

# Executive Summary

Reference no. EPA/2007/11/12/EIA/77/1546/07

This report presents the Environmental Impact Assessment (EIA) of a proposed dry laundry detergent manufacturing plant, to be located in Eastern Zone of Port Qasim, Sindh. Procter & Gamble Pakistan (P&GP) intends to build this facility as its first dry laundry plant in Pakistan. The proposed project will involve an investment of about US\$20 M by P&GP. The overall objective of EIA study is to assess the existing environmental conditions at the proposed project site, predict the likely impacts of the proposed activity on the environment, and recommend necessary mitigation measures to address negative impacts.

## Proponent Details:

The Procter & Gamble Company, established in 1837, started its operations in Pakistan in 1991. The Procter & Gamble Company is a USA-based, US\$52 billion entity. Its Pakistan operations fall in the region covering Central & Eastern Europe, Middle East and Africa. Its regional headquarter is located in Geneva. Globally P&G is amongst the world leaders in dry laundry detergent manufacturing. They have set up around 5 – 10 dry laundry plants all over the world during the past decade. All in all, the proposed plant is going to be their 30<sup>th</sup> such unit, and first in Pakistan by P&G.

## Project Location:

Procter & Gamble Pakistan intends to set up a detergent manufacturing plant (dry laundry plant) in Port Qasim Industrial Zone – Karachi, Pakistan.

The proposed site falls under the administrative control of Port Qasim Authority. It is on the south eastern side of Karachi. The project site is located in Port Qasim industrial area 2 to 3 km away from the coast of Sindh that is earmarked for industrial development (figure-2). For this purpose, Port Qasim industrial area is served through a well-structured road network. Other utilities are also planned and would be provided soon by the Port Qasim Authority.

The proposed site is 6 km southwest from National Highway and has in its east Fuji Fertilizer Bin Qasim (FFBL) plant, in northwest Arabian Sea Country Club, in north Pipri Railway station, and in northeast Textile Institute of Pakistan.

## Project Description:

The proposed dry laundry project comprises of a manufacturing facility of powdered detergent for the use of domestic end-users. The area of the proposed site is around 25 acres which would cater the needs of the proposed facility as well the future plant expansion provision. The factory will be designed to manufacture approximately 30,000 tons of detergent in first year which would increase to 80,000 tons by year five. The proposed project will involve the construction of a new grass root site for:

- A Spray drying process and a powder making facility
- A Packing facility
- Storage of packing and raw material for 2 days of production, and storage of finished product for 2 days of production.

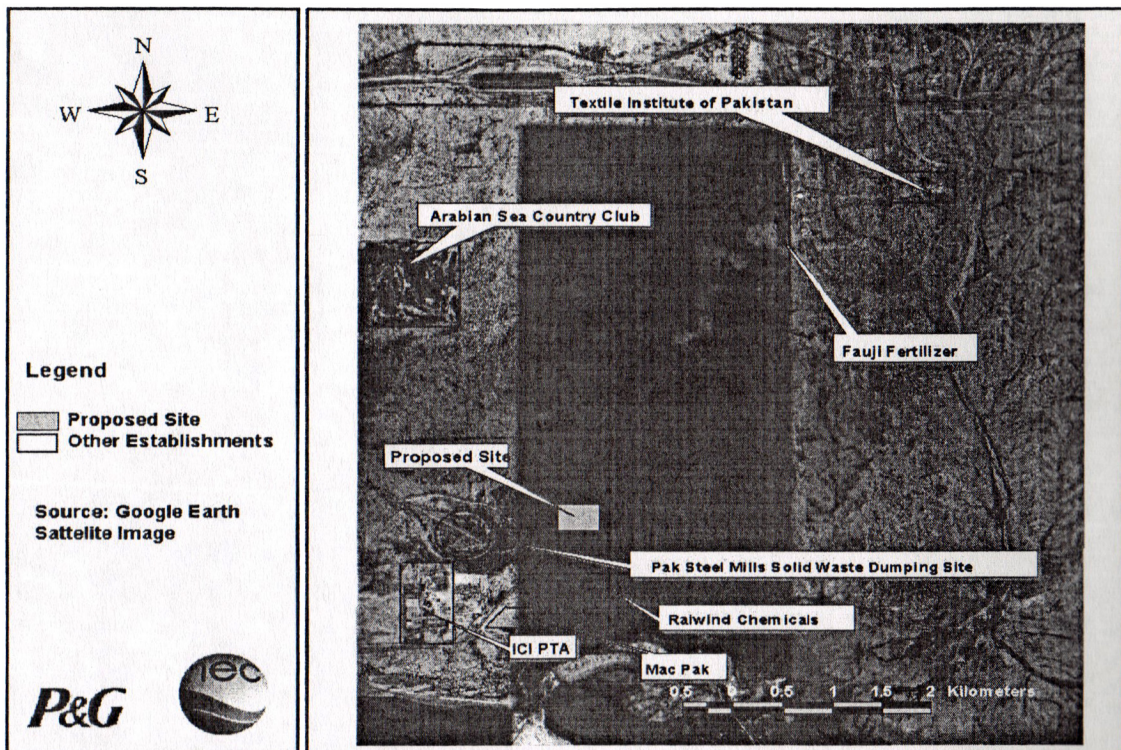


Figure – 1: P&G Dry Laundry Plant Proposed Site

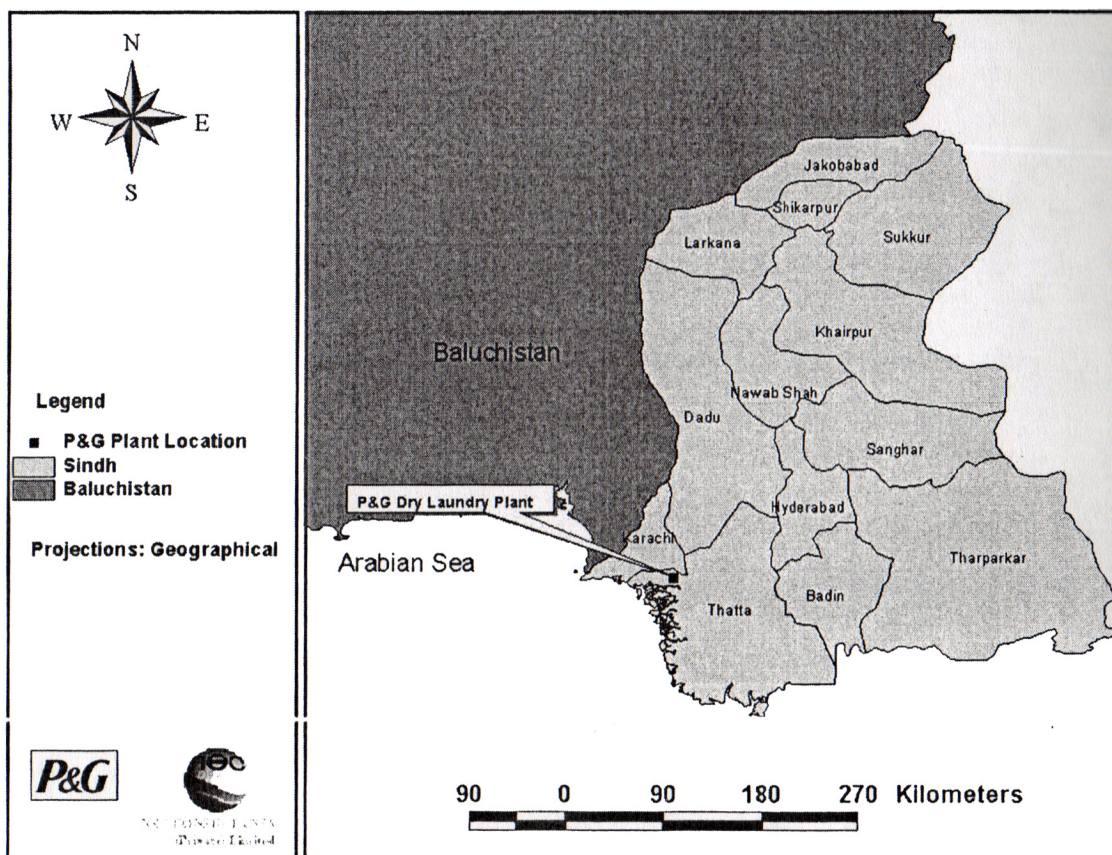


Figure – 2: Location of P&G Dry Laundry Plant Proposed Site

**Legislations Pertaining to Project:**

The apex environmental law governing the project is Pakistan Environmental Protection Act (PEPA) – 1997 along with a host of rules and procedures promulgated for its enforcement. The Act makes it mandatory for proponents of the projects to execute initial environmental examination and / or environmental impact assessment (where warranted) for their projects.

The sectoral guidelines for “Major Chemical and Manufacturing Plants” issued by the Pakistan Environmental Protection Agency are the basis of this report. These plants may involve the production or storage of chemical substances. According to the mentioned guidelines, projects under this category require an Environmental Impact Assessment. The EIA document is submitted to EPA for their review and subsequent issuance of an NOC.

**Baseline of Region:**

The proposed site is a virgin land with no previous land use activity. The surrounding area has the same characteristics except few industrial establishments are located near the project site (figure-1). No major residential setup is situated close to the site (figure-3). Clusters 1, 2, and 3, as identified in figure-3, are small residential settlements. The area around the proposed site is somewhat under utilized, and more industrial units are being set-up here.

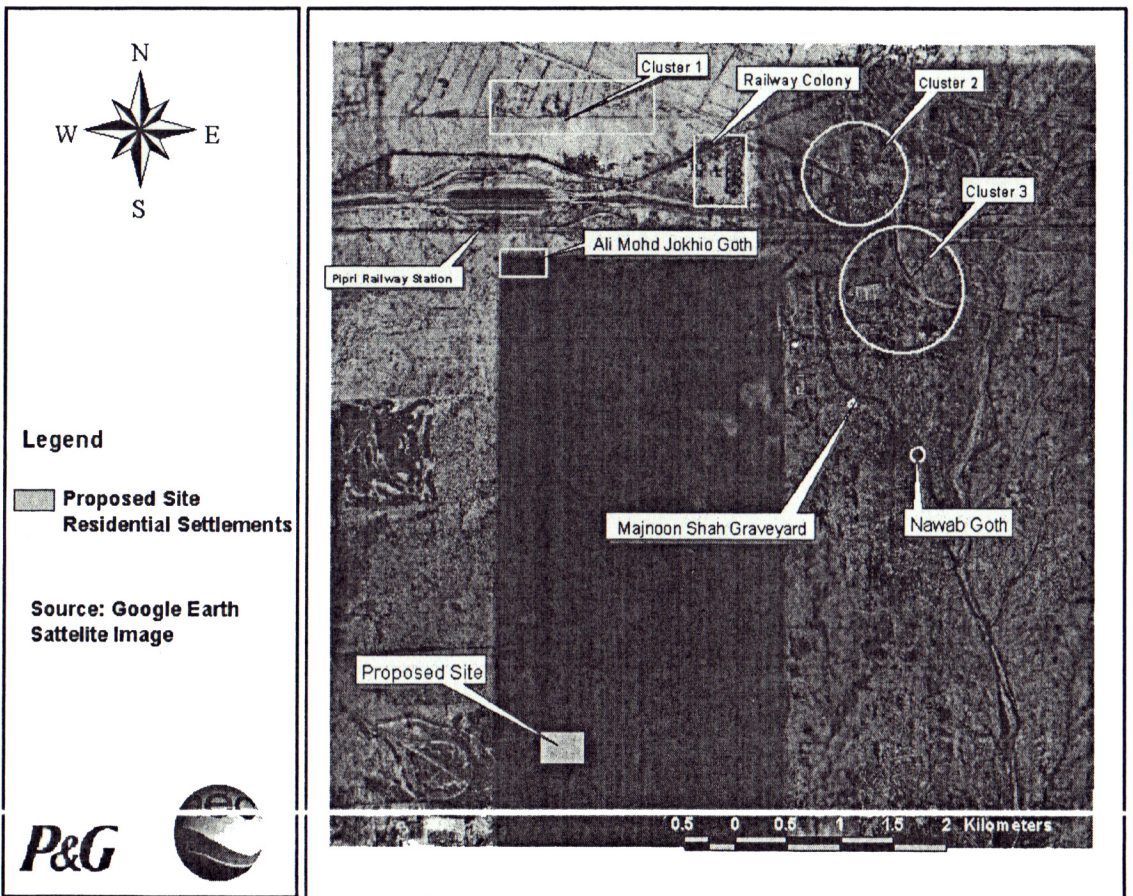


Figure – 3: Residential Settlements near P&G Proposed Site

The infrastructure and utility services are available and have the capacity to serve more industrial and commercial units.

The climate at Sindh coast is mild with high levels of humidity. Historical data shows an increasing trend in the air and sea surface temperature near this coast. Winds are strong during summer, with direction from sea to land. The wind during winter is slow and its general direction is from land to sea.

Topography of the area is such that there is a natural gravity flow in the direction of the Arabian Sea. The plant layout does not obstruct any natural drainage pattern. The area is generally flat with average elevation of 16±1.0 meters from mean sea level. Ground water is available at considerable depths. There exists no endangered flora and fauna near project site.

**Impact Assessment and Mitigation:**

During the EIA, the projects potential environmental impacts were identified. Prediction of impacts of a proposed activity is based on factual data; however, the significance of these impacts involves a value judgment technique. An approach called significance matrix is utilized for this purpose. Impact significance depends not only on the magnitude of the impact but also on the sensitivity of the receptor. The more sensitive the receptor with greater magnitude of change, the greater will be the significance of the impact of that change. Based upon this characterization, the impacts were then assessed to be of high, medium or low significance. Summary of Significant Impacts is given in Table – A.

**Table – A  
Summary of Significant Impacts**

S. No.	Aspect/Activity	Substantial /High	Moderate /Medium	Slight/ Low	No Change	Need to be Explored
<b>1.0</b>	<b>Investigation and Design Phase</b>					
1.1	Soil Investigation				✓	
<b>2.0</b>	<b>Construction Phase</b>					
2.1	Impact on Fauna				✓	
2.2	Impact on Flora				✓	
2.3	Impact on Water Resources			✓		
2.4	Land Value Increase					✓
2.5	Influx of Labor			✓		
2.6	Impact on Local Grazers and Fuel Wood Collectors			✓		
2.7	Dust Related Ailments		✓			
2.8	Noise Nuisance					✓
2.9	Construction Accidents					✓
<b>3.0</b>	<b>Operation Phase</b>					
3.1	Impact on Fauna			✓		
3.2	Impact on Flora				✓	

S. No.	Aspect/Activity	Substantial /High	Moderate /Medium	Slight/ Low	No Change	Need to be Explored
3.3	Impact on Water Availability for other Uses			✓		
3.4	Impact on Ground Water				✓	
3.5	Impact on Surface Water				✓	
3.6	Employment Opportunities			✓		
3.7	Influx of Labor from other Areas			✓		
3.8	Loss of Historical and Cultural Assets				✓	
3.9	Health Impact of Air Emission		✓			
3.10	Noise Nuisance		✓			
3.11	Chemical Hazards		✓			

Mitigations for Impacts on Ambient air Quality: The main pollutant in the form of air emissions generated from slurry formation and spray drying in operational phase would be particulate matters. Whereas, dust would be produced as a result of the construction activities. For particulate matters cyclones and filters would be installed before discharging the air to atmosphere. The concentration of particulate matter after such treatment would comply with National Environmental Quality Standards (NEQS) of Pakistan. The duct burner and the boiler will be Natural Gas operated and the partial backup electricity generator will be diesel operated. All of these 3 equipment will comply with NEQS requirements. Dust generation during construction phase will be reduced through watering the exposed earth surfaces, by implementing speed limits on heavy traffic and by limiting the traffic of people and machines to the construction area

Mitigation for Impacts on Noise Quality: Higher noise levels may be generated from the production facility to have some impact on the localized working environment. The generation of noise and its impact may be reduced by adopting the following measures:

- Use of new machinery with the target of noise level not exceeding 85dB measured 1m from the equipment
- Implementation of engineering controls such as sound barriers, enclosures, sound absorbing materials, mufflers , silencers etc.
- Execution of strict periodic maintenance schedule for all machinery and equipment
- Proper lubrication of all moving parts
- Use of Personal Protective Equipments (PPE) by the workers in area where noise exceeds 82 dB.

Mitigation for Solid Waste Disposal and Management: A comprehensive waste management plan is recommended to deal with the waste generated during the construction and operation phases. It must be noticed that no facility of properly designed landfill exists in Karachi presently, and the waste will have to be disposed to dumping sites marked by the CDGK for urban municipal waste. It is important to segregate the solid waste at source, and reuse or recycle it as much as possible. Septic tank cleaning should be six monthly and done in hot and dry months e.g. May and October to minimize drying period. Sludge from septic tank could be stabilized and used for horticulture.

Socio-economic Mitigation: No major socio-cultural impacts are likely to result from the proposed project. There are no sites of religious, cultural or historical importance near the proposed site – it is in the heart of an industrial area and there is no population or dwellings nearby. The localized economic impact of the proposed project would be of very low magnitude in comparison to the cumulative impact of the economic activity of the whole PQA industrial zone.

In order to further increase the social acceptability of the intervention, P&GP should make sure that the local population is abreast of the project development. Wherever possible and necessary, the local population should also be involved in project activities.

Mitigation on Health and Safety: Improper safeguarding of machinery is one of the major causes of injuries to the employees. Dangerous moving parts in these three basic areas will need safeguarding:

- *The Point of Operation:*
- *Power Transmission Apparatus:*
- *Other Moving Parts:*

Potential for fire in the proposed facility may stem from either the use of combustible liquid chemicals or from electrical short circuit. The consultants reviewed the relevant parts of the Overall Risk Assessment by P&GP, which suggests that the fire protection requirements of the proposed facility.. The consultants found the recommendations contained therein are satisfactory and sufficient.

### **Environmental Management Plan and Recommendations:**

Procter & Gamble has a comprehensive Health, Safety & Environment (HS&E) program that is consistent with and meets the intent of ISO 14001 and EMAS as verified by Environmental Resources Management, Inc. (ERM).

This program is committed to:

- Have safe and healthy operations worldwide
- Continually improve the environment quality of its product, packaging and operations
- Protect the life and health of its people and communities surrounding its operations
- Protect its assets and ensure business continuity
- Maintain public trust.

An environmental monitoring and disaster management plan have been proposed to provide an implementation mechanism for the mitigation measures identified during EIA. It helps to ensure that the environmental performance conforms to the assertions suggested in this Environmental Impact Assessment Report.

It is recommended that environmental monitoring of pollutant emissions should be carried out quarterly, as mentioned in the monitoring plan, during the operation phase of the project. Monitoring is also needed to verify the environmental and social impacts identified for both construction and operation phases and to assess the effectiveness of mitigation measures. This will aim to assess the environmental and social impacts of the project, and

provide order and consistency for mitigating and managing these on an on-going basis. This will also ensure the compliance of the proposed activity with the applicable standards.,

**Conclusion:**

The consultants perceive that the proposed project should not face any environmental show-stoppers due to its location in an area ear-marked for similar activities. To become completely environmentally acceptable intervention, the project should maintain close liaison with relevant agencies, incorporate appropriate safety features in plant design, employ a Reporting and Monitoring Program and implement a Disaster Management Plan.

Based on the available information, the consultants assess the impact of the proposed project on environment as low. In consultants' view the execution of various mitigation and safety measures, as discussed in this report, would ensure an effective management of overall social and environmental impacts of the project.