3 REGULATORY REQUIREMENTS

This chapter provides synopsis of policies, legislation, and guidelines that may have relevance to the proposed project. The proponent of this project (Pakistan Gasport Limited) will comprehensively follow the relevant requirements of the policy documents and legislative framework as well as those recommendations as described in the national and international guidelines for the proposed project. Many of those guidelines have been incorporated in the mitigation measures and the Environmental Management Plan (EMP) which has formulated for the better environmental and social impacts management. Brief on some of those guidelines and regulations are given below and also attached as Annexure-II. The higher (better) of the listed regulations / codes / standards have been used. Care has been taken to ensure that these are not in conflict with those of IFC Guidelines.

3.1- Policies and Plans

3.1.1- National Conservation Strategy

The National Conservation Strategy (NCS) is the primary policy document approved by the Federal Cabinet in March 1992. The NCS identifies 14 core areas including conservation of biodiversity. Review of the NCS in 2000 concluded in approval of National environmental Action Plan (NEAP) by the Pakistan Environmental Protection Council under the chairmanship of the President/ Chief Executive of Pakistan in February 2001.

The Government of Pakistan (GoP) and United Nations Development Program (UNDP) have jointly initiated an umbrella support program called the National Environmental Action Plan-Support Program (NEAP-SP) signed in October 2001 and implemented in 2002. The development objective supported by NEAP-SP is environmental sustainability and poverty reduction in the context of economic growth.

3.1.2- Biodiversity Action Plan

Pakistan is a signatory to the Convention on Biological Diversity, and is thereby obligated to develop a national strategy for the conservation of biodiversity. The GoP has constituted a Biodiversity Working Group under the auspices of the Ministry of Environment, Local Government and Rural Development to develop a Biodiversity Action Plan (BAP) for the country. The Plan, which has been designed to complement the NCS and the proposed provincial conservation strategies, identifies the causes of biodiversity lost and suggests a series of proposals. Since the Plan is yet to be reviewed by the Cabinet, its provisions have not been finalised.

3.1.3- LNG policy

Natural gas plays a key role in Pakistan's energy balance as it currently accounts for more than 50% of the country’s primary energy supplies. The Federal Government of Pakistan (the “Government”) has prepared this policy (the “Policy”) package for potential investors in order to facilitate the successful implementation of LNG import projects. LNG policy covers Import Project Structure, LNG Procurement, Ownership & Operation of the LNG Terminal, RLNG Marketing & Transportation, Regulatory Framework during construction period and operational period, Government Incentives, Pricing of RLNG, Government Guarantee, Freedom to Participate in the LNG Business, Technical Codes and Standards, Shipping of LNG, Other Permits and Licenses.

3.1.4- Maritime Policy of Pakistan

The National Maritime Policy of Pakistan has recently been approved and notified on October 16, 2002. The policy advocates "Management of Assets in a judicious manner with conscientious regard to the environment and international law". The objective of the policy is "protection and conservation of maritime
The environmental/ecosystem and section IV of the Policy holds the Port Authorities responsible to protect the maritime environment within their prescribed limits. This includes tasks of monitoring and combating spills.

**3.2- National Laws and Guidelines**

*3.2.1- Pakistan Environmental Protection Act 1997*

Pakistan Environmental Protection Act was introduced in December 1997 to provide the protection, conservation, rehabilitation and improvement of the environment, for prevention and control of pollution, and promotion of sustainable development. Some of the relevant clauses with respect to this study are as under:

**Clause 12** - An Initial Environmental Examination (IEE) report is to be submitted for all proposed developments. An Environmental & Social Impact Assessment report is to be submitted for certain types of major development and those that have a significant adverse impact. Provincial Environmental Protection Agency will have four months to respond to the reports.

**Clause 16** - Environmental Protection Order: It permits Federal and Provincial EPAs to enforce protection measures and remediation where contamination of the environment has taken place.

**Clause 18** - Offences by Bodies Corporate: This clause identifies individual responsibility and liability to prosecution where contravention of an Ordinance is committed by a body corporate.

**Clause 30** - Act to override other laws: This Act takes precedence over other laws in effect at the time.

*3.2.2- Pakistan Environmental Protection Agency Review of IEE and EIA Regulations 2000*

The Pakistan Environmental Protection Agency Review of IEE and EIA Regulations, 2000 (the ‘Regulations’), prepared by the Pak-EPA under the powers conferred upon it by the PEPA, provide the necessary details about the preparation, submission, and review of the initial environmental examination (IEE) and the Environmental & Social Impact Assessment (EIA).

Categorisation of projects for IEE and EIA is one of the main components of these Regulations. Projects have been classified on the basis of expected degree of adverse environmental impacts. Project types listed in Schedule II are designated as potentially seriously damaging to the environment, and those listed in Schedule I as having potentially less adverse effects. Schedule I projects require an IEE to be conducted, rather than a full-fledged EIA, provided that the project is not located in an environmentally sensitive area.

The projects which are constructed in the sensitive areas are subject with the submission of EIA at planning stage. The LNG jetty will be constructed in the sea which involves reclamation of land for jetty installation as well as dredging activity to prepare route for LNG transporting ships. Therefore this project falls under Schedule-II of regulations and an EIA is mandatory. List of projects requiring an EIA under PEPA, Review of IEE and EIA Regulations, 2000 are attached in Annexure-I for ready reference.

EPA accords their approval subject to certain conditions, such as:

- Before commencing construction of the project, the proponent is required to submit an undertaking accepting the conditions.
- Before commencing operation of the project, the proponent is required to obtain NOC from the EPA a written confirmation of compliance with approval conditions and requirements of the IEE.

It is required that an EMP be submitted with the request for obtaining confirmation of compliance.

*3.2.3- Port Qasim Authority Act, 1973 (Modified in 2002)*

This act empowers PQA to prepare master plan and a
Environmental control and prevention of pollution in the port area are also responsibilities of this authority. This act encourages and promises the proponent to conduct EIA or IEE prior to any development in the port area. Clause 71B and 71C, explains the responsibilities of authorities and the penalties of non-compliance. Both the clauses are given as under:

71B (Port to be Pollution Free, etc)

1) The authority shall be responsible for maintaining the marine environments of the port’s limit in order to ensure that the sea, land and air are free from pollution.

2) No owner or master of the vessel or any industry, manufacturing establishment, mill, factory or any kind, cargo handling company, terminal operator, etc. shall discharge any solid or liquid waste, oily, noxious radioactive and hazardous substances, bilge discharges, residues and mixtures containing noxious solid and liquid wastes, de-blasting of unwashed cargo tanks and line washing, garbage, emission of any effluent or waste or air pollution or noise in any amount concentration or level in excess of NEQS, or standards, which may be specified, from time to time, by the Authority of Port limits.

3) Any person contravening the provision of subsection (2) shall be liable to penalty as determined and noticed by the authority from time to time for each contravention in addition to the charges for cleaning of port and removal of pollution there from.

Section 71C (Environmental Pollution etc)

4) No proponent of the project shall commence construction or operation unless he has filed with this authority as IEE or, where the project is likely to cause an adverse environmental effect, an EIA, and has obtained from authority approval thereof.

5) The authority shall:

- Review the IEE and accord its approval subject to such condition as it may deem fit to impose, or require that the IEE be re-submitted after such modification as may be stipulated.

For ready reference, relevant sections of PQA Act are being attached as Annexure-III.

3.2.4- National Environmental Quality Standards (NEQS) 2000

The NEQS were first promulgated in 1993 and have been amended in 1995 and 2000 by PEPA. These are the basic guidelines for liquid effluent and gaseous emissions of municipal and industrial origin to comply with. These standards present the maximum allowable concentration for liquid effluent before its discharge into sea, inland water & sewage (total 32 parameters to comply with) and gaseous emissions in the ambient air from industrial sources (total 16 parameters to comply with).

The NEQS document is attached as Annexure-IV for reference.

3.2.5- Antiquities Act 1975

The Act defines ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments etc. The act is designed to protect antiquities from destruction, theft, negligence, unlawful excavation, trade & export and prohibits new construction in the proximity of a protected antiquity.

3.2.6- Forest Act 1927

This act empowers provincial forest authorities to declare any area as forest. The proposed project is not in forest declared area; however, mangroves will have the prime importance and their conservation will be considered when the project executed.

3.2.7- Ports Act 1908 and Pakistan Territorial Waters and Maritime Zones Act 1976

The Ports Act 1908 ensures safe shipping in the sea and
prevention of pollution in waters. Pakistan Territorial Waters and Maritime Act 1976 regulates the exploration, development, conservation, and management of living and nonliving resources in Pakistan's Exclusive Economic Zone (EEZ), which extends up to 200 miles from the country's coastal zone.

3.2.8- EIA guideline package of Pakistan Environmental Protection Agency

The PEPA prepared the Pakistan Environmental Assessment Procedures in 1997. The guidelines pertaining to the review process of impact assessments have been recently given regulatory status in the Review of IEE and EIA Regulations 2000. The package of regulations prepared by PEPA with relevance to this IEE includes:

- Policy and Procedures for Filing, Review and Approval of Environmental Assessments;
- Guidelines for the Preparation and Review of Environmental Reports;
- Guidelines for Public Consultation

Policy and procedures for filing, review and approval of environmental assessments: These guidelines define the policy context and the administrative procedures that will govern the environmental assessment process, from the project pre-feasibility stage, to the approval of the environmental report. According to the procedures laid out in the policy guidelines, IEE’s or EIA’s are to be filed with the EPA of the province where the project is to be implemented. The PEPA has, however, been given the right to review any environmental report at any time and the power to revoke the decision of the provincial EPA, if it deems this to be necessary. Projects have been classified in the policy guidelines by expected degree of adverse environmental impacts. Those projects having potential environmental impacts are listed in Schedule-A. Projects which have comparatively slightly narrow environmental issues and can be managed by less extensive analysis are included in Schedule-B and Schedule-C, includes those projects which doesn’t fall in Schedules A&B and do not require an EIA or IEE but an environmental approval will be sought.

Guidelines for the preparation and review of environmental reports: It requires proponents to prepare terms of reference for the environmental assessment reports. It requires that all studies should contain baseline data on the area and must contain an assessment of the potential environmental impacts and the recommended mitigation measures.

Guidelines for public consultation: These guidelines are a part of a package of regulations and guidelines. It provides assistance throughout the environmental assessment of project by involving the public which can lead to better and more acceptable decision-making.

Public involvement, undertaken in a positive manner and supported by a real desire to use the information gained to improve the proposal, will lead to better outcomes, and lay the basis for ongoing positive relationships between the participants.

3.2.9- Self- monitoring and reporting rules 2001

The Self-Monitoring and Reporting System will make the country’s industry owners and operators responsible for systematic monitoring and reporting of their environmental performance.

By implementing this system, the government will, in fact, transfer the responsibility for examining and evaluating industry’s environmental performance to individual industrial facilities. Apart from saving EPAs considerable expense, time and effort, this measure will enable industry to make long-term provisions for eco-friendly production. The reported data will also enable government agencies to assist industrial units in controlling their pollution levels.

3.3- International Conventions & Guidelines

3.3.1- MARPOL 1973 (modified in 1978)

Ship generated waste is regulated globally as part of
the implementation of the International Convention for the prevention of pollution from Ships 1973 as modified by the Protocol of 1978 (MARPOL 73/78). The requirement of MARPOL 73/78 is established in 20 Articles, two Protocols and five annexes; these include contamination by oil, noxious liquid substances carried in bulk, harmful substances, sewage and garbage. Pakistan is signatory to all five annexes.

3.3.2- London Convention 1972

In 1972, the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter defines a Black List of toxic substances, and a Grey List of less hazardous substances that may only be dumped under a prior special permit, the dumping of any other wastes not specified in these lists requires a prior general permit. In 1990 this Convention was amended to require signatory countries to consider whether an adequate scientific basis exists for assessing the environmental impact of a substance (i.e. dredged material) before issuing a permit for dumping. Pakistan is signatory to the London Convention and a Notification came into force on 8th April 1995.

3.3.3- IUCN Red List

IUCN has published red list, it includes those species that are under potential threat of extinction. These species have been categorised as endangered, vulnerable in decline, lower risk species and data deficient species that may be at risk of extinction in the wild. No faunal specie (observations) that fall under the IUCN Red List category were made during recent site surveys for the EIA study. The red list is attached as Annexure-V for reference purpose.

3.3.4- Laws of Seas

The UN Convention on the Law of the Sea was adopted and opened for signature in 1982. On November 16th 1994, it entered into force for 68 countries. Pakistan is signatory to the convention. It establishes a basic structure of obligations, objectives and principles covering all sources of marine pollution that include: Pollution by vessels (operational and accidental discharges from ships) and Dumping (the deliberate disposal of wastes at sea by ships, aircrafts, platforms, or other man made structures).

3.3.5- International Convention on Biodiversity

The Convention on Biological Diversity was adopted during the Earth Summit of 1992 at Rio de Janeiro. The Convention requires parties to develop national plans for the conservation and sustainable use of biodiversity, and to integrate these plans into national development programmes and policies. Parties are also required to identify components of biodiversity that are important for conservation, and to develop systems to monitor the use of such components with a view to promoting their sustainable use.

3.3.6- World Bank Guidelines on Environment

The principal World Bank publications that contain environmental guidelines are listed below.

- Environmental Assessment-Operational Policy 4.01. Washington, DC, USA. World Bank 1999

The first two publications listed here provide general guidelines for the conduct of an EIA, and address the
EIA practitioners themselves as well as project designers. While the Sourcebook in particular has been designed for the Bank projects, and is especially relevant for the impact assessment of large-scale infrastructure projects, it contains enormous information which is useful to environmentalists and project proponents.

### 3.3.7- IFC Guidelines

**A- EHS guidelines for LNG**

These EHS Guidelines are applied as required by their respective policies and standards. These industry sector EHS guidelines are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to all industry sectors.

**B- General EHS Guidelines**

The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors. These General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines which provide guidance to users on EHS issues in specific industry sectors. A complete list of industry-sector guidelines can be found at the EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs.

The General EHS Guidelines are organized as follows:

- Environmental
- Occupational health and safety
- Community health and safety
- Construction and decommissioning

This guideline applies to facilities or projects that generate emissions to air at any stage of the project life-cycle. The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment.

### C- Environmental, Health, and Safety Guidelines for Liquefied Natural Gas (LNG) Facilities

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry. These EHS Guidelines are applied as required by their respective policies and standards. EHS guidelines are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to all industrial sectors.

The applicability of EHS Guidelines for Crude Oil and Petroleum Product Terminals include information relevant to land and shore-based petroleum storage terminals receiving and dispatching bulk shipments of crude oil, gasoline, middle distillates, aviation gas, lube oil, residual fuel oil, compressed natural gas (CNG), liquid petroleum gas (LPG), and specialty products from pipelines, tankers, railcars, and trucks for subsequent commercial distribution. This guideline covered Industry-Specific Impacts and Management and Performance Indicators and Monitoring.

The EHS Guidelines for Liquefied Natural Gas (LNG) Facilities include information relevant to LNG base load liquefaction plants, transport by sea, and regasification and peak shaving terminals. For coastal LNG facilities including harbours, jetties and in general coastal facilities (e.g. coastal terminals marine supply bases, loading/offloading terminals), additional guidance is provided in the EHS Guidelines for Ports, Harbours, and Terminals. For EHS issues related to vessels, guidance is provided in the EHS Guidelines for Shipping. Issues related to LPG/Condensate production and storage in liquefaction plants are not covered in this Guideline.

### 3.3.8- LNG Regulations

The following regulations provide guidelines for the
design, construction and operation of LNG facilities.

- 49CFR Part 193 Liquefied Natural Gas Facilities: Federal Safety Standards - This section covers siting requirements, design, construction, equipment, operations, maintenance, personnel qualifications and training, fire protection, and security.

- 33CFR Part 127 Waterfront Facilities Handling Liquefied Natural Gas and Liquefied Hazardous Gas - This federal regulation governs import and export LNG facilities or other waterfront facilities handling LNG. Its jurisdiction runs from the unloading arms to the first valve outside the LNG tank.

- NFPA 59A Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG) - This is an industry standard issued by the National Fire Protection Association (NFPA). NFPA 59A covers general LNG facility considerations, process systems, stationary LNG storage containers, vaporization facilities, piping systems and components, instrumentation and electrical services, transfers of natural gas and refrigerants, fire protection, safety and security. It also mandates alternative requirements for vehicle fueling for industrial and commercial facilities using American Society of Mechanical Engineers (ASME) pressure vessel containers. This standard includes requirements for LNG facilities to withstand substantial earthquakes. The NFPA standard for level of design means that the LNG facilities are strongly fortified for other events such as wind, flood, earthquakes and blasts. The latest update of NFPA 59A was published in 2001.

- NFPA 57 Standard for Liquefied Natural Gas (LNG) Vehicular Fuel Systems - This standard covers vehicle fuel systems, LNG fueling facilities, installation requirements for ASME tanks, fire protection, safety and security for systems on board vehicles and infrastructure storing 70,000 gallons of LNG or less.

European standards include the following.

- EN 1473 - The European Norm standard EN 1473 Installation and equipment for Liquefied Natural Gas - Design of onshore installations evolved out of the British Standard, BS 7777 in 1996. It is a standard for the design of onshore LNG terminals. This standard is not prescriptive but promotes a risk-based approach for the design.

- EN 1160 - Installation and equipment for Liquefied Natural Gas - General Characteristics of Liquefied Natural Gas contains guidance on properties of materials commonly found in LNG facility that may come into contact with LNG.

- EEMUA 147 - Recommendations for the design and construction of refrigerated liquefied gas storage tanks. This document contains basic recommendations for the design and construction of single, double and full containment tanks for the bulk storage of refrigerated liquefied gases (RLGs) down to -165°C, covering the use of both metal and concrete materials.

Regulations applicable to LNG ships include:

- 33 CFR 160.101 Ports and Waterways Safety: Control of Vessel and Facility Operations. This U.S. federal government regulation describes the authority exercised by District Commanders and Captains of the Ports to insure the safety of vessels and waterfront facilities, and the protection of the navigable waters and the resources therein. The controls described in this subpart are directed to specific situations and hazards.

- 33 CFR 165.20 Regulated Navigation Areas and Limited Access Areas: Safety zones. A safety zone is a water area, shore area, or water and shore area to which, for safety or environmental purposes, access is limited to authorized persons, vehicles, or vessels. It may be stationary and described by fixed limits, or described as a zone around a vessel in motion. It is commonly used for ships carrying flammable or toxic cargoes,
fireworks barges, long tows by tugs, or events like high speed races.

- 33 CFR 165.30 Regulated Navigation Areas and Limited Access Area: Security Zones. This section defines a security zone as an area of land, water, or land and water that is so designated by the Captain of the Port or District Commander for such time as is necessary to prevent damage or injury to any vessel or waterfront facility, to safeguard ports, harbors, territories, or waters of the United States or to secure the observance of the rights and obligations of the United States. It also determines the purpose of a security zone - to safeguard vessels, harbors, ports, and waterfront facilities from destruction, loss, or injury from sabotage or other subversive acts, accidents, or other causes of a similar nature in the United States and all territory and water, continental or insular, that is subject to the jurisdiction of the United States. Generally, it covers ships with flammable or toxic cargoes, cruise ships, naval ships, and nuclear power facilities and airports.

The National Fire Protection Association (NFPA) develops fire safety codes and standards drawing upon the technical expertise of persons from diverse professional backgrounds that form technical committees. These committees address concerns about specific activities or conditions related to fire safety. The members of these committees use an open consensus process to develop standards for minimizing the possibility and effects of fire. NFPA has adopted two comprehensive standards, NFPA 59A and NFPA 57, that relate to LNG.

NFPA 59A Standard for the Production, Storage and Handling of Liquefied Natural Gas (LNG) 2001 Edition describes the basic methods of equipment fabrication as well as LNG installation and operating practices that provide for protection of persons and property. It also "provides guidance to all persons concerned with the construction and operation of equipment for the production, storage, and handling of liquefied natural gas." This comprehensive standard contains detailed technical requirements to ensure safety of LNG facilities and operations, including general facility considerations, process systems, stationary LNG storage containers, vaporization facilities, piping systems and components, instrumentation and electrical services.

The standard also incorporates, by reference, technical standards developed by a number of other professional organizations, such as American Society of Mechanical Engineers (ASME), the American Society of Civil Engineers (ASCE), the American Petroleum Institute (API), the American Concrete Institute (ACI), and the American Society for Testing and Materials (ASTM).

The NFPA is not empowered to enforce compliance with its codes and standards. Only regulatory bodies or political entities that have enforcement powers can set the standards that the NFPA creates to regulate the industry. An example is when FERC uses the NFPA standards in their safety review of LNG facilities.

3.3.9- Equator Principles

Project financing, a method of funding in which the lender looks primarily to the revenues generated by a single project both as the source of repayment and as security for the exposure, plays an important role in financing development throughout the world. Project financiers may encounter social and environmental issues that are both complex and challenging, particularly with respect to projects in the emerging markets.

The Equator Principles Financial Institutions (EPFIs) have consequently adopted these Principles in order to ensure that the projects we finance are developed in a manner that is socially responsible and reflect sound environmental management practices. By doing so, negative impacts on project-affected ecosystems and communities should be avoided where possible, and if these impacts are unavoidable, they should be reduced, mitigated and/or compensated for appropriately. We believe that adoption of and adherence to these Principles offers significant benefits to ourselves, our borrowers and local stakeholders through our borrowers' engagement with locally affected communities. We therefore
recognise that our role as financiers affords us opportunities to promote responsible environmental stewardship and socially responsible development. As such, EPFIs will consider reviewing these Principles from time-to-time based on implementation experience, and in order to reflect ongoing learning and emerging good practice. These Principles are intended to serve as a common baseline and framework for the implementation by each EPFI of its own internal social and environmental policies, procedures and standards related to its project financing activities. We will not provide loans to projects where the borrower will not or is unable to comply with our respective social and environmental policies and procedures that implement the Equator Principles.

There are major nine (9) principles which have been defined in the Equator Principles given as follow:

- Principle-1: Review and Categorisation
- Principle-2: Social & Environmental Assessment
- Principle-3: Applicable Social & Environmental Standards
- Principle-4: Action Plan and Management System
- Principle-5: Consultation and Disclosure
- Principle-6: Grievance Mechanism
- Principle-7: Independent Review
- Principle-8: Covenants
- Principle-9: EPFI Reporting

3.3.10- IFC Performance Standards on Social & Environmental Sustainability

International Finance Corporation (IFC) applies the Performance Standards to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing in its member countries eligible for financing. The Performance Standards may also be applied by other financial institutions electing to apply them to projects in emerging markets.

Together, the eight Performance Standards establish standards that the client is to meet throughout the life of an investment by IFC or other relevant financial institution:

- Performance Standard-1: Social & Environmental Assessment and Management System
- Performance Standard-2: Labour and Working Conditions
- Performance Standard-3: Pollution Prevention and Abatement
- Performance Standard-4: Community Health, Safety and Security
- Performance Standard-5: Land Acquisition and Involuntary Resettlement
- Performance Standard-6: Biodiversity Conservation and Sustainable Natural Resource Management
- Performance Standard-7: Indigenous Peoples
- Performance Standard-8: Cultural Heritage

Certain objectives have been set in the IFC performance standards to achieve sustainable development. Those objectives are given below:

- To identify and assess social and environment impacts, both adverse and beneficial, in the project's area of influence
- To avoid, or where avoidance is not possible, minimize, mitigate, or compensate for adverse impacts on workers, affected communities, and the environment
- To ensure that affected communities are appropriately engaged on issues that could potentially affect them
- To promote improved social and environment performance of companies through the effective use of management systems.