will not be undertaken at the site for excavation purposes. Porcupine population has increased, as it is not palatable because of its quills. Destruction of habitat and consequent check on the population of this pest may prove to be a boon to maintain ecological balance.

Socio-Economic Environment

Impacts: The project is located in a mixed residential area which may pose some safety hazards to the local population situated near the project area during the construction phase of the project.

Construction workers may be susceptible to eye and respiratory diseases due to their routine exposure to dust and exhaust emissions on site. Injuries could happen primarily by occupational-related accidents, animal bites, etc. Activities such as land clearing, earthworks, and construction of facilities present various occupational hazards to the workers on the project site.

There are no reported sites of the archaeological or historically significant site at the project site. However, in case an artefact of such significance is found during the construction activities, the Archeology Department, the Government of Pakistan will be informed.

Mitigations: Eye and respiratory diseases will be mitigated through routine health screening and training of contractor's employees. The physical injury will be mitigated through the provision of appropriate training and emergency response procedures. Protected fencing will be fixed around the construction site.

The provision of Personal Protective Equipment (PPE) to the workers will be ensured. Protective fencing will be fixed around the construction site.

Unauthorized access within the construction area will not be allowed. A vehicle speed of 20 km/hr at the project site will be implemented. Appropriate light diffusers and reflectors will be used, if required, to minimize the public nuisance caused by light pollution.

Environmental Management Plan and Proposed Monitoring

The purpose of the Environmental Management Plan (EMP) is to minimize the potential environmental impacts due to the project. The EMP reflects the commitment of the Paradise City Project to safeguard the environment as well as the surrounding population.

The EMP provides a delivery mechanism to address the adverse environmental impacts, to enhance the project's benefits and to introduce standards of best practices to be adopted for all phases of the project.

M/s Paradise City (Pvt.) Ltd will prepare a Quarterly Environmental Monitoring Report of project activities that will be carried out during the construction phase of the project. These reports will be submitted to the Pakistan Environmental Protection Agency, Government of Pakistan for their review and consideration. The total estimated Environmental Mitigation and Monitoring Cost is **Rs. 8.28 million**.

Conclusion and Recommendations

On the basis of the overall impact assessment, more specifically, the nature and magnitude of the residual environmental impacts identified during the present EIA, it is concluded that Paradise City Project can mitigate potential negative issues provided that the project activities are carried out as mentioned in the report, and the mitigation measures included in this report are completely and effectively implemented.

There are no remaining issues that warrant further investigation. This EIA is considered adequate for the environmental and social justification of the project.