

Bapco Modernization Program (BMP) Social Impact Assessment

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**Table of Acronyms and Abbreviations**

AAMR	Agricultural Affairs and Marine Resources
AAP	Area Action Plan
AEWRD	Agricultural Affairs and Marine Resources
AHR	Alba Haul Road
ALBA	Aluminium Bahrain
AoI	Area of Influence
AQMS	Air Quality Monitoring Station
Banagas	Bahrain National Gas Company
BD	Bahraini Dinars
BDF	Bahrain Defence Force
BMP	Bapco Modernization Programme
Bpd	Barrels per day
BWA	Bahrain Womens Association
CPO	Central Planning Office
CERP	Crisis and Emergency Response Plan
CG	Coast Guard
CHSS	Community Health, Safety and Security
CIA	Cumulative Impact Assessment
CIP	Central Informatics Organisation
CLA	Construction Laydown Area
CPO	Central Planning Office
EACS	Environment Arabia Consultancy Services
EWA	Electricity and Water Authority
EPCC	Engineering, Procurement, Construction and Commissioning
ESIA	Environmental and Social Impact Assessment
FMG	Female Genital Mutilation
GDP	Gross Domestic Product
GCC	Gulf Cooperation Council
GDUP	General Directorate of Urban Planning
GPIC	Gulf Petrochemical Industries Company
HAZOP	Hazard and Operability
IAIA	International Association of Impact Assessment
IFC	International Finance Corporation
LMRA	Labour Market Regulatory Authority
MoE	Ministry of Education
MoTT	Ministry of Transport and Telecommunications
MoH	Ministry of Housing
MPZ	Marine Policy Zones
MTBE	Methyl Tert-Butyl Ether
MWPS	Migrant Workers Protection Society
NGO	Non Governmental Organisation
NMC	National Mariculture Centre
NOGA	National Oil and Gas Authority
OSCP	Oil Spill Contingency Plan



PMA	Ports and Maritime Affairs
PPE	Personnel Protective Equipment
PS	Performance Standard
RCC	Regional Coastal Cells
SCE	Supreme Council for Environment
SCW	Supreme Council for Women
SEPPD	Sanitary Engineering Planning and Projects Directorate
SIA	Social Impact Assessment
STD	Sexual Transmitted Diseases
TMP	Traffic Management Plan
TNMH	Total Non-Methane Hydrocarbons
TTSJV	Joint Venture led by TechnipFMC (Technip Italy S.p.A. and Technip USA:TP) with Tecnicas Teunidas S.A. (TR) and Samsung Engineering Co. Ltd (SECL)
UNDP	United Nations Development Program
WBG	World Bank Group
WHO	World Health Organization

1 INTRODUCTION

Environment Arabia Consultancy Services WLL (EACS) has been appointed by TechnipFMC, Técnicas Teunidas S.A. and Samsung Engineering Co. Ltd (TTSJV) to undertake a Social Impact Assessment (SIA) for the Bapco Modernization Program (BMP) project.

This SIA has been requested by the lenders as part of the Environmental and Social Action Plan following the submission of the ESIA in June 2016.

The SIA predicts the nature and magnitude of social and economic changes for the local community and Bahrain. The report includes the following:

- Identification of key communities of interest and the Project Area of Influence;
- Identification and description of baseline conditions of key stakeholders and communities;
- Identification of community risk factors and possible impacts;
- Identification and description of social mitigations, enhancement measures and project commitments; and
- Description of social management plan(s).

In addition to the SIA, EACS has produced the following reports subsequent to the BMP ESIA which have fed into this SIA:

- BMP Cumulative Impact Assessment;
- BMP Critical Habitats Assessment;
- BMP Ecosystem Services Assessment;
- BMP Camp 1 Health Impact Assessment; and
- BMP Camp 2 Health Impact Assessment.

2 REGULATIONS AND GUIDANCE

2.1 Introduction

There are a number of regulations in Bahrain which ensure safety and health for communities and workers. This section provides International Finance Corporation (IFC) Performance Standards (PS) and Bahrain legislation applicable to this SIA. The IFC standards that are applicable are:

- IFC Performance Standard 1 Assessment and Management of Environmental and Social Risks and Impacts;
- IFC Performance Standard 2 Labour and Working Conditions; and
- IFC Performance Standard 4 Community Health, Safety and Security.

IFC Performance Standard 5 on Land Acquisition and Involuntary Resettlement, Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources, and Performance Standard 8 on Cultural Heritage are not relevant to this SIA as all the elements of the BMP will either be located within industrial land owned or leased by Bapco or the National Oil and Gas Authority. The associated labour camps, roads and laydown areas are also located within Bapco-leased land. There are no legacy land acquisition issues that may cause problems in the future. Thereby within the terrestrial environment, the BMP is not affecting any ecosystem services, sites of cultural heritage significance and/or livelihoods. Fishing within the marine waters around the Refinery is prohibited and the main fishing grounds are outside the project affected area. There will be no change to the existing situation with regard to fisheries and hence no impact on fishermen. Consultations have been undertaken with the Sitra Fishermen Society who confirmed that they would experience no impacts on their livelihoods as a result of the project.

IFC Performance Standard 7 on Indigenous Peoples is not relevant to this SIA as there were no indigenous populations identified by the ESIA.

2.2 IFC Performance Standards

2.2.1 IFC Performance Standard 1 Assessment and Management of Environmental and Social Risks and Impacts

The objectives of the IFC PS 1 are the following:

- To identify and evaluate environmental and social risks and impacts of the project;
- To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, Affected Communities, and the environment;
- To promote improved environmental and social performance of clients through the effective use of management systems; and
- To ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately.

Table 2.1 provides a summary of the IFC requirements from PS 1 in respect of community, health, safety and security.



Table 2.1 Summary of IFC PS 1 Requirements in Respect of Community, Health, Safety and Security

Topic	Description
Environmental and Social Assessment and Management System	The client will conduct a process of environmental and social assessment, and establish and maintain an ESMS appropriate to the nature and scale of the project.
Identification of risks and impacts	Identification of project's area of influence: the area likely to be affected by i) the project, ii) impacts from unplanned but predictable developments, or iii) indirect project impacts on biodiversity or ecosystem services upon which Affected Communities livelihoods are dependant.
Management Programs	The client will establish management programs that will describe mitigation and performance improvement measures and actions that address the identified environmental risks and impacts.
Emergency preparedness and response	Details the communication plan for Affected Communities. Assist and collaborate with potentially Affected Communities (especially where their participation and collaboration are required for an effective response). Provide appropriate information to Affected Communities.
Monitoring and Review	Where appropriate, clients will consider involving representatives from Affected Communities to participate in monitoring activities (e.g. participatory water monitoring).
Stakeholder Engagement	The client should identify the range of stakeholders that may be interested in their actions and develop and implement a Stakeholder Engagement Plan that is scaled to the project risks and impacts and tailored to the characteristic and interests of the Affected Communities.
External Communication and Grievance Mechanisms	The client will implement and maintain a procedure for external communications that includes methods to i) receive and register external communications from the public, ii) screen and assess the issues raised and determine how to address them; iii) provide, track and document responses; and iv) adjust the management program as appropriate. Where there are Affected Communities, the client will establish a grievance mechanism to receive and facilitate resolution of Affected Communities concerns.
Ongoing Reporting to Affected Communities	The client will provide periodic reports to the Affected Communities that describe progress with implementation of the project Action Plans on issues that involve ongoing risk to or impacts on Affected Communities and on issues that the consultation process or grievance mechanism have identified as a concern to those Communities.

2.2.2 IFC Performance Standard 2 Labour and Working Conditions

IFC PS2 sets out requirements for labour and working conditions. The key objectives of IFC PS2 are:

- To promote the fair treatment, non-discrimination, and equal opportunity of workers;
- To establish, maintain, and improve the worker-management relationship;
- To promote compliance with national employment and labour laws;
- To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain;
- To promote safe and healthy working conditions, the health of workers; and
- To avoid the use of forced labour.

2.2.2.1 Acceptable Standards and Management of Workers' Accommodation

Workers' Accommodation: Processes and Standards, 2009 has been developed jointly by IFC and the European Bank of Reconstruction and Development (EBRD) (IFC & EBRD, 2009) and provides guidance on the establishment and management of workers accommodation. The guidance covers the following topics:

- General living facilities (e.g. drainage, heating, ventilation, lighting, water, sanitation, waste disposal);
- Room/dormitory facilities;
- Ablution facilities;
- Canteen, cooking and laundry facilities;
- Food safety and nutritional standards;
- Medical facilities;
- Leisure, social and telecommunication facilities;
- Management of the accommodation;
- Community relations and consultation;
- Fees and charges for the facilities and services;
- Health and safety onsite;
- Accommodation and local community security;
- Workers' rights, rules and regulations; and
- Workers' consultation and grievance mechanism.

2.2.3 IFC Performance Standard 4 Community Health, Safety and Security

The objectives of the IFC PS 4 are the following:

- To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances.
- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

Table 2.2 provides a summary of the IFC requirements in respect of community, health, safety and security.



Table 2.2 Summary of IFC PS 4 Requirements in Respect of Community, Health, Safety and Security

PS Number	Topic	Description
IFC PS 4	Community Health and Safety	The client will evaluate the risks and impacts to the health and safety of the Affected Communities during the project life-cycle and will establish preventive and control measures consistent with good international industry practice (GIIP), such as in the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines).
IFC PS 4	Infrastructure and Equipment Design and Safety	The client will design, construct, operate, and decommission the structural elements or components of the project in accordance with GIIP, taking into consideration safety risks to third parties or Affected Communities.
IFC PS 4	Hazardous Materials Management and Safety	The client will avoid or minimize the potential for community exposure to hazardous materials and substances that may be released by the project.
IFC PS 4	Ecosystem Services	The project's direct impacts on priority ecosystem services may result in adverse health and safety risks and impacts to Affected Communities.
IFC PS 4	Community Exposure to Disease	<p>The client will avoid or minimize the potential for community exposure to water-borne, water-based, water-related, and vector-borne diseases, and communicable diseases that could result from project activities.</p> <p>The client will avoid or minimize transmission of communicable diseases that may be associated with the influx of temporary or permanent project labour.</p>
IFC PS 4	Emergency Preparedness and Response	The client will assist and collaborate with the Affected Communities, local government agencies, and other relevant parties, in their preparations to respond effectively to emergency situations, especially when their participation and collaboration are necessary to respond to such emergency situations.
	Security Personnel	When the client retains direct or contracted workers to provide security to safeguard its personnel and property, it will assess risks posed by its security arrangements to those within and outside the project site.

2.2.4 IFC Performance Standard Guidance Notes

The guidance notes refer to assessment and management of environmental and social risks, labour and working conditions, resource efficiency and pollution prevention, community health, safety and security, land acquisition, and involuntary resettlement, biodiversity and sustainable management of living natural resources, cultural heritage.



2.2.5 IFC Good Practice Note – Assessing the Social Dimensions of Private Sector Projects, 2003

The document provides guidance on the components of social impact assessment which include scoping, establishing the social baseline and the analysis of social impacts. It provides potential social issues and impacts for consideration of projects.

The document also provides guidance note for the mitigation of adverse impacts, identification of sustainable development opportunities, preparing of the social component of the environmental and social action plan and monitoring.

2.2.6 World Bank Group General Environmental Health and Safety (EHS) Guidelines, 2007

Occupational Health and Safety (World Bank Group, 2007a) require that employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers.

2.2.7 World Bank Group Environmental, Health and Safety Guidelines for Petroleum Refining (2016)

These Guidelines identify the most significant health and safety hazards relevant to the operational phase of a petroleum refinery and provide guidance on how these can be managed.

2.3 Bahrain

2.3.1 Occupational Health and Safety

Occupational health and safety matters in Bahrain are regulated by the Supreme Council for Environment's (SCEs) Directorate of Environmental Assessment and Control and by the Ministry of Labour and Social Development in conjunction with the Ministry of Health.

The Labour Law No. 36 of 2012 in particular Title VX, addresses occupational safety and health. Articles 171 and 172 of Title VX require all workers to undergo a medical prior to employment and to receive basic health care at the cost of the employer.

Article 176 requires businesses employing fifty workers or more to provide its workers with necessary social and cultural services to be agreed in consultation with the trade union or the workers' representatives. The relevant Minister will issue a decision in agreement with the General Confederation Workers Trade Unions in Bahrain on the determination of these services and the level to which they must be provided.

Various regulations refer to directly or indirectly to workers and community human health. The other key applicable legislation is provided below.

- Law No (25) of 2009 with respect to approving the accession of the kingdom of Bahrain to the international labour convention no. (155) of 1981 with respect to occupational safety and health, and work environment.
- Ministerial Order No. 8 of 2013 with Respect to Regulating Occupational Safety and Health in Establishments.



- Ministerial Order No 4 of 2014 with respect to Determining the Required Conditions and Precautionary Measures for the Protection of Workers Engaged in Building Works, Construction and Civil Engineering.
- Ministerial Order No. 3 of 2005 with Respect to Environmental Regulations and Standards in the Work Place.
- Ministerial Order No 3 of 2013 with respect to Banning Work during Noon Time.
- Ministerial Order No. 12 of 2013 with respect to procedures required for reporting occupational injuries and diseases.
- Ministerial Order No. 6 of 2013 with respect to Protection of Workers from the Hazards of Fire in Establishments and Work Sites.
- Ministerial Order No 4 of 1996 regarding Maintenance of Thermal Insulators which Contain Asbestos Material and Disposal Thereof.
- Ministerial Order No 4 of 1999 regarding Licensing Work in Maintaining Equipment and Buildings that Contain Asbestos, Removal and Transportation of this Material and Disposal of its Waste.
- Ministerial Order No 12 of 2013 with respect to Procedures Required to Report Occupational Injuries and Diseases.
- Ministerial Order No 5 of 2014 with respect to Determining the Required Conditions and Precautionary Measures for the Protection of Workers from the Hazards of Work on Lifting Equipment.
- Ministerial Order No.9 of 2014 with respect to Protecting Workers from Natural (physical) Hazards at Establishments and Worksites.
- Ministerial Order No.15 of 2014 with respect to Protecting Workers from the Hazards of Highly Flammable Liquids and Liquefied Petroleum Gases at Establishments and Worksites.
- Minister Order No 28 of 2014 with respect to Determining the Services and Conditions Required for the Protection of Workers from the Hazards of Boilers, Steam Recovery Tanks and Air Receiver Tanks.
- Ministerial Order No 38 of 2014 with respect to Determining the Required Conditions and Precautionary Measures for the Protection of Workers from Mechanical and Environmental Hazards.

2.3.2 Air Quality

Air quality influences the health of affected communities. In Bahrain, national ambient standards are laid down by the SCE. The current Bahrain National Standards¹ are summarised in **Table 2.3**. For comparison, certain international standards and guidelines for SO₂, NO₂, CO and PM₁₀ are also presented in the table.

¹ Ministerial Order No. 10 of 1999 with respect to Environmental Standards (air and water).

**Table 2.3 Ambient Air Quality Standards and Guidelines**

Pollutant	Averaging Period	Bahrain ($\mu\text{g.m}^{-3}$)	EU ($\mu\text{g.m}^{-3}$)	World Bank EHS ($\mu\text{g.m}^{-3}$)
SO ₂	10 minutes	-	-	500
	Hourly	350 ⁽¹⁾	350 ⁽²⁾	-
	Daily	125	125 ⁽³⁾	20 ⁽⁴⁾
	annual	50	-	-
NO ₂	Hourly	200	200 ⁽⁵⁾	200
	Daily	150	-	-
	Annual	40	40	40
CO	8-hourly	10 000	10 000	-
	Daily	-	-	-
	Annual	-	-	-
PM ₁₀	Hourly	-	-	-
	Daily	340	50 ⁽⁶⁾	50
	Annual	-	40	20

Notes:

(1) Not to be exceeded more than twice in any 30-day period at a given location.

(2) Not to be exceeded more than 24 times a year.

(3) Not to be exceeded more than 3 times a year.

(4) WHO also proposed interim targets of $125\mu\text{g.m}^{-3}$, which is equal to the former WHO guidelines (WHO, 2000), and $50\mu\text{g.m}^{-3}$, which is viewed as a feasible and achievable goal that would lead to significant health improvements.

(5) Not to be exceeded more than 18 times a year.

(6) Not to be exceeded more than 35 times a year.

2.3.3 Noise

There are no environmental noise standards in Bahrain legislation, guidelines are provided in **Table 2.4**.

Table 2.2 of the World Bank Group EHS Guidelines for Noise Management, April 2007 presents the ambient noise level guidelines at specific locations/localities and for different types of structures. Guideline values are for noise levels measured out of doors. Noise impacts should not exceed the levels presented in **Table 2.4** below, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

Table 2.4 Noise Level Guideline Values at Property Boundary

	Daytime (07.00-22.00) (L _{Aeq} , dBA) ⁽¹⁾	Night Time (22.00-07.00) (L _{Aeq} , dBA)
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

1) L_{Aeq} is the sound level in decibels equivalent to the total A-weighted sound energy measured over a stated period of time.

World Bank Group EHS General Guidelines 2007, Table 2.3.1 provide limits for various working environments (**Table 2.5**).

Table 2.5 Noise Limits for Various Working Environments

Location / Activity	Unit	Equivalent Level LA _{eq,8h} ⁽¹⁾	Maximum LA _{max, fast} ⁽²⁾
Heavy Industry	dB(A)	85	110
Light Industry	dB(A)	50-65	110
Open Offices, control rooms, service counters or similar	dB(A)	45-50	-
Individual offices	dB(A)	40-45	-
Classrooms, lecture halls	dB(A)	35-40	
Hospitals	dB(A)	35-40	40
1) LA _{eq, 8h} is an averaged 8-hr continuous A-weighted sound pressure level, measured in decibels.			
2) LA _{max, fast} is the maximum value that the A-weighted sound pressure level reaches during a measurement period. Fast is averaged over 0.125 of a second.			

The Bahrain guideline values for noise, presented in **Table 2.6**, provide the maximum allowable noise limits for different area types for day, evening and night time periods. The day and night time noise limits for residential areas are the same as the World Health Organization (WHO) recommended ambient noise levels.

Table 2.6 Bahrain Noise Guideline Values

Location of Facility	Maximum Allowable Noise Limit (dB LA _{eq,T})
Residential Area A	55
Residential Area B	50
Residential Area C	45
Residential Area with some Commercial Activity A	60
Residential Area with some Commercial Activity B	55
Residential Area with some Commercial Activity C	50
Commercial Area A	70
Commercial Area B	70
Commercial Area C	70

A Acceptable daytime noise levels from 7.00-16.00 hours

B Acceptable evening noise levels from 16.00-23.00 hours

C Acceptable night time noise levels from 23.00-7.00 hours

2.3.4 Labour and Working Conditions (General)

Law No. 36 of 2012 (the Labour Law)

Law No. 36 of 2012, the Promulgation of the Labour Law in the Private Sector and associated legislation sets out employment requirements for Bahraini nationals and migrant workers.

The law sets out employees rights with respect to conditions of employment such as: annual leave, maternity leave, sick leave entitlement, labour disputes resolution and other topics. It also sets out measures to prevent human trafficking and prohibition of discrimination practices such as discrimination in the payment of wages based on sex, ethnic origin, language, religion or beliefs. It also states that it is prohibited to employ



any minor that has not yet attained the age of fifteen years. It is stated that a minor shall be every person who is fifteen years of age but who has not yet attained the age of eighteen years.

Order No. 79 of 2009 Respecting the Procedures of Foreign Worker Transfer to Another Employer

This Order from the Ministry of Labour grants the right of foreign workers to transfer to work with another employer without obtaining consent of the existing employer, without prejudice to the rights of the worker. A worker can leave employment should he/she not be paid.

Ministerial Order No. 16 of 2013 Specifying the Circumstances, Occasions and Works in Which Women are not Permitted to Work During the Night

This Order states that women are not allowed to work in industrial facilities or any of their branches between 7pm and 7am. An industrial facility means:

- Facilities in which material is produced, modified, cleaned, repaired, decorated, assembled and unassembled, destroyed or transformed including facilities that involve ship building, electric generation, transmittal and connection;
- Civil engineering, contracting, maintenance, construction and demolition facilities; and
- Any other facility specified by a Ministerial Order.

This law does not apply in emergency situations which could cause operations to cease, and if the work involved was necessary to prevent loss or damage of material. Nor does it apply to women working in administrative, technical or supervisory positions.

Ministerial Order No. 23 of 2013 Regarding Specifying the Conditions, Circumstances and Events for the Purposes of Regulating Employment of Minors, as well as the Works, Industries and Crafts Considered Hazardous to their Health and Safety in which it is not Permitted to Employ Minors

This Order specifies the industries in which it is not permitted to employ anyone under the age of 18. It also states employment that is banned for minors under the age of 12. The conditions for employing minors are also set out, although no definition is provided as to what constitutes a minor.

Ministerial Order No. 40 of 2014 With Respect to the Requirements and Specification of Workers' Accommodation

Ministerial Order No.40 of 2014 sets out minimum standards for labour accommodation including: space requirements; health and safety; kitchen facilities; dining facilities and maintenance requirements.

2.3.5 Labour and Working Conditions (Women)

Historically, the Kingdom of Bahrain is considered a progressive nation relative to neighbouring GCC countries. Women have had opportunities for education since the early 1900s, enabling them to pursue careers outside of their households. In 2002,



Bahrain's constitution was amended, providing equal rights to women and men under Articles 1 and 5 and banning discrimination on the basis of gender so long as this is compatible with Sharia Law (CEDAW, 2004).

Bahrain ratified the Convention on the Elimination of All forms of Discrimination Against Women (CEDAW) in 2002, but with reservations to Article 2, on prohibition against discrimination within government policies, particularly in the area of inheritance; the right of a woman to pass her citizenship to her husband and children under Article 9, paragraph 2; a woman's freedom of movement and choice regarding residence and housing under Article 15, paragraph 4; and equality in marriage and family life under Article 16.5. It has not yet ratified the Optional Protocol on violence against women.

Bahrain is currently working towards achieving the 2030 Economic Vision which was launched in October 2008 by King Hamad bin Isa Al Khalifa, as a comprehensive economic vision for Bahrain, providing a clear direction for the continued development of the Kingdom's economy and, at its heart, is a shared goal of building a better life for every Bahraini. The vision of this national plan is:

Bahraini society in 2030 will be a meritocracy where hard work and talent are rewarded with success. Basic care will be available irrespective of abilities, and all Bahrainis will enjoy equal opportunities.

"Fairness" is one of the principals of the Bahrain 2030 National Plan:

Fairness in society means that all are treated equally under the law, in accordance to international human rights; and that everyone has equal access to services, namely education and health care, and that the needy are supported via adequate job training and a targeted social safety net.

Law No 36 of 2012

Articles 29 to 36 provide requirements on employment of women. It states that there shall be no discrimination in the provisions of employment between men and women. Article 32 and 35 provides the maternity entitlement of female workers. Article 33 states that the employer shall not dismiss or terminate a female worker as a result of her marriage or during her maternity leave. Article 36 states that the employer shall post in a prominent location in the workplace a copy of the regulations governing employment of female workers.

Law No. 17 of 2015

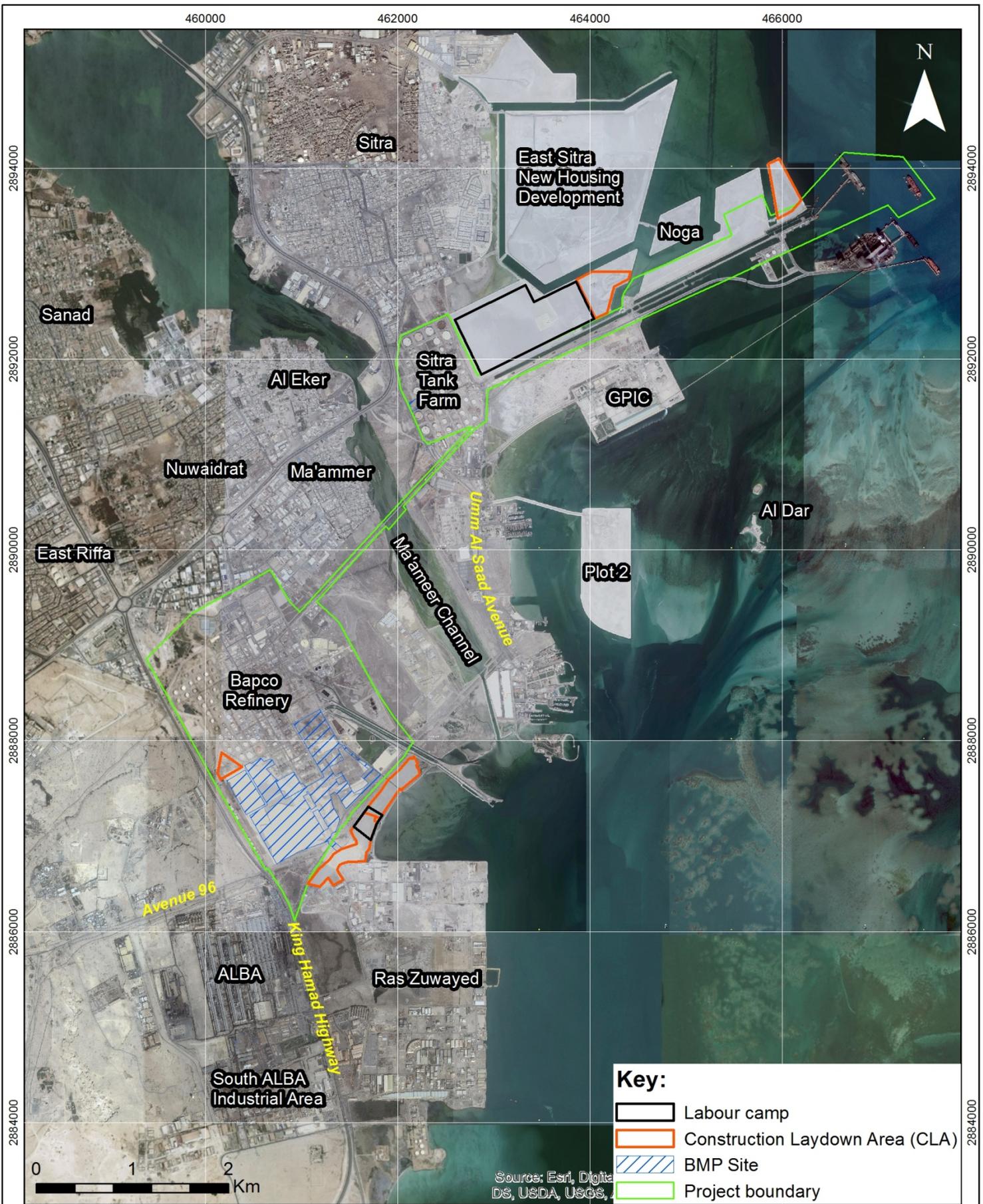
This law is concerning Protection against Domestic Violence specifies that physical, psychological and sexual domestic abuse is punishable by imprisonment for not more than three months and/or a fine not more than 200 Bahraini Dinars (BD).

3 PROJECT DESCRIPTION

A full description of the project is contained in the BMP ESIA; in this section only changes to the project since submission of the ESIA are addressed.

The only significant change to the project is the construction of a temporary labour camp for construction workers on the NOGA platform.

Figure 3.1 provides the Project Location.



Title: Project Location		Client:
Project: BMP Social Impact Assessment		   
Date: August 2018	Figure No.: 3.1	Consultant:
Datum: WGS 84 - UTM 39 N	Scale: 1:50,000 (A4)	 Environment Arabia

4 ASSESSMENT METHODOLOGY

4.1 General

The International Association for Impact Assessment (IAIA) states that social impacts are changes to one or more of the following²:

- people's way of life – that is, how they live, work, play and interact with one another on a day-to-day basis;
- their culture – that is, their shared beliefs, customs, values and language or dialect;
- their community – its cohesion, stability, character, services and facilities;
- their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratization that is taking place, and the resources provided for this purpose;
- their environment – the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control over resources;
- their health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity;
- their personal and property rights – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties; and
- their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

The impacts to people may be direct, indirect and induced. Direct impacts result directly from the project activities, indirect impacts typically occur when environmental quality is impacted by the project activities and this causes impacts to people. Induced impacts are the impacts which are encouraged or stimulated by the project. This could include changes in land value or an in-migration of job seekers into local communities. Social impacts can also be beneficial or negative.

4.2 Selection of Social Indicators

The social indicators have been selected based on the identified social baseline, regulatory criteria and stakeholder interests. The indicators are representative of the important features of the natural and human environment likely to be affected by the Project.

4.3 List of Social Indicators

Table 4.1 below provides the list of social indicators and the impacts which are discussed for each indicator.

²IAIA- Social Impact Assessment <http://www.iaia.org/wiki-details.php?ID=23>



Table 4.1 Social Indicators and Associated Impacts

Social Indicators	Potential Impacts
Economy and Employment	<ul style="list-style-type: none"> ➤ Construction <ul style="list-style-type: none"> • Employment • Economic impact from procurement and worker spending • Training and capability enhancement ➤ Operational <ul style="list-style-type: none"> • Employment • Economic impact of Bahrain
Infrastructure and Public Services	<ul style="list-style-type: none"> ➤ Construction <ul style="list-style-type: none"> • Disruption of roads • Pressure on local services ➤ Operational <ul style="list-style-type: none"> • Disruption of roads • Utilities
Land and Livelihoods	<ul style="list-style-type: none"> ➤ Construction <ul style="list-style-type: none"> • Access to open areas • Livelihoods and household income (particularly from fishing activities) ➤ Operation <ul style="list-style-type: none"> • Livelihoods and household income (particularly from fishing activities)
Community Health Safety and Security	<ul style="list-style-type: none"> ➤ Construction and Operation <ul style="list-style-type: none"> • Health risks/ communicable diseases • Environmental health and quality of life • Security • Traffic and communities ➤ Operational <ul style="list-style-type: none"> • Health risks / communicable diseases • Environmental health and quality of life • Security • Traffic and communities • Unplanned events
Workers Management and Rights	<ul style="list-style-type: none"> ➤ Construction <ul style="list-style-type: none"> • Worker health and safety • Worker security • Workers rights and conditions of employment • Use of Forced Labour • Employment of children • Payment of workers • Labour accommodation ➤ Operational <ul style="list-style-type: none"> • Worker security • Workers rights and conditions of employment
Community Cohesion	<ul style="list-style-type: none"> ➤ Construction <ul style="list-style-type: none"> • In migration/ social cohesion

Table 4.2 provides the identified provisional receptors for each social indicator.

Table 4.2 Social Indicators and Provisional Receptors

Social Indicators	Provisional Receptors
Economy and Employment	Residents, local businesses, vulnerable groups
Infrastructure and Public Services	Government, local communities, vulnerable groups, residents/businesses.
Land and Livelihoods	Local communities, marine environment users, residential/businesses.
Community Health Safety and Security	Local communities, vulnerable groups, workers, residents/businesses.
Workers Management and Rights	Workers.
Community Cohesion	Local communities, vulnerable groups.

4.4 Assessment Boundaries

4.4.1 General

The Area of Influence (Aol) for the SIA encompasses the area likely to be affected by i) the project, ii) impacts from unplanned and predictable developments caused by the project that may occur later or at a different location; or iii) indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities livelihoods are dependent. The Aol includes associated facilities which are facilities that are not funded as part of the project and that would have not been constructed if the project did not exist. The Aol also includes the cumulative impacts that result from the incremental impact, on areas of resources used or directly impacted by the project³.

The Aol extends beyond the project footprint and may include indirect and induced impacts. It is therefore essential to analyse impacts in the wider context of the area or region to consider short-term, long term, cumulative and transitory impacts⁴.

4.4.2 BMP

The affected communities for the BMP have been defined as the project localized surrounding area in which there is a reasonable potential for immediate or indirect impact on health and social indicators. The following affected communities have been identified based on the receptors identified for the ESIA and the outcome of the assessment (see **Figure 3.1**):

- Ma'ameer;
- Nuwaidrat;
- Al Eker;
- East Riffa;

³ IFC Performance Standard 1 – Assessment and Management of Environmental and Social Risks and Impacts.

⁴ International Finance Corporation (IFC), 2003, Good Practice Note, Addressing the Social Dimensions of Private Sector Projects

- Sanad; and
- Accommodation blocks at the south and west, housing workers who are non-project related.

The following receptors have also been identified:

- Businesses on Um Al Saad Avenue;
- Marine Environment Users;
- Vulnerable groups including migrant workers, women, disabled persons, the elderly, unemployed, youth and religious minorities.

The Kingdom of Bahrain will be a receptor for certain macro-level socio-economic impacts; however, most socio-economic impacts will be experienced at the meso/micro-level in the affected communities identified above.

4.5 Impact Assessment Significance Criteria

The impact significance has been determined by considering a combination of following factors:

- **Magnitude** of the impact;
- **Sensitivity** of the receptor;
- **Extent** of the impact; and
- **Duration** of the impact.

For the purpose of the assessment, these factors will be assessed on a 5 point scale, with 1 being of low impact and 5 being a high impact. In each case, the values assigned can either be positive (+) indicating a beneficial impact, or negative (-) indicating an adverse impact. Zero values are assigned where no impact is considered to exist.

Table 4.3 provides a scale of scores for conducting the impact assessment. The scale is in line with the BMP ESIA. The scores for each factor have been estimated qualitatively using expert judgment by reference to this scale.



Table 4.3 Impact Assessment Evaluation Criteria

Scores	Magnitude	Extent	Sensitivity	Duration
-5	Differs substantially from baseline conditions and is beyond a guideline or threshold value, resulting in a detectable change beyond the range of natural variation/health. Those affected will generally experience significant deterioration to quality of life/health.	International	High significance to stakeholders and affected communities.	Permanent
-4	Those affected will generally experience moderate deterioration to quality of life/health.	National	Medium significance to stakeholders and affected communities.	Long Term (over 10 years)
-3	Those affected will generally experience a slight to moderate deterioration to quality of life/health.	Regional	Low to Medium significance to stakeholders and affected communities.	Medium Term (5-10 years)
-2	Those affected will generally experience a slight deterioration to quality of life/health.	Community	Low significance to stakeholders and affected communities.	Short Term (1- 5 years)
-1	Those affected will generally experience negligible deterioration to quality of life/health.	Individual/ household: impact is limited to individuals, families and/or households.	Impact is undesirable but acceptable.	Temporary (less than 1 year)
0	Either no impact or the impact is neutral (neither adverse nor beneficial)	No extent	Either no impact or the impact is neutral (neither adverse nor beneficial)	No duration
+1	Those affected will generally experience very negligible improvement to quality of life/health.	Individual/ household positive impact: impact is limited to individuals, families and/or households.		Temporary (less than 1 year).



Scores	Magnitude	Extent	Sensitivity	Duration
+2	Those affected will generally experience a slight improvement to quality of life/health.	Community	Positive and low significance to stakeholders and affected communities.	Short term (1 to 5 years)
+3	Those affected will generally experience a slight to moderate improvement to quality of life/health.	Regional	Positive, low to medium significance to affected communities.	Medium Term (5-10 years)
+4	Those affected will generally experience moderate improvement to quality of life/health.	National	Positive medium significance to affected communities.	Long Tem (over 10 years)
+5	Those affected will generally experience significant improvement to quality of life/health.	International	Positive high significance to affected communities.	Permanent

To calculate the level of significance, an additive formula will be used as highlighted in **Table 4.4** to generate a numerical Impact Score.

Table 4.4 Impact Significance Calculation Matrix

[+/- value 0-5 Magnitude]	[+/- value 0-5 Sensitivity]
[+/- value 0-5 Extent]	[+/- value 0-5 Duration]
Impact Score= [Magnitude] + [Sensitivity] + [Extent] + [Duration]	

Once the Impact Score has been generated, the significance of the effect will be determined as highlighted in **Table 4.5**.

Table 4.5 Impact Significance

Impact Score Range	Impact Classification
- 20 to - 16	Major adverse impact
- 15 to - 11	Moderate adverse impact
- 10 to - 6	Minor adverse impact
- 5 to 5	Negligible
6 to 10	Minor beneficial impact
11 to 15	Moderate beneficial impact
16 to 20	Major beneficial impact

5 SOCIAL BASELINE

5.1 Kingdom of Bahrain

5.1.1 Demographics

The Kingdom of Bahrain is an island in the Arabian Gulf, situated between the Qatar peninsula and the north eastern coast of Saudi Arabia, to which it is connected by the 25-kilometre King Fahd Causeway. Bahrain has a total area of 762.32 km², which has increased through extensive reclamation since 1975 when the total area was 662 km².

The Kingdom of Bahrain is divided into four Governorates – Capital, Muharraq, Northern and Southern. The Southern Governorate has the largest area of all four, occupying over half the kingdom; however, approximately 38.5% of the population is concentrated in the Capital Governorate which is the smallest of the governorates. This in turn gives rise to high population density, which was estimated to be 1,761 person/km² in 2017.

The population of Bahrain has experienced rapid growth between the year 2001 and 2010, with the population doubling from 650,172 to 1,234,571 respectively. Factors such as the natural growth of the native population and the influx of expatriate workers and Arab immigrants contributed significantly to this increase.

This growth rate has since slowed down as the most recent census (2017) estimates the population to be 1,501,116 (45% Bahraini, 55% non-Bahraini). Natural growth rates between the year 2010 and 2016 have shown a small increase, rising from 12.6 to 13.7 (per 1000 of the population) (Source: CIO website). **Figure 5.1** provides the population pyramid for Bahrain in 2017, which includes both Bahraini nationals and non-Bahraini nationals. **Figure 5.2** provides the population pyramid for the Bahraini Population alone.

Figure 5.1 Total Bahrain Population Pyramid 2017 (PopulationPyramid.net)

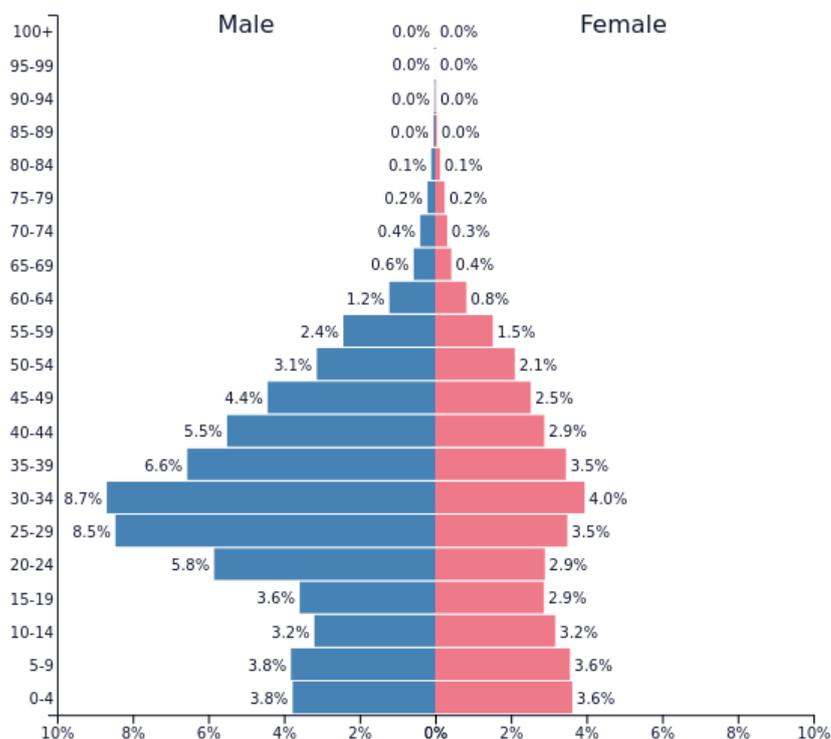
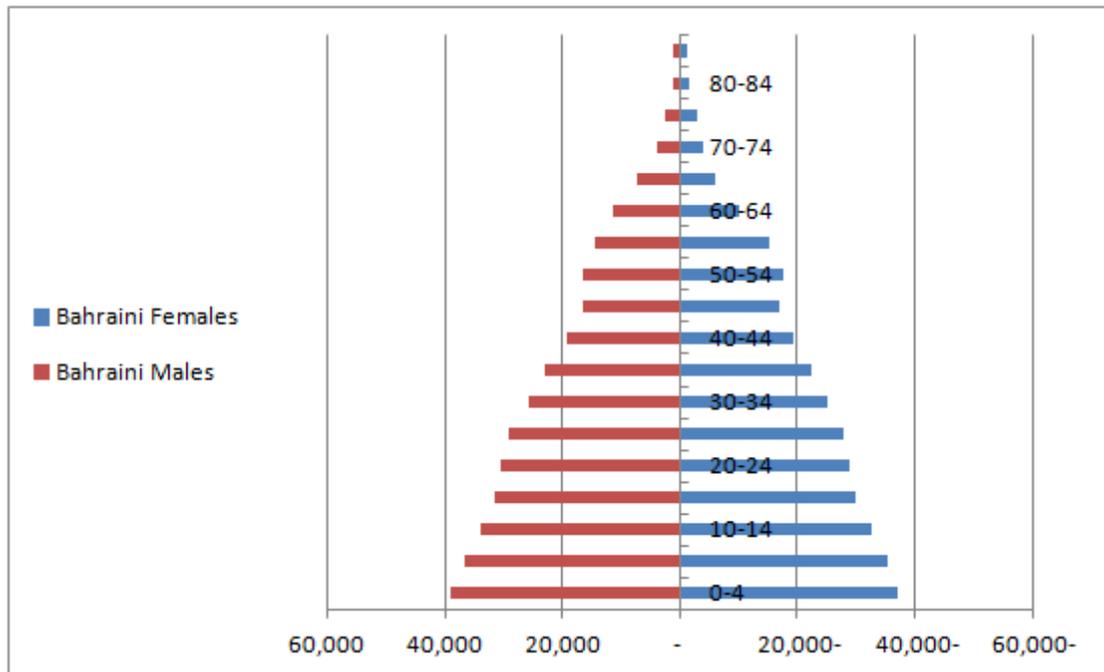


Figure 5.2 Bahraini Population Pyramid, 2017 (Source, CIO website)



The population pyramid for Bahraini nationals together with non-Bahrainis shows that there are a significantly higher number of males in the age range of 20 to 49. This is due to the large male expatriate workforce in the country, largely employed in the construction sector. **Figure 5.2** shows that the Bahraini population is youthful (the majority of the population is in the younger age groups) and so more are within the reproductive age range. The male to female ratio within Bahraini nationals is more uniform. **Table 5.1** presents the population of Bahrain by Governorate, Nationality and Sex.

The Bahraini population is predominately Muslim, both Sunni and Shi'a denominations. The presence of a large expatriate community in Bahrain accounts for the practice of other religions such as Hinduism, Christianity and Baha'ism.

**Table 5.1 Population by Governorate, Nationality and Sex, 2017 (Source: CIO Website)**

Governorate	Bahraini		
	M	F	Total
Capital	85,205	84,476	169,681
Muharraq	65,793	64,054	129,847
Northern	124,848	121,137	245,985
Southern	67,494	64,499	131,993
Sub-Total	343,340	334,166	677,506
Non-Bahraini			
Capital	307,439	100,312	407,751
Muharraq	93,741	39,613	133,354
Northern	78,850	34,590	113,440
Southern	127,942	41,123	169,065
Sub-Total	607,972	215,638	823,610

In 2017, the Capital Governorate had the highest population at 577,432. This was followed by the Northern Governorate at 359,425, Southern Governorate at 301,058 and lastly the Muharraq Governorate at 263,201.

5.1.2 Health

Detailed local settlement level health statistics in the Kingdom of Bahrain are not publicly available. However, data on the incidences of relevant health conditions which is available, has been presented in this section.

Health care in the Kingdom of Bahrain has shown improvement in recent years. The average life expectancy at birth in the Kingdom of Bahrain has risen in the past two decades due to advances in health care and higher living standards, increasing from 74.4 years in 2000, to 76.1 years in 2010, and to 77.0 years in 2017 (Source: UNDP).

In 2015, it was estimated that 100% of the population had access to local health services and safe drinking water (source: Ministry of Health). There are 24 hospitals in the Kingdom, 9 of which are government hospitals including Salmaniya Medical Complex (SMC), Bahrain Defence Force (BDF) Hospital and King Hamad University Hospital (KHUH). In addition, 25 government primary health care units and centers are available around the country.

In 2015, 8% of the total government budget was allocated to the Ministry of Health, 0.6% higher than was allocated in 2011. A total number of 24.4 doctors and 4 dentists per 10,000 population was recorded in 2015, and 18.9 beds per 10,000 population. (Source: CIO website)

Vaccines are widely available for children in government hospitals free of charge. In 2015, 99% of newborns received the Hepatitis B vaccination and 100% of infants received Mumps, Measles, Rubella and Meningococca vaccinations. The 2015 statistics show that 0.02% of the population aged between 15-24 had HIV. (Source: Ministry of Health)



In 2015, the leading cause of death in the Kingdom of Bahrain was found to be diseases of the circulatory system (36.6%), followed by Neoplasms (14.2%), external causes of morbidity and mortality (9.6%) and respiratory diseases (9.3%). **Table 5.2** shows the total number of Bahraini and non-Bahraini patients admitted to SMC for various illnesses in 2015. Most of the patients admitted to SMC for cancer were between the ages of 50-59 while patients admitted to SMC for chronic respiratory illness are in the younger age groups of 30-39.

Most of the patients were found to be from Manama (8002), followed by Jidhafs (5449) and the Central region (5170). SMC is the largest public cancer treating hospital in the Kingdom of Bahrain and as such, this data is believed to be representative of the country. Data for the recently established KHUH Oncology Center is not available.

Table 5.3 shows the distribution of cancer and respiratory diseases registered by the Ministry of Health by Governorate between the years 2013 to 2017 (source: Non-Communicable Diseases Unit Bulletin, Issue No. 7, November 2017). The highest incidences of cancer and respiratory diseases on a national level were found in the Capital and Northern Governorates. This is to be expected as these two Governorates have the highest populations. **Table 5.4** indicates the distribution of patients according to their region.

With regard to occupational injuries, in 2015 it was found that the highest rate of occupational injuries was associated with the manufacturing industry (439 injuries) followed by wholesale and retail trade, auto, motorcycles and personal appliance repair (184 injuries) and construction (156 injuries). (Source: Ministry of Health)

Table 5.2 Total Number of Patients at SMC per Principal Diagnosis (2015)

Principal Diagnosis	Bahraini				Non Bahraini				Total
	Male		Female		Male		Female		
	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	
Certain infectious and parasitic diseases	349	16	352	8	246	8	113	3	1095
Neoplasm	789	139	1058	126	138	18	171	13	2452
Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	2873	19	2050	16	50	-	108	1	5117
Endocrine, nutritional and metabolic diseases	443	25	500	32	120	9	45	3	1177
Mental and behavioral disorders	37	1	13	-	29	-	3	-	83
Diseases of the nervous system	151	8	154	13	74	2	32	1	435
Diseases of the eyes and adnexa	524	-	467	-	127	-	73	-	1191
Diseases of the ear and mastoid process	101	-	95	-	20	-	14	-	230
Diseases of the circulatory system	778	76	549	57	794	34	134	4	2426
Diseases of the respiratory system	1712	52	1331	59	401	5	228	6	3794
Diseases of the digestive system	1297	24	1121	15	742	3	254	1	3457
Diseases of the skin and subcutaneous tissue	221	2	174	7	133	1	59	-	597

Table 5.3 Distribution of Cancer and Respiratory Diseases by Region, 2013-2017

Disease	Governorate	Bahraini			Non-Bahraini			Total			%
		Female	Male	Total	Female	Male	Total	Female	Male	Total	
Cancer	Capital	256	186	442	55	64	119	311	250	561	29.11
	Muharraq	172	109	281	33	15	48	205	124	329	17.07
	Northern	329	237	566	19	14	33	348	251	599	31.08
	Southern	146	116	262	34	18	52	150	134	314	16.29
	Unspecified	76	34	110	10	4	14	86	38	124	6.43
Respiratory	Capital	8277	8598	16875	3240	8324	11564	11517	16922	28439	28.28
	Muharraq	7309	8194	15503	2078	3910	5988	9387	12104	21491	21.37
	Northern	12670	12851	25521	1162	2527	3689	13832	15376	29210	29.04
	Southern	5782	5710	11492	1654	3667	5321	7436	9377	16813	16.72
	Unspecified	1691	1319	3010	489	1123	1612	2180	2442	4622	4.60

**Table 5.4 Number of Patients Admitted to SMC per Region (2015)**

Region	Total			
	Alive		Dead	
	Male	Female	Male	Female
Hidd	216	220	11	4
Muharraq	1545	2007	52	44
Manama	3609	4147	134	112
Jidhafs	2370	2941	73	65
Northern	1649	2128	38	38
Sitra	1749	2456	33	28
Central	2212	2840	65	53
Isa Town	940	1334	44	29
Riffa	1160	1562	34	23
Western	1319	1850	36	38
Southern	103	25	3	1
Hamad Town	1608	2285	35	33
Undetermined	317	230	11	2
Total	18797	24025	569	470

5.1.3 Education

The average literacy rate (both sexes expressed as percentage aged 15 years and above) was 85.5% in the year 2000, 87.9% in the year 2005, and in the year 2010 the average increased to 90%.

Bahraini women have had opportunities for education since the early 1900s, commencing with religious education and Quran studies. In 1928, Bahrain became the first Gulf state to have official institutionalized education for women, when the first secular school (*Khadija Al-Kubra Girls School*) was established.

2013 UNICEF data on education statistics reveal that the gender gap in both primary education and literacy rates is almost closed. Boys and girls' literacy rates for the 15-24 age group are almost identical, at around 98% (Source: *Genderindex* website).

In the year 2017, net attendance in primary and secondary schools was 50% boys and 50% girls. In addition, women form the bulk of university students. In 2017, 61% of university students were found to be women (SCW, 2017).

Women were granted scholarships to study in Egypt and Lebanon since the 1950s. In 2013-2013, 70% of Ministry of Education Scholarships were granted to women (SCW, 2015).

5.1.4 Economic Activity

Approximately 72.4% of the labour force in Bahrain is comprised of non Bahraini workers (mostly male) engaged in the private sector while the majority of Bahraini work force is employed in the public sector. Unemployment rates have slightly gone up from 3.6% in 2010 to 4.3% in 2016, perhaps due to the introduction of a new young labour



force (i.e. new graduates) to the market as well as the fact that only 1% of the population is in the retirement age group (60-65) (Source: CIO Website).

Early education of Bahraini women aided their contribution to the labour market, where they represented 31.8% of the Bahraini Work force in 2010. The majority of working women are engaged in the private sector (*SCW 2017*). On average, women's wages have increased from 690 Bahraini Dinars (BD) in 2010 to 807 BD in 2015 in the public sector and from 439 BD in 2010 to 516 BD in the private sector (*SCW 2015*). Furthermore, women have owned commercial registrations for various businesses since 1960. In 2010, approximately 40.96% of commercial registrations were owned by women.

In general, women are engaged in various occupations across the public and private sector; however, there are certain occupations which are prohibited to women in accordance to Decree No 5 of 1977, due to potential health risks.

Economic activity in the Kingdom of Bahrain is diverse; however, the crude petroleum and natural gas sector is the largest contributor to the nation's Gross Domestic Product (GPD) followed by the manufacturing sector, which contributed 19.21% and 14.92% respectively in 2016. Although total revenue from the oil and gas sector dropped from 2,600.16 Million BD in 2013 to 1436.46 Million BD in 2016, this is expected to change in the coming years with the most recent discovery of large oil reserves in Bahrain where 80 billion barrels of shale oil were discovered in 2018 (Source: CIO Website).

Discrimination in employment on the basis of gender is illegal in Bahrain, and it is illegal to dismiss a woman from employment while she is on maternity leave. Pregnant women in Bahrain are entitled to 60 days' paid maternity leave, and a further 15 days unpaid. While on maternity leave, a woman receives 100% of her salary. Paid maternity leave is financed by the employer.

Finally, in 2015 unemployment in Bahrain was recorded at 3.1%, 2.7% of which is female unemployment. (SCW)

5.1.5 Marriage and Family Structure

No minimum age of marriage had been defined in Bahrain until October 2007 when the Minister of Justice fixed the legal ages at 18 for males and 15 for females according to the *2008 CEDAW Report*. However, a Sharia court can give permission for a marriage to take place before a girl reaches the age of 15, in cases of 'urgent need' as per the *2008 CEDAW Report*. Up-to-date figures for early marriage are not available, but data held by the UN from 2001 indicates that at that point, 4.2% of girls aged 15-19 were married, divorced or widowed. (Source: *Genderindex* website)

According to the 2007 official CEDAW report, parents enjoy joint custody of children during marriage. In addition, the husband is legally recognised as the guardian of his wife.

Only men are able to initiate divorce, unless a clause allowing the wife to do so has been included in the marriage contract. The only other way a woman can obtain a



divorce is if she requests a 'khula' divorce. Under 'khula', a woman is able to request a divorce unilaterally, but forfeits her dowry and any future financial support from her ex-husband. (Source: *Genderindex* website)

In the event of divorce, under the new personal status code, custody of children is assigned to Sunni women until boys reach the age of 15 and daughters reach the age of 17 (or marry, whichever comes first). For Shiites, mothers retain custody until boys reach the age of seven, and girls reach the age of nine. In both cases, women in any event would only have physical custody over their children, as the father retains legal custody. Finally, a woman also loses custody of her children if she remarries. (Source: *Genderindex* website)

5.1.6 Access to Financial Resources

Under Bahrain's Constitution, Commercial Code, and National Action Charter, women have the right to own, access, and manage land and non-land assets. On marriage, a woman retains control and ownership of any property that she owns unless stipulated in the marriage contract; she can manage and dispose of that property without her husband's consent. According to the 2011 CEDAW report, the Bahrain Women's Union note that in practice, in the case of divorce, it is often difficult for women to claim their right to property purchased jointly during the marriage. Women and men have the same legal rights to access financial services, including credit and bank loans. (Source: *Genderindex* website).

Furthermore, some government programmes to support the establishment of small and medium-sized businesses have specifically targeted women. These include the Family Bank, established in 2007, which provides micro-credit as well as other services to support women entrepreneurs, and the Edbaa Bank (established in 2009), which provides micro-credit to low-income recipients. Women made up 65% of recipients of micro-credit loans from the Edbaa Bank, to the end of 2010. (Source: *Genderindex* website)

Inheritance is governed by Sharia law, which provides guidelines for calculating inheritance shares. Al Gharaibeh outlines an important distinction between Bahrain's two primary Muslim sects; Sunni and Shiite. For example, in the absence of a direct male heir, Bahraini Shia interpretations allow daughters to inherit the full estate of a deceased father. By contrast, Sunni traditions oblige daughters to share such an inheritance with the brothers or other male relatives of the deceased. At the same time, a Shiite wife cannot inherit land, only moveable property. (Source: *Genderindex* website)

5.1.7 Leadership and Political Rights

Bahraini women have a more liberal situation than women in other Middle Eastern countries. Bahraini women have had the right to vote since 2002. In 2014, 46.41% of voters in the Municipal Council and Representative Council elections were women (SCW 2015).

A woman was directly elected onto a Municipal Council for the first time in 2010 and in 2014, women made up 22.5% of the Shura Council member and in 2015, there were 21 female judges in Bahrain. Bahrain has also had female Ministers.

Generally speaking, there is a gap in leadership position in Bahrain as shown in **Table 5.5** which shows the number of men and women in select high positions.

Table 5.5 Number of Men and Women per Leadership Position

Position	Number of women	Number of Men	Percentage of Women	Percentage of Men
Minister	1	19	5%	95%
Deputy Minister	3	29	9%	91%
Council of Representative Member	3	37	7.5%	92.5%
Shura Council Member	9	31	22.5%	77.5%
Municipal Council Member	3	27	10%	90%

In 2011, UNDP Bahrain, in partnership with the Supreme Council for Women, supported an advocacy campaign for women's participation in the parliamentary by-elections for eighteen vacant seats. As a result, three additional women were elected, raising the number of elected female MPs from one to four among 40 MPs in total.

Bahraini women have assumed leading positions in various fields of work and responsibilities, including high holding high diplomatic and decision-making posts. This is reflected in its Gender Inequality Index (GII) value of 0.258 (HDR 2013), ranking it 45 out of 148 countries in the 2012 index. In Bahrain, 18.8% of parliamentary seats are held by women.

5.1.8 Civil Liberties

The law provides for freedom of movement and access to public space for all persons. Women do not need permission from their husband or guardian to obtain a passport and it is illegal for a husband to confiscate his wife's travel documents. However, married women in Bahrain are legally required under Sharia law to live in the matrimonial home (chosen by the husband). It remains socially unacceptable for unmarried women to live alone.

In 2012, Human Rights Watch found, migrant women workers face legal restrictions on their freedom of movement, as their legal status in the country is dependent on their employers. They cannot leave the country until their employer has cancelled their work visa, and must wait one year before they can change jobs within Bahrain (Source: *Genderindex* website).



Until 2015, there was no criminal or civil legislation in place in Bahrain protecting women from domestic violence. Law No. 17 of 2015 concerning Protection against Domestic Violence specifies that physical, psychological and sexual domestic abuse is punishable by imprisonment for not more than three months and/or a fine not more than 200 BD.

Furthermore, under the Penal Code, rape is a criminal offence in Bahrain; the punishment is life imprisonment, however; the law does not recognize the concept of spousal rape.

Sexual harassment is illegal in Bahrain under provisions of the Criminal Code; this includes verbal harassment as well as physical. No information was found regarding the existence of any mechanisms or measures in place to ensure implementation of the legal provisions relating to sexual harassment.

Sexual harassment appears to be a problem in Bahrain, but is widely underreported, as women are fearful of bringing shame upon themselves and of the potential negative impact on their careers, and because of the lack of support to victims.

All sex outside of marriage is illegal. So called 'honour' killings are punishable under Bahraini law, but provisions in the Penal Code allow for lower penalties if a crime is committed in anger by a man against his wife or sister, when he discovers his wife in the act of adultery, or his sister in the act of fornication. There is no evidence that female genital mutilation is practiced in Bahrain. (Source: *Genderindex* website)

5.1.9 NGOs and Support Groups

Isolated and small women's movements existed since 1950, in addition to women's participation in male-directed political parties and movements. In 1994 women participated actively in anti-government protests. Since 2001, women's activists have worked under the umbrella of the Supreme Council for Women (SCW), headed by the king's first wife HRH Princess Sabeeka bint Ibrahim Al-Khalifa. The council promotes women's rights mainly in these areas: economic, political and within the family. Moreover, also in 2001, was created The Bahrain Women Union (BWU). This union of 12 women's association works for women's economic, social and political empowerment.

UNDP Bahrain works in partnership with national institutions to strengthen the capacities of women to empower them to occupy positions of leadership and to provide women with new work opportunities. In addition, efforts will continue towards activating the rights detailed in international instruments and implementing national strategies guaranteeing equality for women. In order to evaluate the impact of development strategies, disaggregated data and budgeting must also be considered. These are the key areas in which UNDP will provide support to women's empowerment in Bahrain.



5.1.10 Marginalized Groups in Bahrain

5.1.10.1 Disabled Persons

In September 2014, the number of disabled individuals registered with the Ministry of Development and Social Affairs was estimated to be 9,312. (Source: A brief on the status of the disabled in the Kingdom of Bahrain and the challenges face them (In Arabic), May 2015).

Many challenges face the disabled, especially disabled children and their families. These challenges included psychological stress that cannot always be assessed and quantified, and financial pressure that result from the need to enrol disabled children in special schools and facilities, in addition to extensive medical bills. Furthermore, social impacts may arise from disability. Social ties often suffer with friends and neighbours, or between the disabled and their siblings, or between parents of the disabled child.

In Bahrain, the law protects the rights of persons with disabilities and a variety of governmental, semi-governmental and religious institutions are mandated to support and protect persons with disabilities.

The Ministry of Health provides various services to the disabled including home visits and home care, priority of service in health centres in addition to routine checkups, prenatal care, treatment and awareness campaigns.

In 2007, the High Committee for Disabled Affairs was established under the Ministry of Labour and Social Affairs. The Committee deals with rehabilitation efforts and counselling for the disabled and their families.

Other mechanisms for help and support for disabled Bahrainis are through the Disabled Services Centre, headquartered in Manama. This service centre specializes in employing and training the disabled, educating and providing social services to the disabled and their families, creating a support system for the disabled, and conducting special research on disabilities.

5.1.10.2 Youth

Bahrain is considered a youthful population. People under 25 years of age (defined as young people) constitute 39.5% of Bahrain's population (2017). In 1975, Bahrain established the Supreme Council for Youth and Sports (now the Ministry of Youth and Sports) which deals with youth activities and sports and aims to build socially and physically fit citizens. Many youth centers are available for the youth around the kingdom. In the Southern Governorate there are the following youth centers:

- Buhair Youth Center;
- East Riffa Youth Center;
- Ma'ameer Sport and Culture Center; and
- Sanad Youth Center.

Road traffic injuries and deaths from road traffic injuries are a major concern for young people, with the average proportional mortality ratios among young people in Bahrain being 13.5%, compared to 3.9% for the total population of Bahrain. Road traffic accidents in Bahrain for people under 25 are usually associated with drinking while intoxicated, exceeding speed limits, or distracted driving.



5.1.10.3 Elderly

The population over 65 years represents 2.5% of Bahrain's population (2017). The elderly are generally considered vulnerable because of their health status, cognitive ability and more limited social support. There is very limited public statistical data available on the status of the elderly population in Bahrain.

The National Committee for Elderly is considered responsible for the elderly in the Kingdom. The main goals of the committee are:

- The implementation of public policy for the care of the elderly;
- The preparation of programs and project for the care of the elderly;
- The cooperation with stakeholders to develop the services provided for the elderly;
- Finding sources to fund programs and activities;
- Raising public awareness of the issues of the elderly; and
- The organization of conferences and workshops.

Other organizations for the elderly include the Elderly Service Bureau in Isa Town. The Bureau offers various services including:

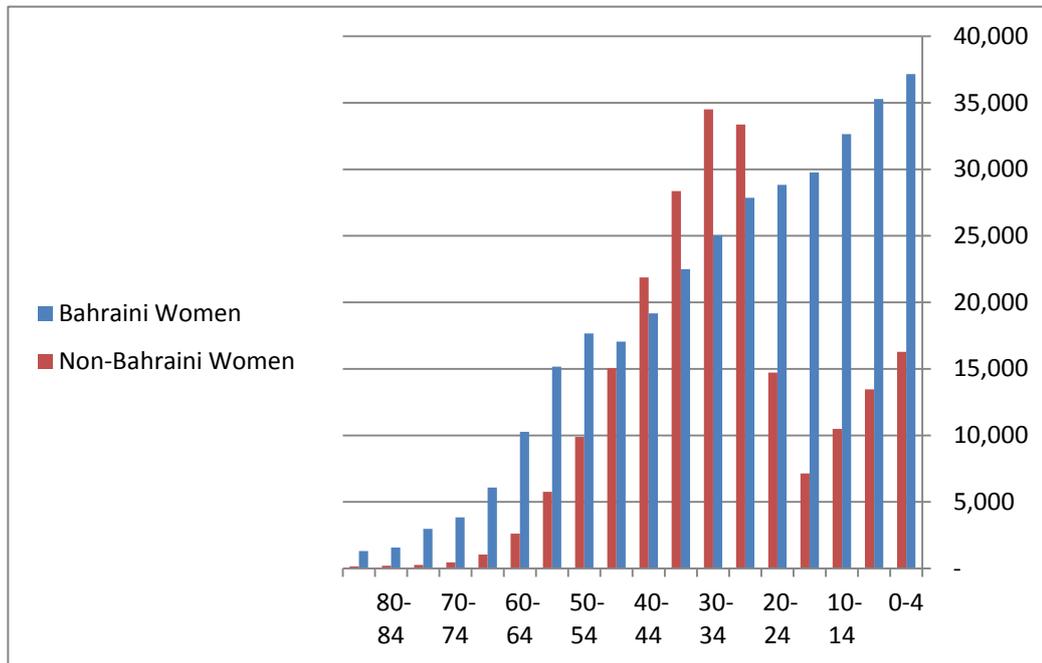
- Provision of discount cards for the elderly;
- Provision of support groups to enhance the quality of life for the elderly;
- Provision of social and family counseling; and
- Undertaking surveys for the elderly categories.

Generally, the elderly are cared for by their children and/or families. Is it not common for the elderly to be placed in elderly care centers. However; there are 12 centers available in Bahrain for care of the elderly, one of which is in Riffa near to the BMP project.

5.1.10.4 Women

According to the latest census, women in Bahrain compromise 36.6% of the total population of (49.3% of the Bahraini population). Most of the Bahraini women are in the young age group; approximately 35% of women are under the age of 25, 61% are working age (25-64 years old) and 4% are over the age of 65 (**Figure 5.3**). In the Southern Governorate there is a total of 105,622 women (61% of them are Bahraini).

Figure 5.3 Distribution of Bahraini and Non-Bahraini Women According to Age (Source: CIO)



5.2 Project Location

5.2.1 The Southern Governorate

The Southern Governorate is the largest of the four governorates; much of the Southern Governorate is open space and undeveloped land. There are a number of important industrial sites within the area including Bapco, Alba, GPIC, Banagas (Bahrain natural gas purification and processing plant), Al Dur (integrated desalination and power plant), South Alba industrial area and the Bahrain oil and gas field.

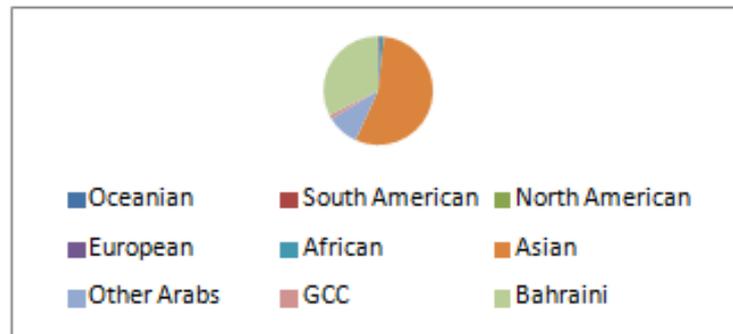
The Bahrain oil and gas field occupies much of the centre of the island and residential areas occupy the coastal zone (Hamad Town, Zallaq on the west coast, Jaww and Askar on the east coast and the new development of Durrat Al Bahrain to the south).

The Southern Governorate also hosts important leisure and educational resources in the western area including Bahrain International Circuit, Bahrain University and equestrian facilities.

The Southern Governorate is mainly a residential area where 51.2% of establishments are residential units which are relatively new (34.4% of the establishments are under 14 years of age). Local residents mostly occupy flats and private villas (40.7% and 44.5% respectively).

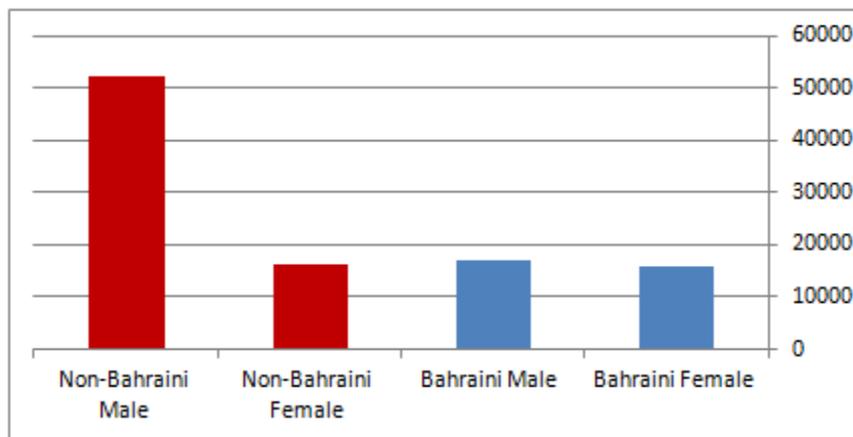
The total population living in the Southern Governorate was 101,456 in 2010. The population in the Governorate was estimated to be 301,058 in 2017 (20% of the total Bahraini population), almost tripling in size in less than a decade (CIO website). This could be a direct result of merging part of the former Central Governorate with the Southern Governorate in September 2016 (see **Figure 5.4**).

Figure 5.4 Southern Governorate Population per Nationality (2016)



The population of the Southern Governorate is predominantly non-Bahraini (mostly Male). See **Figure 5.5**.

Figure 5.5 Male to Female Ratios for Southern Governorate Population (2016)



5.2.2 Project Area of Influence

The area of influence typically extends beyond the project footprint and may include indirect and induced impacts. It is therefore essential to analyse impacts in the wider context of the area or region to consider short-term, long term, cumulative and transitory impacts.⁵

The proposed BMP is located on the eastern coast of Bahrain within an area designated as a priority industrial corridor in the National Plan. The proposed BMP comprises large tracts of land to the south and east of the existing Bapco Refinery. It also includes selective areas within the Sitra Tank Farm and Sitra Wharf located north of the main Refinery. The land allocated for the BMP is within the land owned by Bapco. The labour accommodation camp and laydown areas will be located in Bapco leased land. The laydown areas will be returned to their original state after completion of the work.

The BMP ESIA identified the following receptors to be potentially affected directly by the BMP (see **Figure 3.1**).

⁵ International Finance Corporation (IFC), 2003, Good Practice Note, Addressing the Social Dimensions of Private Sector Projects,

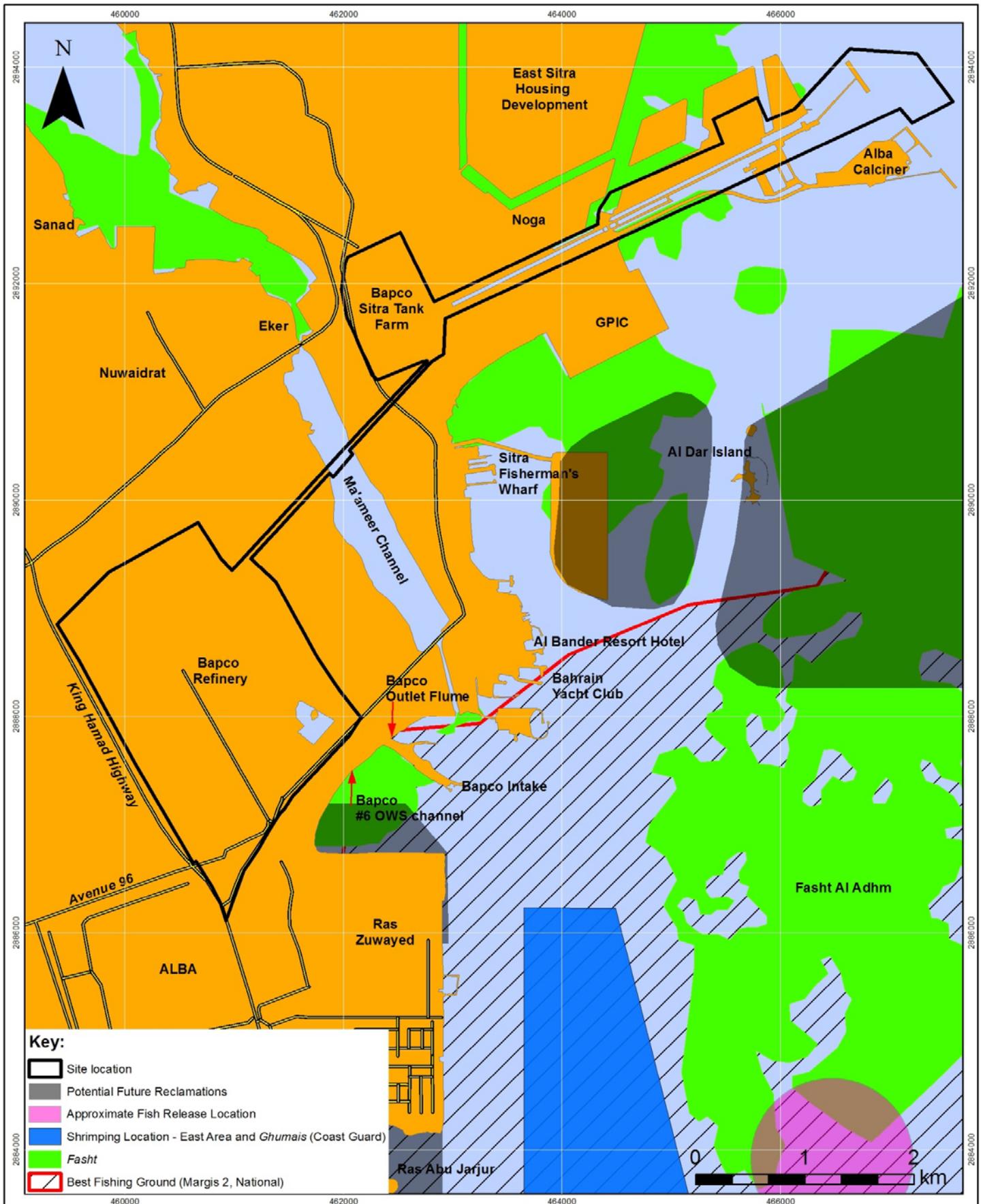


- Ma'ameer;
- Nuwaidrat;
- Al Eker;
- East Riffa;
- Sanad;
- Accommodation blocks at the south and west housing workers non-related to the project;
- Businesses on Um Al Saad Avenue;
- Marine Environment Users; and
- Vulnerable groups including migrant workers, women, disabled persons, the elderly, unemployed, youth, religious minorities.

Bahrain Yacht Club and Al Bandar Resort Hotel are the nearest tourism and recreation facilities approximately 1 km north of the Bapco Refinery water intake. Al Dar island is approximately 3 km from the southern boundary of Sitra Tank Farm (**Figure 5.6**).

5.2.3 Description of Potentially Affected Communities

This section provides a description of the potentially affected communities. However, it should be noted that the area of influence extends beyond those communities to the remainder of Bahrain as a general receptor of social and economic change due to the nature of the project. Furthermore, the importation of a large number of construction workers extends the area of influence to their communities of origin outside Bahrain, but this issue is outside the scope of this SIA as Bapco has no control or influence over this.



Title: Coastal Developments and Fisheries Interest in relation to Bapco Modernisation Project		Client: Bapco	
Project: BMP Social Impact Assessment		TechnipFMC	
Date: August 2018	Figure No.:	5.6	
Datum: WGS 84 - UTM 39 N	Scale:	1:45,000 @ A4	
		Consultant: Environment Arabia	

5.2.3.1 Al Eker

West of Sitra Island is the small village of Al Eker, located near the villages of Nuwaidrat and Ma'ameer. With an area of 0.385 km², Al Eker is divided into 2 regions: East Eker (Block 623) with a population of 7,834 and West Eker (Blocks 624,625,626) which has a population of 16572 (CIO, 2017).

Approximately half of the village population is Bahraini, both Sunni and Shia, and is considered youthful as a large number of the population is between the age of 30-40 years old, mostly male.

Newer homes are found in East Eker relative to West Eker. Light industry can be found in the village, including Eastern Ready Mix, wood work shop and aluminium kitchen manufacturing.

Public facilities include one health centre, two government schools and a Quran teaching centre. Commercial establishments are limited to a small market and a several cold stores. Al Eker is home to the Gulf Petrochemical Industries Company (GPIC) Club and the Applied Science University. **Figure 5.7** provides example of urban and residential land uses.

Figure 5.7 Examples of Urban Residential and Industrial Land Uses Within Al Eker





5.2.3.2 Ma'ameer

South of the village of Eker is Ma'ameer, an industrial area where the Bapco Refinery is present as well as a small number of factories and production units including Awal Ready-mixed Concrete (ARMCON), Eastern Asphalt, Gulf Petrochemical Industrial Company (GPIC), Aluminium Bahrain and Al Zamil Aluminium. The residential area of Ma'ameer village is located to the east of industrial facilities.

Ma'ameer spans four blocks: 633, 634, 635 and 636 and has a population of 13,360 (2017 Statistics, CIO), 42% of which is Shia Bahraini residence, mostly between 25-34 years of age.

Two boys' schools are present in Ma'ameer in addition to one religious school (*Hawza*). It is likely that girls attend schools in other nearby communities. As common in many Bahraini villages, there are several mosques in Ma'ameer; however, there is no health centre available for local residents. Recreational facilities are limited to one park and one cultural and sports club. Commercial establishments are also limited to small cold stores and shops. See **Figure 5.8** for examples of land uses in Ma'ameer.

Figure 5.8 Examples of Urban Residential and Recreational Land Use in Ma'ameer



5.2.3.3 Nuwaidrat

North of the Bapco Refinery and south of Sanad, is the village of Nuwaidrat which spans blocks 643, 644 and 646. The village has a population of approximately 9,896 residents, 54.3% of which is Bahraini (both Shia and Sunni Muslims). The local population is

mostly male and is considered youthful as a large number of the population is between 25-34 years of age.

There is one public school which is the Nuwaidrat Primary Girls School and one religious school (*Hawza*). Boys are likely to attend schools in the neighboring Sanad area. Residents of this area have one health centre allocated to them which is the Ahmed Ali Kanoo Health Centre on the outskirts of Nuwaidrat. Commercial establishments include The Center (formerly Al Alawi Complex) which is one of the oldest malls in the Kingdom, two supermarkets, one furniture shop, and many small shops and cold stores. Many fast food restaurants and cafeteria style eateries are found around the village. North East of Nuwaidrat is a new community housing project which includes 315 housing units, one park, one mosque and open spaces. **Figure 5.9** provides examples of land uses in Nuwaidrat.

Figure 5.9 Examples of Urban Residential and Recreational Land Use in Nuwaidrat



5.2.3.4 Sanad

North of Nuwaidrat and Al Eker is Sanad, a village with an approximate size of 8.1 km². Sanad is mainly a residential area with a population of 16,451 (59% male, 41% female)

59.7% of which is Bahraini. Similar to its neighbouring communities, the local population is a mixed population which includes both Sunni and Shia groups.

The town is divided into four regions: Al Nasfah (Block 733), New Sanad, Old Sanad, and the Estiqlal Highway (Blocks 743 and 745), a major highway in Bahrain that connects the towns of Riffa, Askar, and Isa Town.

Sanad is home to The Gulf University, Al Hekma International School and three other governments schools; Sanad Primary Boys School, Sanad Primary Girls School and Al Ta'awen Secondary Boys School. The larger land area of Sanad relative to Al-Eker, Nuwaidrat and Ma'ameer could explain the presence of more schools.

There are 16 mosques, and over 10 religious places of worship *Matam* for the Shia community.

Health facilities include the Isa Town Health Center, located between Isa Town and Sanad, and private health centers (Al Istaqlal Health Complex, Astar Clinic, etc). Other public facilities include a post office and banks.

Similar to other villages, commercial establishment are limited to a couple of supermarkets (Ruyan and Fontana), cold stores and small retail shops (clothing stores, flower shops, small garages, etc) along local roads. Recreational facilities in Sanad are limited to a few restaurants (Yum Yum Tree, Al Abraj, Fudruckers, etc) and many small cafeterias. **Figure 5.10** provides illustrations.

Figure 5.10 Examples of Urban Land Use in Sanad





5.2.3.5 East Riffa

Riffa, is the one of the largest urban centres in the Kingdom of Bahrain, about 292.5 km² in size. The population is 33,927 (68% male, 32% female), only 32.4% of which are Bahraini (2017 census, CIO). The local population is youthful, between 25-34 years of age and is predominantly Sunni Muslims.

It is divided into two parts; East Riffa (Blocks 905, 907, 909, 911, 913, 917, 919, 921,923) and West Riffa (Block 914, 915, 918, 920, 922, 924, 926, 934).

East Riffa is home to the Riffa Fort also known as the Sheikh Salman Bin Ahmad Al Fateh Fort, the National Stadium and the headquarters of the Southern Municipality and the Southern Municipal Council. Riffa has many commercial establishments including Oasis Mall, Enma Mall, the local Riffa Souq and many other street shops, cold store and supermarkets. Recreational facilities include The Walk Cinema, Riffa Sports Club, Al Doy Sports Centre, outdoor parks and indoor play areas for children. Cafes and small eateries are widely distributed.

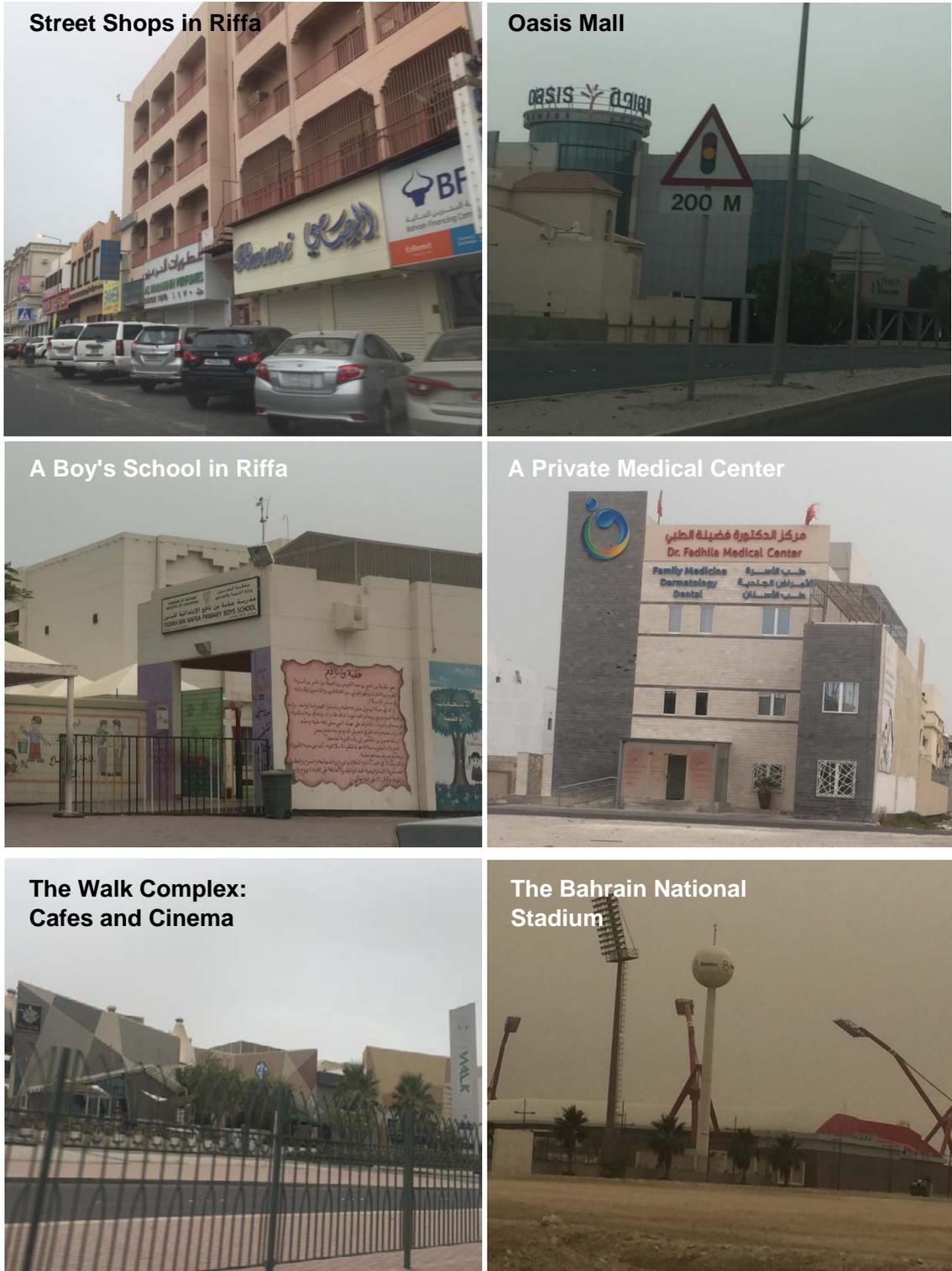
Many government schools are present in East Riffa including East Riffa Primary Girls School, East Riffa Boys School, Al Andalus Primary Girls School, Al Ma'arif Girls School, Salah-u Al-Din Boy's School, and others.

Health care facilities in East Riffa include the Bahrain Defence Force (BDF) hospital, Al Rayan Hospital, East Riffa Health Centre, Hamad Kanoo Health Centre and smaller private clinics and health centers.

Finally, public facilities in East Riffa include the East Riffa Police Station and East Riffa Post office.

Figure 5.11 provides examples of Community Resources in Riffa.

Figure 5.11 Examples of Community Resources in Riffa



5.2.3.6 Accommodation Blocks at the South and West of the Refinery

There are labour accommodation blocks for workers to the south and west of the Refinery. These workers are employed in local businesses and in industries around the area.

5.2.3.7 Communities at the Southern End of Sitra Island: Wadiyan and Abu Al Aysh

Wadiyan, a small village in the East of the greater Sitra Island (Block 608). Wadiyan has a population of 9930 (70% male, 30% female), 47.4% of which are Bahraini (CIO,2017). The local population is mostly Shia Muslims, between the ages of 20-29 years of age.

There are only two government schools in Wadiyan (Ibn Al-Nafees Primary Boys School and Sitra Intermediate Girls School) and one *Hawza*. Commercial establishments include one supermarket, a local market, furniture shops and car dealerships along the Sheikh Jaber Highway. Recreational establishments are limited to one public garden (Ibn Al Nafees Garden). As common in all Shia villages, there are three *Matams* and three mosques in Wadiyan.

East of Wadiyan is the small village of Abu Al Aysh (Block 607) where the Sitra Health Center is located. Two schools are present in the village of Abu Al Aysh (Al Yarmook Primary Boys School and Awal School) as well as one religious school (Al Hadi Religious School). Finally, there is one cemetery in Abu Al Aysh.

5.2.4 Marine Environment Users

The south eastern boundary of the Refinery on the coastline is situated within a transition boundary or buffer zone to a known conservation area designated as *Fasht al Adhm*. This is the main conservation area and lies about 2.8 km east. Within a 3 km radius from the existing Bapco discharge points, lies a portion of the conservation, buffer zone and preservation zone. The sea to the east of the industrial area is known for the country's best fishing and shrimping grounds, although no fishing takes places in the BMP project area (**Table 6.2**). The ESIA provides further information on the local fisheries interests.

5.2.5 Workers

According to the Labour Market Regulatory Authority (LMRA), non-Bahraini nationals made up 78.8% of the labour force in 2017. This includes private and public sector as well as domestic workers. In 2016, 516,474 expatriate workers were reported to be working in the private sector (construction, sales, repairs, manufacturing, etc) while 8,260 were employed in the public sector (Source CIO). The number of non-Bahraini workers has been increasing the last decades reaching their peak in the first quarter of 2017 (**Figure 5.12**) (Source LMRA).

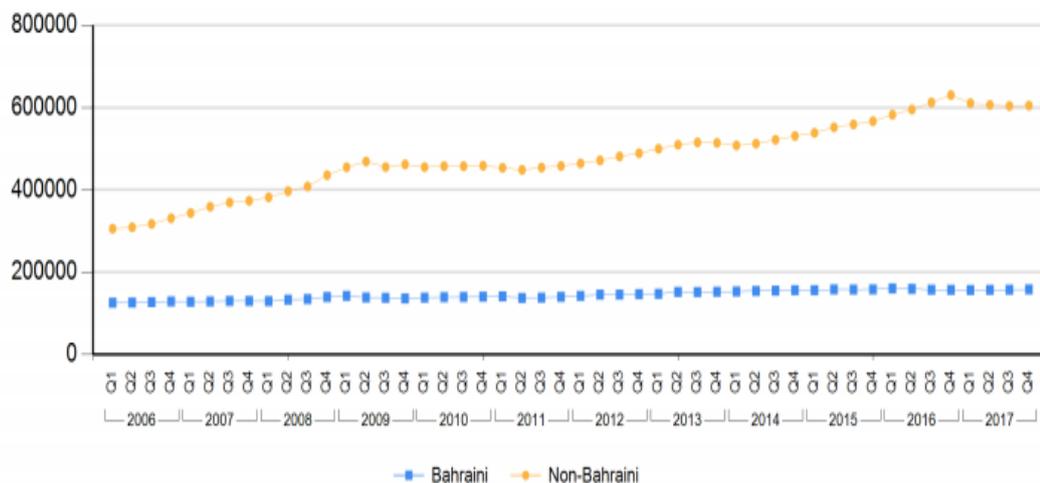
Expatriate workers are mainly from Asian countries such as India, Pakistan, Bangladesh and the Philippines; however large European groups are also present. More recently, an influx of African workers has been introduced to the labour market, specifically from countries such as Ethiopia, Kenya and Ghana.

For the BMP project expatriate workers will be from several countries. European workers, mainly from Italy and Spain and Korean workers are expected from the EPC

Contractor side. For the construction works, to date the subcontracting plan has not yet been finalized but considering the former Middle East experience for similar scale projects, the majority of the workforce that will be deployed for the execution of the project will mainly be from Asian countries. Appropriately qualified/certified workers will be employed and they will receive training specific to the BMP project.

Workers will not be charged fees for recruitment and audits will be conducted throughout the construction phase to determine whether any workers have been charged fees in their home countries. If this is found to be the case, the workers should be reimbursed by the contractors.

Figure 5.12 Number of Bahraini and Non-Bahraini Workers in Bahrain



In 2005, the Migrant Workers Protection Society (MWPS) was established under the Ministry of Social Development. It is an NGO with a mission to help expatriate workers in Bahrain achieve their basic human rights in accordance with internationally recognized standards. More recently the Expat Protection Center and Shelter has been established under the LMRA. This Center provides complete services to victims or potential victims of human trafficking and provide medical services, mental health services and legal counseling.

5.2.6 Businesses on Um Al Saad Avenue

Light industrial businesses are located on Um Al Saad Avenue. **Figure 5.13** provides photos of example businesses.

Figure 5.13 Businesses on Um Al Saad Avenue



5.3 BMP Noise Baseline

Potentially sensitive receptors with respect to noise have been identified in the BMP ESIA and subsequently in BMP Camp 1 and Camp 2 Health Impact Assessment Reports 2018 (see **Figure 5.14**). The following receptors were identified:

- N1 Quiet residential area
- N2 Residential area adjacent to busy road
- N3 Labour accommodation block (new, unoccupied)
- N4 Adjacent to accommodation blocks that are under construction
- N5 Adjacent to accommodation blocks
- N6 Open area to become BMP labour camp and laydown area
- N7 Quiet area adjacent to Bapco fence line, near to proposed BMP labour camps
- NM1 Labour Camp 1
- NM2 Labour Camp 1
- NM3 Labour Camp 2
- NM4 Labour Camp 2

Table 5.6 provides the noise measurement summary for each location. The noise measurements were undertaken in March/April 2016 for N1-N7 and NM1 – NM4 in March 2018.

Table 5.6 Baseline Noise Measurement Summary, Noise Level, dB(A)

Location	Category	Daytime	WBG Guideline	Evening	WBG Guideline	Night	WBG Guideline
N1	Residential	57.4	55	52.6	55	49.9	45
N2	Residential	67.8	55	57.0	55	58.6	45
N3	Residential	60.6	55	56.8	55	53.0	45
N4	Residential	65.1	55	60.8	55	58.9	45
N5	Residential	52.6	55	52.0	55	61.6	45
N6	Residential	55.8	55	50.7	55	53.7	45
N7	Residential	61.7	55	54.1	55	54.5	45
NM1	Residential	54.3	55	-	55	48.3	45
NM2	Residential	57.0	55	-	55	47.6	45
NM3	Residential	50.6	55	-	55	51.3	45
NM4	Residential	47.4	55	-	55	48.9	45

The existing noise climate at receptors close to the construction works is represented by these baseline noise results where the daytime noise levels recorded ranged from $L_{Aeq,T}$ 57 to 68 dB, exceeding the IFC guideline of 55 dB(A) at several locations.

The baseline noise levels monitored at the location for Camp 1 exceeded the IFC ambient guideline value in March 2018 in the daytime, and at night all measurements were within the IFC guideline value.

5.4 BMP Air Quality Baseline

An air quality monitoring station (AQMS) was established in January 2016, approximately 2km north-west of the refinery. The AQMS was established to provide continuous ambient measurements of air pollutant concentrations to inform the baseline air quality assessment. The AQMS undertook measurements for 3 months.

The AQMS results showed that national air quality standards were met for all key pollutants monitored. Particulate matter was elevated on occasion but this is due to natural conditions. Sulphur dioxide levels meet national and EU standards and the WHO interim target value ($125\mu\text{g}/\text{m}^3$) but not the WHO target value. Hydrogen sulphide results indicated that from time to time there are likely to be noticeable odours for short periods. There are multiple potential sources of odour including industrial, commercial and domestic sources.

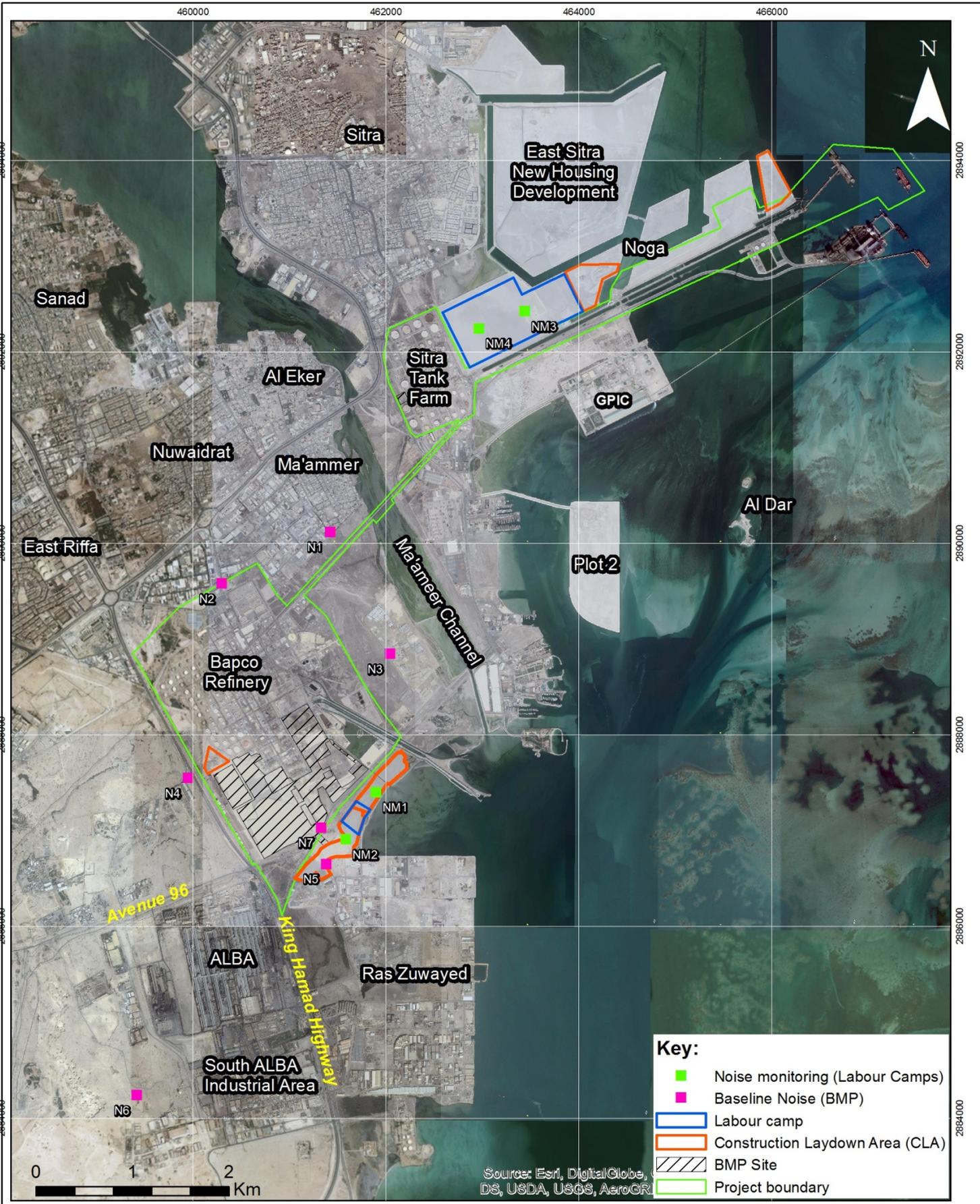
Diffusion tubes were also used to monitoring air quality for the following determinands:

- NO_2 ;
- SO_2 ;
- H_2S ;
- VOCs (C6-C12) – VOC diffusion tubes were analysed for the top 10 VOCs present.

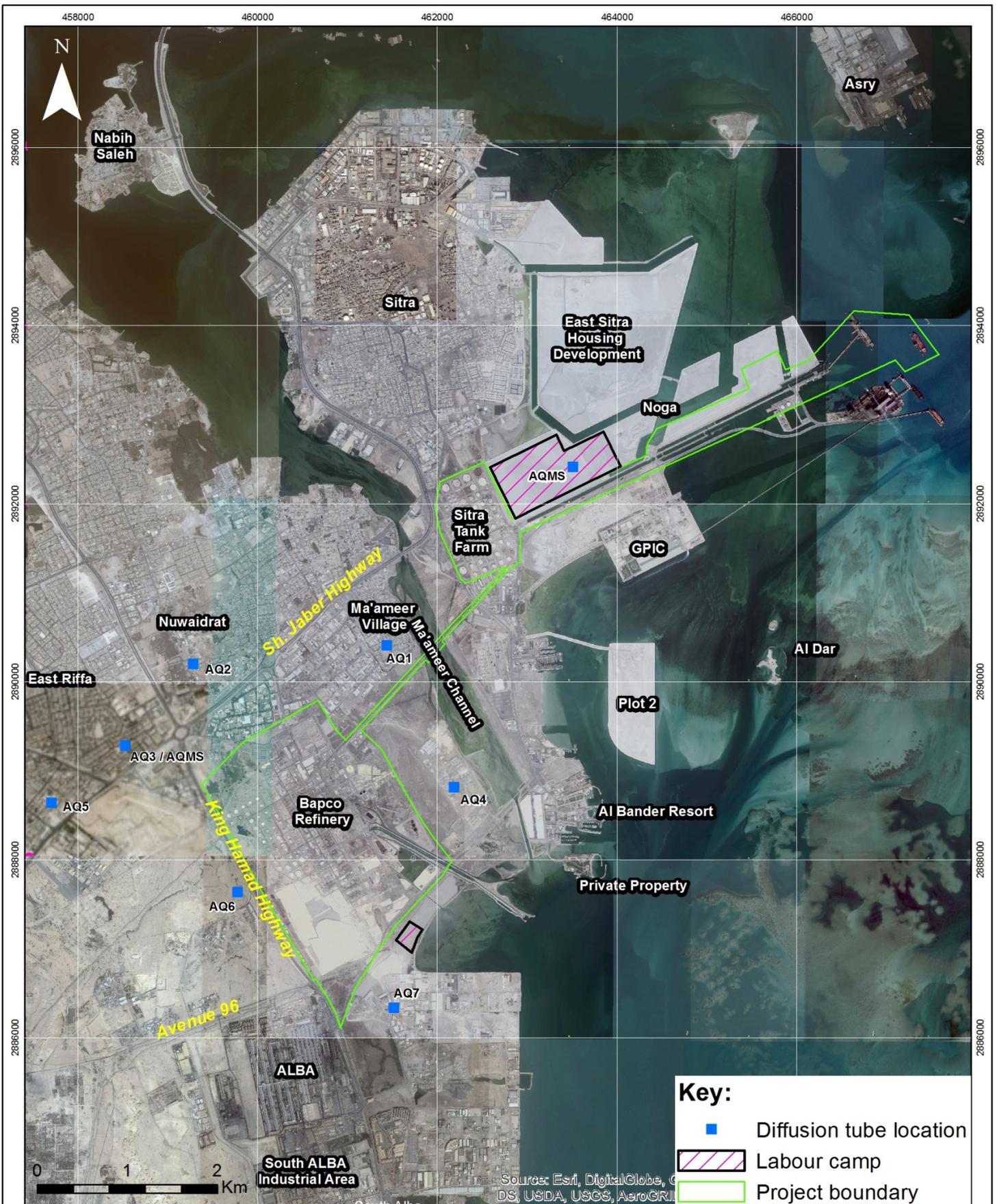
The diffusion tubes provided an indication of air quality which was considered to have poor accuracy, but the VOC tubes did provide speciation of the VOCs present.

Figure 5.15 presents the diffusion tubes locations for the BMP ESIA as well as the diffusion AQMS for the Camp 2 Health Impact Assessment.

At the Labour Camp 2 accommodation, the monitoring results show exceedences of the short term NO_2 air quality standards and suggest that the annual mean is also exceeded. The monitoring results also show that there are short term elevated concentrations of H_2S which are likely to cause nuisance odours but which would have no health consequences. With respect to SO_2 , PM_{10} and Total Non-Methane Hydrocarbons the measured concentrations remained within the applicable standards.



Title: Baseline Noise Survey Locations		Client: Bapco	
Project: BMP Social Impact Assessment		SABER ENGINEERING TechnipFMC TECHNICAL SERVICES	
Date: August 2018	Figure No.: 5.14	Consultant: Environment Arabia	
Datum: WGS 84 - UTM 39 N	Scale: 1:50,000 (A4)	CN:\BMP Social\mxd	



Key:

- Diffusion tube location
- Labour camp
- Project boundary



Title: Baseline Air Quality Monitoring Locations		Client: Bapco
Project: BMP Social Impact Assessment		TechnipFMC
Date: August 2018	Figure No.: 5.15	Consultant: Environment Arabia
Datum: WGS 84 - UTM 39 N	Scale: 1:30,000 (A4)	

6 STAKEHOLDER CONSULTATION

6.1 Overview

The process of ESIA in Bahrain requires consultation with stakeholders at the scoping stage and through the preparation of the ESIA Report.

The consultations undertaken have fed into the ESIA process and further consultations were undertaken for the completion of this SIA.

A summary of the consultations undertaken as part of the BMP ESIA and the SIA is provided in the following sections.

6.2 Identification of Stakeholders for the ESIA

During the development of the ESIA the following five stakeholders were identified for the BMP:

- 1) National government officials– the BMP is a nationally important project that will require the co-ordinated input from multiple government ministries and their agencies. A key part of the stakeholder engagement process has been to introduce these ministries and agencies to the BMP and seek feedback in respect of their concerns and knowledge of planned developments.
- 2) National Government and leadership advisory bodies – the National Assembly comprises: The Council of Representative (the lower house); and the Consultative Council or Shura Council (the upper house).
- 3) Supreme Council for Environment (SCE) – the national environmental authority who will be responsible for permitting the BMP.
- 4) Local government – consists of the Southern Governorate, the Southern Municipality and Southern Municipal Council, which is an elected body.
- 5) Non-Governmental Organizations – Organizations of Bahrain civil society with an environmental and social remit.

Below is a list of individual stakeholders which were consulted during the BMP ESIA. Full information on these consultations can be found in the ESIA report.

- Agricultural Affairs and Marine Resources (AAMR);
- Agriculture, Engineering and Water Resources Directorate (AEWRD);
- Bahrain Authority for Culture and Antiquities;
- Central Planning Office (CPO), Ministry of Works;
- Coastguard Directorate, Ministry of Interior (CG);
- Electricity and Water Authority (EWA);
- General Directorate of Civil Defence;
- Ministry of Municipalities Affairs and Urban Planning (MMAUP) (General Directorate of Urban Planning (GDUP));
- Ministry of Transport and Telecommunications (MoTT);
- Ports and Maritime Affairs (PMA);
- Roads, Planning & Design Directorate (RPDD), Ministry of Works;

- Sanitary Engineering Projects and Planning Directorate (SEPPD), Ministry of Works; and
- Supreme Council for Environment (SCE).

Table 6.1 provides a summary of the consultations undertaken in 2016 as part of the ESIA.

In addition to the individual consultations, a stakeholder consultation meeting was undertaken in April 2016. Members of the Shura Council, Southern Municipality and Bahrain Environment Society were invited to the meeting.

Table 6.1 Summary of Consultations with National Government Authorities During the ESIA

Organisation	Main Contacts	Notes
Agricultural Affairs and Marine Resources (AAMR)	Abdulla Abdullatif (Director General) Ibtisam Abdulla (Director of Fisheries) Bassam Al Showaikh (Senior Marine Biologist)	<p><i>Consultation undertaken on 14th October 2015 at AAMR, Old Juffair, Manama</i></p> <p><i>Response received 26.10.2015:</i></p> <ul style="list-style-type: none"> • The designated area is surrounded by major fishing grounds. • Information is required regarding the technologies to be used to minimise levels of pollution in the marine environment. • If any aspects of the BMP affect sedimentation in the Ma'ameer channel, mitigation measures would need to be provided. • The AAMR requested copies of historical work undertaken by Dr Olof Linden. These have been issued by Bapco. The AAMR attended a presentation on the 2015 survey in March 2016. • The AAMR must be informed of any reclamation activities.
Agriculture, Engineering and Water Resources Directorate (AEWRD)	Ali Hameed Al-Shabaani (Acting Director) Marcial A. Mojica (Senior Hydrogeologist)	<p><i>Consultation undertaken on 9th October 2015 at AEWRD, Budaiya</i></p> <ul style="list-style-type: none"> • The AEWRD enquired how long AGAS has been working on the Pitch Ponds, and EACS stated that it was approximately 15 years. Most of the pitch has been removed but more pitch needs to be recovered from ponds adjacent to the BMP site. Residual pitch remains on the site which will be covered with clean material with a depth of 3-4m to raise the height of the site to be in-line with the existing Refinery. • AEWRD requested hydrogeological data from previous site investigations undertaken at the Refinery and Sitra Tank Farm by EACS on behalf of Bapco • SI data will be provided to the AEWRD as part of the ESIA from historical and more recent investigations. • A geotechnical survey has just been completed of the Pitch Ponds sites and the AEWRD had requested a copy as part of permitting the work. • The AEWRD stated that there are no



Organisation	Main Contacts	Notes
		<p>production wells in the vicinity of the BMP site, but Bapco itself abstracts from Aquifer C.</p> <ul style="list-style-type: none"> No abstraction is proposed as part of the BMP, but seawater will be used for cooling purposes following desalination. The AEWRD will require long-term monitoring of the BMP site. At least two wells should be provided near the Pitch Ponds site. These should be located in areas which allow the AEWRD direct access. The AEWRD requested that a site visit be conducted to the Pitch Ponds site during the ESIA. The AEWRD asked whether there would be any piling for the tanks and reminded EACS that a permit would be required for any piling operations. <p><i>Site Visit undertaken on 20th October 2015 with representatives from the AERWD, Bapco and Environment Arabia.</i></p>
Bahrain Authority for Culture and Antiquities	Shaikha Azza Al Khalifa (Assistant Undersecretary)	<p><i>Consultation letter sent on 20th September 2015.</i></p> <p>Shaikha Azza received letter and advised EACS that she is waiting for advisor to the Authority to respond.</p> <p>Response received via e-mail on 10th of January requesting a walkover survey to be undertaken to the part of the BMP site which was of interest to the authority. The survey was undertaken on 12th January 2015 with the presence of EACS staff.</p>
Central Planning Office (CPO), Ministry of Works	John Fisher (Head, Advisory and Coordination) Ali Bucheery (Environmental Engineer)	<p><i>Consultation letter sent on 20th September 2015</i></p> <p>The CPO verbally stated on 7th October 2015 (telecom between Ali Bucheery and Halel Engineer) that they had no comments and did not need a consultation meeting. No written response received to date.</p>
Coastguard Directorate, Ministry of Interior (CG)	Colonel Yusuf Mohammed Al Subaie (OC Legal Affairs)	<p><i>Consultation undertaken on 30th September 2015, Coastguard Headquarters, Sitra</i></p> <ul style="list-style-type: none"> Colonel Subaie indicated that the area where the Bapco Wharf is currently located is considered a sensitive area in terms of security due to the existence of nationally important industrial facilities and Sitra port, and the navigation of vessels within that area. Colonel Subaie expressed the need to inform the Ministry of Interior, the National Guard, the CID, Alba and Bapco security Departments of this project with coordination by NOGA. He suggested that a joint stakeholder meeting should be set up so that the concerns of all parties could be addressed. Bapco has sent letters to all aforementioned parties informing them of



Organisation	Main Contacts	Notes
		<p>the project.</p> <ul style="list-style-type: none"> • A contact for Bapco was requested. • The Coastguard should be provided with details of marine operations as soon as they become available (e.g. date & time of operation, type of boat, crew, etc.).
Electricity and Water Authority (EWA)	Shaikh Nawaf Bin Ebrahim Bin Hamad Al Khalifa (Chief Executive Officer)	<p><i>Consultation undertaken on 14th October 2015, Diplomatic Area</i></p> <p>Minutes in draft form – comments yet to be provided.</p>
General Directorate of Civil Defence	Bassam Khalaf Head of Protection and Safety	<p><i>Consultation undertaken on 7th October 2015, Block 313</i></p> <ul style="list-style-type: none"> • CDD expressed that they have no comments or concerns regarding the BMP project at this stage, and that they are happy with Bapco safety standards and regulations that will be followed.
Ministry of Municipalities Affairs and Urban Planning (MMAUP) (General Directorate of Urban Planning (GDUP))	Khalid Ahmed Al Ansari (Structural Planning Director) Mohamed Adel Abuowais (Coastal Engineer) Virgilio Perada (Urban Planning Advisor)	<p><i>Consultation undertaken on 8th October 2015, GDUP, Zayed Town</i></p> <ul style="list-style-type: none"> • GDUP indicated that they are concerned with the possible reclamation associated with the transfer pipelines from the Refinery to Sitra Tank Farm within the Ma'ameer channel and that it is unlikely that such an element of the project will obtain approval. They suggested looking at alternative methods of pipe crossing. They also indicated that there is a committee tasked with providing a solution to the existing issues with flushing and retention time of water within Tubli Bay. Widening of both the northern and southern extents of the Ma'ameer channel is being discussed.
Ministry of Transport and Telecommunications (MoTT)	Didar Dalkic (Advisor to the Minister)	<p><i>Consultation undertaken on 12th October 2015, Bahrain Financial Harbour, 9th Floor East Tower</i></p> <ul style="list-style-type: none"> • The MoTT stated that there may be a railway in the vicinity of the Refinery and that they would provide a drawing showing an indicative route. The route currently indicated follows the Sh. Jaber Highway and crosses the Ma'ameer channel just north of the existing transfer pipes. If the East Sitra Road Link is provided by the Roads Directorate, opportunities for the railway along this corridor would be investigated. The development of the railway is dependent on the construction of the Bahrain to Qatar Causeway. • A planning application was circulated for the railway following Shaikh Jaber Highway approximately 18 months ago. The MoTT stated that they will check their records to see whether Bapco responded with comments on the application. A response can be expected in a few weeks time. • The MoTT stated that they had no



Organisation	Main Contacts	Notes
Ports and Maritime Affairs (PMA)	Essa Abdulla Yateem (Acting Assistant Undersecretary, Maritime Affairs)	<p>concerns with the tabled plans for the BMP.</p> <p><i>Consultation undertaken on 6th October 2015, PMA in Hidd</i></p> <ul style="list-style-type: none"> The PMA enquired whether the BMP project was linked to the A/B pipeline and it was explained that both projects are part of the overall expansion of Bapco. The PMA enquired of the Bapco Pitch Ponds were cleared and how deep the residue was. It was explained that approximately 80% of the pitch has been removed and two recent site investigations have been undertaken to determine site conditions, the results of which will be reported in the ESIA. The PMA expressed that their interest lies in the marine element of the project more specifically regarding any changes in the wharf equipment, pipelines and navigational channels. It was explained that 19 new loading arms will be provided at the wharf and a new pipeline will be required at the end of the wharf. PMA stated that all ships must comply with the requirements of the Marpol convention. The PMA expressed their concern for any increase in discharge or oil spill in the marine environment. EACS noted that that discharges from the Refinery outfalls will be within the design limits of the existing treatment plants.
Roads, Planning & Design Directorate (RPDD), Ministry of Works	Huda Fakhroo (Assistant Undersecretary) Kadhim Ali A. Latif (Director)	<p><i>Consultation undertaken on 6th October 2015, Ministry of Works, Government Avenue</i></p> <ul style="list-style-type: none"> The Roads Directorate has appointed a consultant to undertake the design of improvements to Sh. Jaber Highway from Um Al Hassam Interchange to Nuwaidrat roundabout. The improvements will include more lanes and grade separated junctions. A plan was provided. The Roads Directorate intends to construct a new road linking Mina Salman to King Hamad Highway via East Sitra, known as East Sitra Link Road. This project is at the feasibility stage and they have invited consultants to bid for studying the potential impact of the road on concerned stakeholders in the area such as NOGA, GPIC, Bapco & Alba. Construction work is about to commence on the Alba and Nuwaidrat roundabouts. Some preliminary work is underway on moving the affected utilities. Plans for the roundabouts were provided. The Roads Directorate also plans to upgrade King Hamad Highway in the future. There will be 3-4 lanes in each direction together with grade separated junctions.



Organisation	Main Contacts	Notes
		<ul style="list-style-type: none"> The Roads Directorate has no concerns regarding the BMP project, but they wish to know whether the AGAS plant will be removed in the future.
Sanitary Engineering Projects and Planning Directorate (SEPPD), Ministry of Works	Asma Murad (Acting Assistant Undersecretary)	<p><i>Consultation was undertaken on 11th November 2015 during a meeting which was held in the SEPPD offices in Salmabad. The following points were raised:</i></p> <ul style="list-style-type: none"> SEPPD presented EACS with the plan for a proposed TSE pipeline from the Ma'ameer STP. SEPPD does not feel that this proposed line would conflict with the BMP project. However, SEPPD indicated that they have plans to construct a STP on the East Sitra Housing project with outfalls potentially parallel to the Sitra Wharf. SEPPD suggested that Bapco use the TSE from Ma'ameer STP for landscaping or beautification purposes as it is high quality TSE. The current plan is to use this TSE for landscaping the King Hamad Causeway.
Supreme Council for Environment (SCE)	Luma Abbas Al Mahroos (Head of Environmental Assessment)	<p><i>Initial consultation undertaken 5th October 2015 at SCE</i></p> <p>Consultations are ongoing. Please refer to Section 5.5.</p>

In order to increase representation of inputs into the SIA and into the Stakeholder Engagement Planning, additional consultation with groups representing a broad range of issues, was undertaken in 2018. These are summarised in **Table 6.2. Appendix 6A** contains the meeting notes of the additional consultations.

Table 6.2 Summary of Additional Consultations for the SIA

Organisation	Notes
Bahrain Women Association (BWA)	<p><i>Consultation undertaken on the 6th of June 2018</i></p> <ul style="list-style-type: none"> BWA expressed concern about the potential impacts of the project on public health, especially emissions from industrial activities in the area. EACS assured BWA that the BMP will result in improved emissions level from the refinery relative to existing conditions. BWA highlighted the importance of engaging with the local communities, especially Ma'ameer and introducing them to the project through local social councils and NGOs. BWA also suggested providing job opportunities to Ma'ameer locals. BWA suggested the implementation of green buffers around potentially affected communities to reduce visual impact.
Central Planning Office (CPO)	<p><i>Consultation undertaken on the 6th June 2018</i></p> <ul style="list-style-type: none"> EACS inquired about the East Sitra Link Road. CPO advised that the road has been granted cabinet approval for the southern section, from the newly reclaimed plot 2 "Mumtalakat plot" to the King Hamad Highway; however, it is unlikely that construction will commence in the near future. The project still requires further planning consultation and agreement from Bapco, Noga and Alba. CPO also highlighted that the upgrade of Highway 96 and King Hamad Highway has been granted approval for construction and may impact on the BMP construction. CPO informed that the hydrodynamic modelling for the East Sitra Housing reclamation did not take into account the impact of reclamation



Organisation	Notes
	<p>on turbulence. Furthermore, CPO indicated that there is any increase in water temperature at the GPIC intakes, flooding in the Mumtalakat Plot (south of the Noga plot) and sediment deposits at the Sitra port. Finally, CPO advised that the design of the Alba port must be done in coordination with the BMP.</p> <ul style="list-style-type: none"> • CPO expressed safety concerns over the location of the BMP Labour Camp 2 on the Noga Plot, suggesting use of the Mumtalakat Plot instead. EACS noted that NOGA 1 & 2 plots are allocated for Bapco to use for BMP and a QRA had been completed for the Camp 2 site and found that the site was acceptable in terms of risk to the camp occupants. • CPO also pointed that the current proposed BMP construction access road from King Hamad is considered inadequate and suggested an additional one way exit to the King Hamad Highway might help traffic flows. • CPO suggested putting in place a technical interface officer for the BMP that will liaise with relevant authorities regarding all necessary permits. Technical interface meetings for major projects are held weekly by CPO.
<p>Migrant Workers Protection Society (MWPS)</p>	<p><i>Consultation undertaken on the 5th June 2018</i></p> <ul style="list-style-type: none"> • MWPS spoke about the general issues and challenges facing expatriate workers such as delayed wages, poor accommodations, difficulty in communication, withholding of travel documentation, lack of awareness regarding safety and grievance mechanisms and so on. • Bapco assured MWPS that stringent measures will be put in place to ensure proper requirement and adequate training of workers. Bapco also explained that the labour camp will be designed to international standards and equipped with medical and recreational facilities and in line with the local relevant local regulations. MWPS emphasized that maintenance of new labour camps is essential to the well being of the workers • MWPS suggested that safety instructions must be made available in multiple language (English, Hindi, Bengali, Malyalim, etc) and pictures as to be understood by all workers • MWPS offered to share safety videos (in Hindi, Bengali, Malyalim and Tiligo) that can be presented to the workers at the labour camp. • MWPS identified BD 120-140 per month plus accommodations is generally considered as a fair rate pay for unskilled construction labourers . MWPS noted that literacy competencies can be quite poor so the grievance mechanism should be explained to the workers.
<p>Supreme Council for Women (SCW)</p>	<p><i>Consultation undertaken on the 5th June 2018</i></p> <ul style="list-style-type: none"> • SCW expressed concern regarding women's health in the workplace, citing that they had recently participated in a health and safety event organized by Bapco. • SCW indicated that they interface with various ministries and government bodies to achieve their goals and programs. • SCW stated that they have an ongoing relationship with Bapco, providing guidance and advice regarding the safety of women in the workplace as well as promoting equal job opportunities for women.
<p>Sitra Fisherman's Society</p>	<ul style="list-style-type: none"> • EACS inquired about the fishing activity around Sitra Port. SFS informed that historically, Sitra was a rich Saffi Rabbit Fish ground, which is a good commercial species; however, catch is now quite scarce and the fishermen need to sail about an hour away to find fish. • EACS inquired about the nature of fishing ground around the Bapco outfall. The SFS responded that the shrimp occurring in that area was found to be of poor quality. Bapco pointed that under the new BMP, water quality is expected to improve. • SFS expressed concern over the discharge of chemical used for cleaning the outfall pipe. Bapco responded that all Refinery effluents



Organisation	Notes
	and cooling water return are treated properly into various waste water treatment facilities and tested regularly through the outfalls to the marine environment.
Expatriate Protection Centre and Shelter (under LMRA)	<ul style="list-style-type: none"> • A representative of the site was met, Shereen Khalil Saati, was met on site briefly. She provided the contact details of the relevant person to organise a meeting. Following this, EACS tried to organise a meeting several times however no response was received.
Ministry of Housing (MoH)	<p><i>Consultation undertaken on the 4th February 2018</i></p> <ul style="list-style-type: none"> • MoH specified that the timeframe for the development of the East Sitra Housing plot is unspecified at the moment and as such, it is not expected that the use of the Noga plot as a labour accommodation for the BMP is not expected to pose a conflict. • MoH requested from EACS to be kept update with regards to construction start dates. • EACS inquired where the East Sitra Housing Project construction worker will be housed. MoH responded that they will be housed on the East Sitra plot; therefore, no potential conflict of access or traffic issues. • The MoH offered to consult with Mr. Mohammed Al Ghatam from Noga who coordinates with MoH and provide EACS with any useful comments.
Environment Friends Society	<ul style="list-style-type: none"> • They were contacted on numerous occasions however no response was received and it was not possible to organise a meeting.
Alba	<p><i>Consultation undertaken on the 25th January 2018</i></p> <ul style="list-style-type: none"> • Alba expressed concern over the impact of increased traffic associated with the labour camp on the Alba Truck Haul Route. Currently, the traffic load is an estimated one truck per two minutes or 16-24 trucks per hour, in addition to light vehicles used by Alba staff. The frequency of trips is expected to increase in October 2018 by about 30%. • Alba expressed that any delay in the delivery of their raw material will impact their daily targets and have significant consequences • Alba inquired about the total number of trips which will be made daily using the Alba road. EACS indicated that roughly 300 buses will be needed per days, transporting worker from the camp to the work site and back during the early morning and evening periods. • Furthermore Alba inquired about the route that will be used by other vehicles providing services to the labour camp. EACS explained that alternate routes will be used for these vehicles. • Alba also expressed concern over safety issues and explained that no pedestrians should be permitted to walk along the road. Bapco assured Alba that all safety related issues will be analysed and addressed. • Alba discussed the potential possibility of a handover system i.e. that Bapco might be able to utilize the haul road freely at specific designated time intervals. • Alba request to be provided with a Traffic Management Plan (including type of vehicles, number of trips per day, etc). Bapco indicated that this will be achieved during the EPC phase of the project. • All above issues have been discussed in detail including a preliminary risk assessment in several coordination meetings held between ALBA and Bapco/BMP teams. Bapco plans to further address these issues during the early stage of the forthcoming EPC phase of BMP alongside



Organisation	Notes
	<p>the appointed EPC Contractor.</p> <ul style="list-style-type: none"> Finally, Alba requested to know the concerns and opinions of the other stakeholder.
GPIC	<p><i>Consultation undertaken on the 31st January 2018</i></p> <ul style="list-style-type: none"> GPIC is concerned with the increased traffic flow that the labour accommodation will introduce to the ALBA road. Bapco informed GPIC that Alba has already been engaged and that their concerns are being addressed. Further consultation with BANAGAS is also planned. Another concern is the close proximity of the proposed labour accommodation to the Bapco and GPIC wharfs which are critical for the country's economy. Development of the labour camp on the Noga plot would be a security concern. GPIC express high concern for the safety and emergency responses for the labour camp personnel. GPIC also pointed to the East Sitra Housing Plot north of the proposed project location and its future occupancy being also a safety concern. In the land south of the proposed plot, over ground gas pipes are present and their integrity is also a matter of concern. Add additional statement: Bapco responded that the over ground pipelines belong to Bapco and will be beyond the fenced area of the proposed labour camps. GPIC stated that the proposed option for the BMP labour accommodation is not ideal from their perspective and they would prefer if other options are considered. Bapco clarified that there are only two proposed locations which are allocated as BMP TCF areas (to accommodate worker camps and lay down areas). Further details will be determined during the Detailed Engineering Design phase of the project, in which the EPC Contractor shall be responsible in finalizing the plans of the TCF. Bapco stated additionally that the purpose of this stakeholder meeting was to take into account the concerns of all stakeholders when determining the exact location, design and logistics of the worker camps. GPIC proposed that as another option, the subject area could be utilized for equipment laydown and fabrication workshop. <p>Finally, GPIC requested that other major project (i.e. ALBA Line 6) and their approach to the labour camp be assessed as well.</p>
National Oil and Gas Authority (NOGA)	<p><i>Consultation undertaken on the 8th February 2018</i></p> <ul style="list-style-type: none"> Noga inquired about the details of the labour accommodation. Bapco informed Noga that labourers will be housed in temporary accommodations (portable cabins) and provided with all the necessary facilities a canteen, medical centre, recreational centre, etc in line with local and international guidelines. Noga inquired about utilities for the labour camp. Bapco stated the EPC contractor would need to provide all necessary utilities and Bapco had signed a memorandum of understanding with EWA for the electricity supply to the BMP. Noga suggested the use of solar power and a bulk LPG storage tank in lieu of cylinders for cooking. Noga also inquired about refuelling for buses. Bapco pointed that the EPC contractor will be responsible for



Organisation	Notes
	<p>making these arrangements.</p> <ul style="list-style-type: none">• Noga pointed that there is a proposed East Sitra Housing Link road and one of the routes considered will cross the Noga plot (proposed labour accommodation location) and also south of the Refinery areas. Bapco stated that they had met with the General Directorate for Urban Planning who in turn provided that this project is still in the planning phase and could take a few more years before it is implemented.
Banagas	<p><i>Consultation undertaken on the 7th February 2018</i></p> <ul style="list-style-type: none">• Banagas stated that there are four gas pipelines that run in the channel south of the proposed project location and they are concerned regarding the safety of the labourers in case of any gas leaks.• Furthermore, Banagas added that there is a 11KV cable which extends from the tank farm to the Banagas facility. Banagas requested that a health and safety risk assessment should be undertaken by Bapco and shared with Bangas.• Banagas stated that a way leave is required prior to mobilization.• Banagas wanted Bapco to make sure that any increase in road traffic would not increase emergency response time• Banagas also recommended an alternative transport route in event of an incident.• Banagas noted that there is an 11.5 tonne per axle limit on the access road to Sitra wharf, near the security barrier, where the pipes cross the roads.

Bapco are currently developing a stakeholder engagement plan which will describe ways in which the local communities will be consulted with including a stakeholder exhibition meeting open to members of the public. The stakeholder engagement plan is still being finalised at the time of writing this report.

7 ASSESSMENT OF SOCIAL IMPACTS

7.1 Economy / Employment

This section considers the potential impacts on the existing economy and employment as a result of the project activities. The key potential receptors within the area of influence include the Kingdom of Bahrain as well as local communities, local businesses and vulnerable groups which include women, the unemployed and fishermen.

7.1.1 Construction Phase

7.1.1.1 Employment Opportunities

Most employment impacts of the project will be expected during site preparation, mobilization and construction phases where a large workforce will be employed. The key sources of impacts will result from labour demand and procurement of local goods and services. These impacts will be monitored through the construction phase.

The BMP will take approximately 4 years to build and will require 18,000 workers at its peak. The peak is expected to last approximately six months.

The project will also generate jobs for the supply of goods and services needed to support the construction process. This includes a range of services such as the provision of construction materials as well as food and transportation services for workers.

The BMP will also be required to comply with Labour Market Regulatory Authority (LMRA) Bahrainization targets, requirement for preferential employment of Bahraini Nationals. The BMP project contract agreements also require that Bahraini nationals are employed as priority to the extent it is reasonable to do so.

In addition to complying with the Bahraini legal employment requirements, the project will incorporate the following:

- A fair and open competitive bidding process will be incorporated for local contractors.
- The BMP will provide local tender opportunities for local contractors and jobs openings will be advertised via local recruitment agencies.
- Compliance with IFC Performance Standard 2.
- Bapco will collect data for monitoring and evaluation of the project, i.e. % of local and international contractors.

Overall the project is expected to have a moderate beneficial impact on employment opportunities.

Vulnerable Groups

Bapco will ensure that measures are taken to promote social inclusion of vulnerable groups through its Stakeholder Engagement Plan.

An equal opportunity policy will be implemented for the project and all contractors will be expected to implement it. As part of the BMP, Bapco will identify employment opportunities for vulnerable groups such as female and disabled employment opportunities and advertise them accordingly.

Bapco will collect data for monitoring and evaluation of the project: i.e % women employed for relevant jobs opportunities, number of disabled employees, etc.

Bapco will work with local organizations and community leaders to ensure that all members of the community can access information on employment opportunities; this includes employment opportunities for unqualified job seekers and low-income households.

The BMP is expected to have a minor beneficial impact on vulnerable groups employment opportunities during construction.

7.1.1.2 Economic Impact from Procurement and Worker Spending

The BMP will have a positive impact on the economy due to contractor sourcing supplies and materials within the Kingdom of Bahrain, The estimated contract value is \$4.5 billion. It is the largest single project ever undertaken in Bahrain and will represent around 3% of GDP per year for 4 years. The project will promote the employment of local labour and sourcing of materials through local contractors.

Across the Kingdom there is a range of different supermarkets from high to low end, but for certain staple products, the prices are uniform across the Kingdom. These are the staple goods presented in **Table 7.1**.

Table 7.1 Prices for Key Staple Grocery Products Across the Kingdom

Product	Price (Bahraini Dinars)
Beef:	
Australian	3.5/Kilo
New Zealand	4/Kilo
Arabian	7/Kilo
Chicken (whole)	1 – 1.2
Yoghurt	0.100/170 grams
Bread	0.100 – 0.700
Milk (cow)	0.500/L
Eggs:	
Saudi	0.8 – 1.8 (for 6)
Bahraini	2.1 (for 6)
Tobacco	1.2 – 2/pack
Rice	2 – 5/5 kilos
Petrol:	
Jayyid	0.140/L
Mumtaz	0.200/L

Product	Price (Bahraini Dinars)
Flour	0.200/Kilo
White Sugar	0.500/Kilo
Tea	1 – 1.5/100 bags

Within the areas that the labourers are normally housed, there are often small supermarkets, cold stores and/or restaurants at the lower end of the market which negate the need for workers to venture into local communities for supplies. There are opportunities for businesses to establish to serve the worker camp areas.

In addition, the economic impacts of the BMP will be felt on a much wider scale through the procurement of materials, equipment and services from international markets.

The BMP is expected to have a moderate beneficial impact on procurement and through worker spending during construction.

7.1.1.3 Training and Capability Enhancement

BMP will provide specialist training to the workforce during the engineering and construction phase of the BMP. This is expected to enhance the local supplier and workers capacity and skills. Those who win the contracts will also have reputational benefits from contributing to one of the Country's largest project.

The BMP is expected to have a moderate beneficial impact on skills and capability enhancement during construction.

7.1.2 Operational Phase

7.1.2.1 Long Term Employment

During the operational phase the BMP is expected to employ approximately 600 workers, the majority of which will be Bahraini nationals. Large number of high quality skilled and graduate employment opportunities will be made available.

It is hard to source information relating to induced and direct employment opportunities, but the local population will benefit through job creation at the BMP itself and through the need for the provision of additional equipment, materials and supplies for the BMP.

As per the BMP ESIA, the BMP will promote the employment of local labour.

The BMP is expected to have major beneficial impact on long term employment during operation.

Vulnerable Groups

Bapco will ensure that measures are taken to promote social inclusion of vulnerable groups through its Stakeholder Engagement Plan.

An equal opportunity policy will be implemented for the project and all contractors will be expected to implement it. As part of the BMP, Bapco will identify employment opportunities for vulnerable groups such as female and disabled employment opportunities and advertise them accordingly.

Bapco will collect data for monitoring and evaluation of the project: i.e % women employed for relevant jobs opportunities, number of disabled employees, etc.

Bapco will work with local organizations and community leaders to ensure that all members of the community can access information on employment opportunities.

The BMP is expected to have a minor beneficial impact on vulnerable groups.

7.1.2.2 Economic Impact

The BMP will boost processing capacity of the refinery to 380,000 barrels per day (bpd) from its current 267,000 bpd.

The BMP will have a major beneficial impact on the development of the national economy. The new Refinery configuration post-BMP, will allow for higher throughput, improved product quality and ensure Bapco's continued competitiveness under a wide range of process and market scenarios.

7.2 Infrastructure and Public Services

This section considers the potential impacts on existing infrastructure and public services as a result of the project activities. The key potential receptors within the area of influence include local communities and businesses adjacent to traffic routes.

7.2.1 Construction Phase

7.2.1.1 Disruption on Roads

Figure 7.1 provides the main access routes utilised by the BMP.

BMP will utilise two locations as labour camps and Construction Laydown Areas (CLA) required for material & equipment laydown and fabrication areas. These two plots are located at the South of Refinery and at east of Sitra Tank Farm (NOGA plot).

The BMP construction will require the transportation of a considerable amount of fill, steelwork and other building material and equipment to site. It will also require the transportation of oversized loads that will require particular measures to minimize disruption. During peak construction period, materials movements can be up to 100 deliveries/ day, resulting in 200 vehicle movements. The bulk of the construction material will enter the site from the south entrance of the BMP and will utilize public roads and Alba Road. A new road parallel to Alba Road is also available as part of site preparation works done by Bapco. This road will be used to transport material from south CLA to site minimizing use of Alba Road. The majority of construction materials for the BMP plant will be imported to Bahrain through Khalifa Bin Salman Port, which is the main commercial port of Bahrain (see **Figure 7.1**).

For heavy load transportation, direct transport from Muharraq engineering Jetty through King Hamad Highway is foreseen. Access to Refinery will be through a new gate along refinery south fence.

Vehicle movements associated with this heavy load transportation will require careful management to avoid disruption to the local road network, e.g. restricting deliveries during peak hours. This will be accounted for within the Traffic Management Plan for the project.

During construction there will be a need to house, on average, 7,900 workers for a period of about four years, with an expected peak of 18,000 workers. The labour camp at the NOGA plot will be constructed specifically to house these workers, with the possible additional provision for a labour camp to host about 1,500 workers at the plot at south of the BMP (see **Figure 7.1**).

Buses will transport workers from the off-site labour camp to the BMP site via Um Al Saad Avenue and Alba Road. Um Al Saad Avenue is a quiet road with only light commercial use and it is expected to have a significant increase in traffic due to the transportation of workers from the labour accommodation plant from the NOGA plot to the BMP. There are a number of commercial businesses which are based along Um Al Saad that may be impacted due to the increase in traffic on Um Al Saad Avenue. In addition the access to Alba Road will also be impacted as Um Al Saad provides the main access to Alba Road.

There may be temporary local congestion at the start and end of working shifts on Um Al Saad Road. The peak is expected to last for a period of six months.

It is not expected that construction workers will generally have access to private cars. Hence, during their free time and on their days off, many may choose to use public transport to access shopping and leisure facilities in Manama which could lead to overcrowding on the local transport network. However labour camps will be provided with recreational facilities for workers, this will include small grocery stores and places of worship. The project will provide transportation from the labour camps to commercial centres to minimize the impact on public transport.

A significant number of vehicle movements will be generated during the construction phase of the BMP. A Project Traffic Management Plan (TMP) has been drafted for the first year of construction but it is still subject to review by Bapco at the time of writing. The TMP is a live document that will be updated throughout the duration of the project. It will address those traffic issues which are presented in the ESIA and stakeholder concerns. Training on the TMP will be given to all contractors and sub-contractors to ensure they are aware of any restrictions and/or specific requirements.

Stakeholder consultation will be undertaken with occupants of Um Al Saad Road to address any concerns they may have. Consultation will also be undertaken with Alba and GPIC to agree an approach to manage logistics during construction. There will also be a need to liaise further with CPO to manage the interactions with other local developments on KHH and Highway 96.

Following the development of the Project TMP and stakeholder consultations, overall the BMP is expected to have a negligible to minor adverse impact on disruption of roads during construction.

7.2.1.2 Pressure on Local Services

During construction, the project will source electricity mainly from engine generators. There will be a need to house, at peak construction, 18,000 workers for a period of approximately four years. The workers will be housed in labour camps which will have a dedicated electricity supply and will, therefore, not overload the local electricity supply to the surrounding communities.

Wastewater from the camps will be treated in on-site package sewage treatment plants. Domestic water will be provided to the camp via connection with the local water network and drinking water will be brought to site via tankers. The water quality will be tested on a periodic basis to ensure standards are adequate.

The labour camps will have their own medical facilities which will be capable of treating minor to moderate injuries and illnesses and will be sized to adequately service the workforce. Project employees will generally utilize the BMP clinic however local health facilities may be utilised for specific health services in nearby towns.

Workers with injuries requiring hospitalization will need to be transferred to an appropriate facility within Bahrain by an ambulance. There are numerous hospitals and clinics in the Southern Governorate including the Bahrain Defense Force Hospital, a strategic accident and emergency hospital in the Kingdom of Bahrain. A Medical Emergency Response Plan will be developed by the project which will identify the hospitals and clinics and shortest routes for the facilities in case of emergencies. The response plan will include training procedures.

Bahrain has a good quality health care service and provision. It is anticipated that the existing level of service would be able to absorb and effectively treat any Project related incidents. The details for planning for water provisions have not been finalized at the time of writing the SIA.

The mitigation measures above are as per the measures identified in the BMP ESIA.

Overall the BMP construction will have a negligible impact on local services.

7.2.2 Operational Phase

7.2.2.1 Disruption on Roads

Access to the BMP during operation will be via a new access gate in the south west corner of the site. Some of the workers will be transported to work in buses, but there will also be a requirement for private vehicles to have access to the site. All drivers of private vehicles entering the Refinery have to complete an advanced driving course run by Bapco. In addition, there will be vehicle movements associated with deliveries and visitors to the BMP. These movements are predicted to be not significant, given the established main road network around the BMP, the current improvements to ALBA and Nuwaidrat roundabouts, and the construction of new dedicated access roads to the BMP.

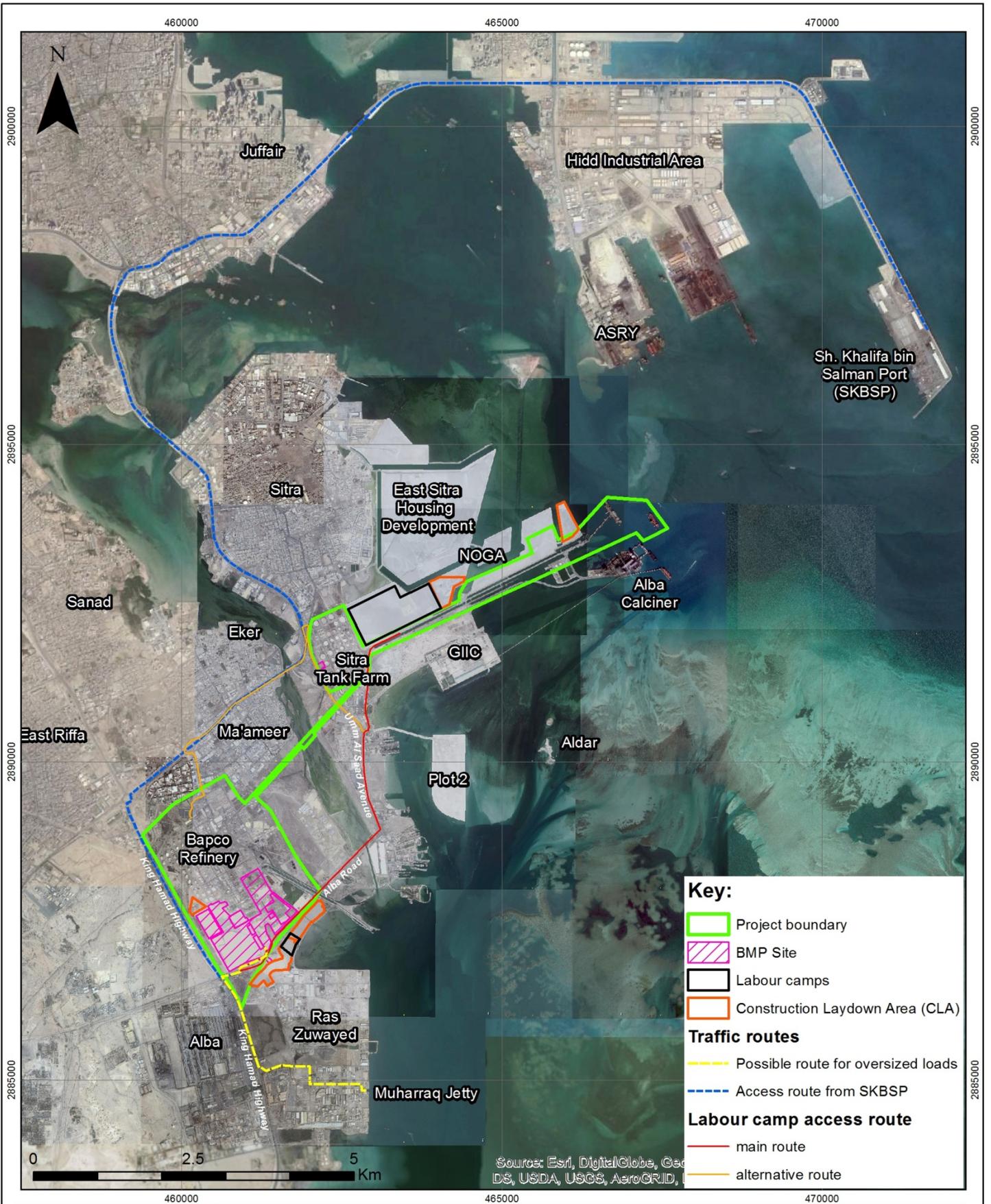
The operational phase of the BMP is expected to have a negligible impact on disruption of roads.

7.2.2.2 Utilities

The BMP will have the following requirements for utilities during operations:

- Electricity: connection to new EWA substation located at refinery south (260 MVA) and to new EWA substation at SITRA (30 MVA).
- Khuff Gas: connection to Alba and Riffa Gas distribution network for an overall additional supply of 250 MM SCFD of Khuff Gas to refinery

Planned capacity increases and will not affect other users during operation. Overall this is expected to have a negligible impact on Bahrain utilities.



Key:

- Project boundary
- BMP Site
- Labour camps
- Construction Laydown Area (CLA)

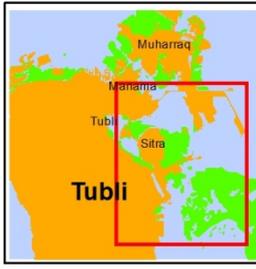
Traffic routes

- Possible route for oversized loads
- Access route from SKBSP

Labour camp access route

- main route
- alternative route

Source: Esri, DigitalGlobe, GeoEye, AeroGRID, IGN, USGS, USDA, Swire



Title: Main Access Routes Utilised by the BMP		Client:	
Project: BMP Social Impact Assessment			
Date: August 2018	Figure No.: 7.1	Consultant: 	
Datum: WGS 84 - UTM 39N	Scale: 1:80,000 (A4)		

7.3 Land and Livelihoods

This section considers the potential impacts on land and livelihoods of the existing population and their income sources as a result of the BMP project activities.

7.3.1 Construction

7.3.1.1 Access to Open/ Public Areas

There will be no public access restrictions due to the project.

Ma'ameer Village is the closest residential area to the BMP project, it is located just over 1km to the north east of the BMP refinery and the Bapco transfer pipelines pass approximately 170m to the South of Ma'ameer Village.

Towards Ma'ameer Channel, to the East of Ma'ameer village, there are some recreational facilities (see **Figure 7.2**). The facilities are located approximately 140 meters from the Bapco pipe bridge. The BMP construction will not interfere with the area. The construction area for the new BMP pipe bridge, including the laydown area and truck movements will be mainly located south of the existing bridge and the NOGA area. The duration of the construction of the new BMP pipe bridge will be limited to 9-12 months for both sides of the channel.

Figure 7.2 Ma'ameer Channel Recreational Area



There are no anticipated impacts to land due to the project during construction.

7.3.1.2 Livelihoods and Household Income

There are a number of villages which depend on fishing as a way of life and income. Villages include Sitra, Eker, Askar amongst others.

It is not expected that the livelihoods or incomes of the marine users such as fishermen will be impacted by the BMP construction. There are no anticipated impacts during the construction phase as there are no restrictions on navigation routes or fishing grounds of the fishermen.

As part of the SIA, the Sitra Fishermen Society were consulted and informed about the project, the minutes of the meetings can be found in **Appendix 6A**.

7.3.2 Operation

7.3.2.1 Livelihoods and Household Income

There are a number of villages which depend on fishing as a way of life and income. Villages include Sitra, Eker, Askar amongst others. Statistics on the number of fishing licences are only available through an official request to the AEWDR. However, the Sitra Fishermen's Society has indicated (telecon. 25.8.18) that the number of current licences for the local villages are:

- Sitra – 150;
- Eker – 200;
- Nuwaidrat – 10;
- Ma'ameer – 60.

There is no current indication of what these licences cover and for how long they are valid for.

The Sitra Fisherman's Society also explained that historically Sitra was a rich Saffi ground; however, the catch is now quite scarce and fishermen need to sail away from the study area. There are no known commercial fishing grounds around the Refinery and the project will result in improvements to the water quality of the outfall discharge. The project will result in some construction at sea in Sitra Wharf; however, it will not affect the fisherman's route to the fishing grounds.

It is expected that the BMP will have a negligible impact on fishermen's livelihoods.

Operational impacts upon marine ecological receptors within Farisiyah Bay (outfall discharges) have already occurred, and are associated with past and ongoing Refinery operations. The BMP will not affect significantly effluent characteristics or volumes, hence, no additional impacts upon marine ecological receptors and marine users are expected, other than that which has already occurred.

The BMP will lead to the creation of 600 new jobs. There are no data available on where this workforce will come from; however, it is expected that a large proportion of vacancies will be filled by local residents. Benefits may ensue for individuals' household incomes. Due to insufficient data it is not possible to score this impact. Every new employee will be provided with an Individual Development Program (IDP), tailored to their own unique individual needs based on their role and responsibilities within the company. Bapco already has established an Oil & Gas Academy to develop the technical expertise of new recruits according to specific job criteria. All new Bapco employees will undertake an Induction Programme which includes talks on company rules and regulations; company organisation; health, safety, environment, fire rules and regulations; security rules and regulations; company quality management system; employee suggestion scheme "A Good Idea"; and IT security awareness. To ensure professional behavior, all new employees will be provided with a copy of Bapco's Code of Conduct.

Younger employees with little to no work experience will be initially taken in as trainees. During that period, along with their regular work, they will be provided with professional and technical training to provide them with the skills and technical ability needed for a successful career. Bapco has already established a long established and respected Learning and Development department, with qualified instructors.

7.4 Community Health, Safety and Security (CHSS)

This section considers the potential impacts on CHSS as a result of the project. During construction the potential impacts are likely to relate to health risks, traffic risks, safety and security concerns from a large workforce present as well as potential impacts from unplanned events and unauthorized access to work areas.

The key potential receptors within the area of influence include local communities, vulnerable groups such as women, the elderly, youth, businesses adjacent to the BMP and the access traffic routes.

7.4.1 Construction

7.4.1.1 Health Risks / Communicable Diseases

Firstly there is the risk of transmission of communicable diseases to residents within local communities from the presence of a large influx of expatriate workers. Secondly there is a risk of disease transmission within labour camps from worker to worker.

The employment of a large, male, expatriate work force has the potential to cause an increase in prostitution, alcohol and drug abuse and violence particularly in the vicinity of labour accommodation camps.

Many of these potential impacts are mitigated by the particular project circumstances as the workers will be housed in managed labour camps removed from local communities, the risk of transference of disease between the two is considered low.

In addition, it is a legal requirement in Bahrain for all expatriate workers to receive a medical prior to commencing work. One reason for this is to prevent the spread of communicable diseases.

Contractors also have prevention and control measures regarding the use of drugs and alcohol within accommodation facilities. Contractors ban the use of drugs by employees and within the labour accommodation facilities, and being drunk at a labour accommodation facility can result in dismissal.

Workers do have the right to leave the accommodation facilities during their free-time and are likely to do so, particularly at the weekends. It is likely that some will engage with prostitutes and so there is a risk of spreading Sexually Transmitted Diseases (STDs).

In addition to the measures above, it is required that contractors will provide health education campaigns to their workers to provide information on STDs and prevention measures.

Labour camps will be constructed in accordance with the guidelines identified in the BMP ESIA.

The project HSSE plans, management systems and training will include these subjects.

Following the implementation of the mitigation measures, it is expected that there will be a negligible impact on health risks and communicable diseases.

7.4.1.2 Environmental Health and Quality of Life

Impacts to human health have been assessed in the BMP ESIA and subsequently in Camp 1 and Camp 2 Health Impact Assessment Reports.

Air Quality

During construction the BMP will have local impacts on air quality due to emissions of dust and emissions from vehicle exhausts. The BMP ESIA identified Good International Industry Practices (GIIP) to manage these impacts to a negligible level.

Since completion of the BMP ESIA, the arrangement of the labour camps has changed. There is now proposed to be a small labour camp (1,500 workers) in the Temporary Construction Facility to the south of the BMP site and the main bulk of the construction workers will be located in a large labour camp situated on the NOGA plot at Sitra Wharf. In both cases further assessment of these sites was carried out to determine their suitability for labour camps (Health Impact Assessment (HIA) Reports for Camps 1 and 2 (EACS, 2018). In both cases the air quality was identified to be likely to exceed the national and WHO project standards for the annual average concentration of nitrogen dioxide. This indicates that the air quality will have an adverse impact on the health of workers. The magnitude of the impact and options for mitigation or management are still under consideration at this time and need to be finalised. These activities will be taken forward as part of the project mitigation. At this stage no impact significance level has been assigned to this issue.

Noise

With respect to noise, the HIAs identified that noise levels exceed IFC guidelines for residential facilities at night (during the day the labour camps will be almost unoccupied) at the exterior façade of buildings. It is proposed that the accommodation facilities are designed so that they meet the WHO guideline of 30dBA as an 8 hour mean for noise within bedrooms. This mitigation measure should be included as part of the audit of the labour camp designs as identified in the BMP ESIA. Implementation of this standard would reduce the noise impact from minor adverse to negligible.

7.4.1.3 Security

Providing security and respecting human rights can and should be consistent. The connection between human rights and security is aligned with the commitment in Performance Standard 1 that "Business should respect human rights, which means to avoid infringing on the human rights of others and address adverse human rights impacts business may cause or contribute to."

At the BMP, there is potential for site trespassing during the duration of the construction. The risk of trespassing is highest when works are located closest to communities. In order to mitigate this, the facilities will be fenced and security will patrol the boundary of the BMP from the Refinery along to Sitra Wharf. Access and egress to all sites

associated with the BMP will be strictly controlled. The labour accommodation be located in dedicated areas, it will be fenced and it will have security services of their own.

BMP will develop a Security Management Plan in line with the UN Voluntary Principles for Security and Human Rights.

Security of construction premises will be controlled by private security companies employed by the contractors. The private security industry in Bahrain is regulated by the Ministry of Interior, Directorate of Guards who licence private security companies. They also require background checks and training for all guards. Security guards will not carry firearms and security arrangements will be planned using licenced businesses, background checked and trained personnel.

Increased security presence has the potential to result in anxiety or tension. However, the BMP site is located within the Bapco land. Currently Bapco security personnel do patrol the area and this will continue during construction of the BMP.

In order to ensure that the local communities can provide any concerns and feedback to the BMP project, a external grievance mechanism will be developed.

There has been a concern which has been raised during consultation from GPIC due to the close proximity of the proposed labour accommodation to the Bapco and GPIC wharfs which are critical for the country's economy. In order to address the concern from GPIC, further consultation will be undertaken with GPIC during the completion of the design of the labour accommodation.

It was not possible to get a baseline of levels of incidences of crime and anti-social behaviours within the timeframe of this SIA; however, Bahrain is generally a trusting society and petty crime is low.

With the implementation of the above mitigation measures, it is considered that the project will have a negligible impact on communities security.

7.4.1.4 Traffic and Communities

The BMP construction road access will not be going through any local villages as there are no major access routes for traffic within residential areas. As the access routes avoid local villages there will be no anticipated impacts on vulnerable groups within those communities.

As per the BMP ESIA, a TMP will be developed for the project.

As the businesses on Um Al Saad Avenue will experience higher volumes of traffic, consultations will be undertaken with the businesses to inform them of the project and address their concerns.

The impact of traffic and communities is considered minor adverse.

7.4.2 Operation

7.4.2.1 Health Risks from Communicable Diseases

As identified in the ESIA this is anticipated to be a negligible risk as statutory pre-employment medicals are undertaken for all workers including migrant workers and access to health care at Refinery will be provided for all employees.

The impact on health risks from communicable diseases is considered negligible after mitigation.

7.4.2.2 Environmental Health and Quality of Life

Air Quality

The BMP ESIA detailed air quality modelling concluded that all of the stacks for the BMP have been designed to meet the Bahrain emission standards and are also in accordance with international guidance on emissions provided by the International Finance Corporation and World Bank.

By undertaking computer modelling of the BMP emissions, it has been predicted that the BMP will not breach any air quality standards. In fact the BMP will have lower emissions to air than the existing refinery as it will use the latest, low emission equipment.

An assessment of air quality cumulative impacts is undertaken in the Cumulative Impact Assessment Report. In summary, the direct stack emissions comparison between the BMP, Alba and APC indicates that the combined APC and BMP emissions are anticipated to give rise to a greater contribution to annual mean NO₂ concentrations at East Riffa, whereas implementation of the Alba Line 6 project would have a greater effect on SO₂ levels in this location.

At the East Riffa receptors, which are predicted to have the highest predicted environmental concentration, emissions from the Alba expansion would also contribute to ambient NO₂ and SO₂ concentrations. However, when also accounting for the existing background concentrations, the combined maximum effect would remain well below the respective Bahrain National Standards for annual mean SO₂ and NO₂. The cumulative emissions were therefore assessed as negligible.

The BMP is expected to have a negligible impact for environmental health related to air quality.

Noise

For the operational phase, the BMP ESIA indicated that the present design may lead to a slight exceedance of the night-time guidance level at worker accommodation blocks to the south of the site. This is considered a minor adverse impact. During the detailed design phase it is proposed to review and, if possible, improve the noise emission characteristics of the BMP to eliminate the impact.

The noise assessment will be reviewed to include for any changes in the BMP design during the detailed design phase as well as introducing the noise level of the finally selected equipment manufacturers.

The impact on noise is considered to be negligible to minor adverse.

7.4.2.3 Security

Interactions with security forces have the potential to affect the rights and safety of individuals and communities. BMP will develop a Security Management Plan in line with the UN Voluntary Principles for Security and Human Rights.

An external grievance mechanism will be provided for Affected Communities to express any concerns.

Bapco security vehicles patrol the boundary of the Bapco Refinery, during operation there will be a similar security presence.

Following the implementation of the mitigation measures, it is anticipated the project will have a negligible impact on security.

7.4.2.4 Traffic and Communities

There are no traffic routes going through residential communities and the impact of the BMP during operations on traffic and communities is anticipated to be negligible.

In order to manage traffic associated with the Refinery, a traffic management plan will be devised during the operational phase which will include procedures for entering the refinery, traffic requirements and emergency plans.

7.4.2.5 Unplanned Events

A number of process hazard analyses were undertaken during Project Front End Engineering Design Phase. Among them, Hazard and Operability (HAZOP) studies, and Consequence Analysis⁶, a quantitative assessment of possible major accident hazard scenarios e.g. fires, explosions, toxic releases).

These studies showed that there are no significant risks to sensitive off-site receptors associated with potential major incidents. In respect of on-site risks from major incidents, the BMP has been designed with respect to the conclusions of the Accident Consequence Analysis. As such the site layout has been designed to minimise as far as practicable, the consequences of major incidents.

The mitigation measures are as per the measures identified in the BMP ESIA for Major Accident Hazards. These include:

- General safety in design practice studies;
- Operating and maintaining the equipment in accordance with operation and maintenance manuals and approved procedures;
- Working to a formal H&S management system;
- Implementation and update of an Emergency Response Plan and Oil Spill Contingency Plan.
- A process hazard analyses will be undertaken during current detail design phase and will include: validation and update of HAZOP studies, Quantitative Risk

⁶ Accident Consequence Analysis, Technip, Rev C, 22.1.16. Doc No. ML-203.

Assessment to cover BMP Project operational phase that will be then extended in order to have an integrated QRA for the Bapco Refinery post-BMP operation.

The Major Accident Hazards studies undertaken to date do not show that there are any significant direct health and safety impacts to the local community as a result of a major incident at any of the BMP sites. Bapco's Emergency Response Plan include communication plans through the media to disseminate information in the event of an incident. Based on the above, there is anticipated to be a negligible impact on community receptors for unplanned events.

7.5 Workers Management and Rights

This section discusses the key potential impacts on the management of workers rights.

7.5.1 Construction

7.5.1.1 Worker Health and Safety

There are a number of main sites where construction activities will be taking place for the BMP and these are: the Pitch Ponds site, the existing Refinery, the pipe bridge across Ma'ameer Channel, the pipeline corridors, Sitra Tank Farm, Sitra Wharf, labour accommodation construction at the NOGA plot. Due to the varying nature of these sites, a wide range of occupational health and safety risks exist, although there are some overlaps in the issues likely to be faced by construction workers.

There are common general activities associated with each construction site such as the storage and delivery of fuels for onsite generators and plant, storage and delivery of chemicals and other materials, storage and delivery of water for site and personnel use and removal of wastewaters and wastes. These activities will involve moving of plant and vehicles, unloading of potentially hazardous materials and manual handling.

Furthermore, construction workers are at risk of injury as a result of fire, explosion and/or release of toxic gases from the existing Refinery process units. Working in close proximity to existing process units will need to be managed carefully and will be covered in the Emergency Response Plan.

The measures have been identified in the ESIA, a formal health and safety management system will be implemented and specific risk assessments and procedures will be developed for marine construction activities and working near water.

The impact on worker health and safety is considered negligible following the implementations of the above mitigation measures.

7.5.1.2 Worker Security

As discussed in section **7.4.1.3**.

A grievance mechanism will be provided for workers to express any concerns.

Overall the safety risks associated with security personnel is considered to be negligible.

7.5.1.3 Workers Rights and Conditions of Employment

Potential risks to workers rights could include unhealthy worker-management relationships, unfair treatment, discrimination, unequal opportunities, lack of access to collective bargaining.

The construction phase of the BMP will require the employment of a large workforce of up to 18,000 persons. The majority will be expatriate male workers from the Indian sub-continent who will be housed in labour camps by their employer.

Issues such as the poor treatment of such migrant workers, poor health and safety standards, poor accommodation standards and non-payment of wages will need to be managed in accordance with national law and PS2 for the construction of the BMP.

A comparison undertaken in the BMP ESIA between Bahrain law and IFC PS2 indicates that the following gaps are present in Bahraini law with respect to labour law:

- Human resources policy and procedures;
- Grievance mechanism;
- Workers engaged by third parties; and
- Management of supply chain.

In all other respects, existing Bahrain law appears to be sufficient to implement IFC requirements on labour and working conditions.

As per the mitigation measures in the BMP ESIA, Bapco should prepare a specific employment policy and procedures to be implemented on the project to ensure it is compliant with Bahraini law and IFC PS2 requirements, including provision of a clear and understandable written statement of rights to each employee. The requirements should be applicable to direct employees, main contractors and sub-contractors. Compliance of documentation should be audited annually.

The project will implement a grievance mechanism for all contractors and suppliers. All workers will be provided with a code of conduct. All workers, and migrant workers in particular, should have access to grievance mechanisms that allow them to voice concerns without fear of punishment or retribution.

The mechanism should include procedures for the following:

- Registering the grievance;
- Screening and assessing the grievance;
- Formulating a response and closing the issue;
- Evaluate and monitor the results; and
- Sharing results for the purpose of 'lessons learnt'.

The grievance mechanism should be available in a language understandable to the workers and awareness campaigns should be implemented to raise awareness of the worker grievance mechanism. Contractors and sub contractors should report regularly to Bapco regarding any grievances raised and if/how these were resolved.

Following the implementation of the mitigation measures, the impact is considered to be negligible.

7.5.1.4 Use of Forced Labour

There are potential risks of forced labour within the supply chain as the construction work force will comprise up to 18,000 migrant workers.

Forced labour is banned under law in Bahrain. Whilst there are legal safe guards these may rely on the courts to implement them which may be slow to respond and be beyond the financial reach and knowledge of migrant workers.

The responsibility falls to the project owner, Bapco, to ensure through due diligence and other actions that forced labour is not employed, the supply chain acts responsibly and meet its duties to protect workers' rights including implementation of labour contracts, provision of information regarding workers' rights, provision of suitable labour accommodation, payment of wages and implementation of a grievance mechanism.

Workers will not be charged fees for recruitment and audits will be conducted throughout the construction phase on contractors and subcontractors to determine whether any workers have been charged fees in their home countries. If this is found to be the case, the workers should be reimbursed by the contractors.

Bapco should ensure that all (sub) contracts with suppliers include clauses on passing on requirements to abide by national law and PS2 (with respect to its application to contractors and the supply chain) on the following:

- Banning forced labour.
- To only use recruitment companies, in the workers country of origin, that are accredited.
- Banning payment of recruitment or other fees by the worker (e.g. for accommodation or transport).
- Allowing workers to retain access to their passports.

As per the BMP ESIA mitigation measures, procurement should undertake a risk assessment to identify any high risk sub-contractors or suppliers and all contracts will contain clauses banning forced labour. Documents will be audited annually.

There will not need to be retrenchment planning as the majority of the labour force will be provided by contractors.

Following the implementation of the mitigation measures, the impact is considered to be negligible.

7.5.1.5 Payment of Workers

The non-payment of wages can come about through poor financial management by contractors. So even if a contractor is paid by the client, the workers may not get paid.

This can lead to non performance by the contractor, industrial action by workers and social unrest.

Bapco should put in implement payroll audits for construction contractors and the supply chain to provide evidence on a monthly basis that all workers have been paid in accordance with their contracts and no illegal fees are deducted from salaries. Auditing

should include the provision of terms and conditions of employment for all workers for auditing, as needed.

The above mitigation will reduce the potential impact of this issue to negligible.

7.5.1.6 Labour Accommodation

As per the BMP ESIA mitigation measures, the worker accommodation should be designed and managed in accordance to Bahraini law and IFC/EBRD guidance.

Worker accommodation should be inspected and approved before contractor mobilisation to site. Thereafter the labour camps will be audited 2 months following occupation and then every 6 months during their use until the end of construction.

These measures should reduce the potential impacts to negligible.

7.5.1.7 Child Labour

Child labour is banned in Bahrain. Child labour is considered to be a negligible impact for the project as the majority of the work force comprises expatriate workers who must meet national legal requirements to qualify for work.

As per the BMP ESIA, Bapco should ensure that all procurement contracts contain clauses banning child and forced labour.

Following the implementation of enhancement measure, the impacts are considered negligible.

7.5.2 Operations

7.5.2.1 Worker Security

As discussed in **Section 7.4.1.3**.

7.5.2.2 Workers Rights and Conditions of Employment

The BMP will employ 600 people and a high percentage is expected to be Bahraini.

As per the BMP ESIA mitigation measures, the human resources and policy procedures for the BMP will need to be in compliance with IFC PS2 requirements, including provision of a clear and understandable written statement of rights of each employee. This will be applicable to all contractors and suppliers and documents will be audited annually.

Following the implementation of mitigation measures, the impacts are considered negligible.

7.6 Community Cohesion

The term community cohesion refers to the quality and quantity of interactions between members of a community and between different communities.

A high level of community cohesion implicates respect for persons as individuals, sensitiveness to ethnic and social differences and a sense of belonging to the community.

7.6.1.1 Construction

7.6.1.2 In-Migration / Social Cohesion

As discussed previously, 18,000 workers will be required for the construction of the BMP. There is a lack of skilled labour in the numbers required in Bahrain and so the majority of these workers will be brought in from outside the country. Bringing in such a large migrant workforce has the potential to impact social cohesion and the nature of local communities by introducing a new population element.

However, in this case, during the construction phase the workforce will be housed in dedicated labour camps at the south of the Refinery and in the NOGA plot. Both of the labour accommodation areas are not directly connected to large residential communities.

As the labour accommodation sites are not directly linked to local communities, the impact on surrounding communities to the BMP such as Ma'ameer, Nuwaidrat and East Riffa are expected to be negligible.

Access by walking or public transport from the labour camp sites to these locations is very poor and private transport is not expected to be generally in use. In addition, the construction workforce will be provided with a range of opportunities for recreation during their rest periods and on their days off.

As identified in the BMP ESIA, to further mitigate possible impacts on local communities, it is recommended a Code of Conduct is developed by Bapco to be adopted by all workers on the construction site and those resident in the labour accommodation in particular. The Code of Conduct would identify acceptable behaviours expected of construction workers and labour camp residents.

7.6.1.3 Operation

The number of workers required during operation represents less than 0.1% of the total population of Bahrain and as such their impact will not be significant.

8 SUMMARY

Table 8.1 provides the predicted impacts, mitigation and any residual impacts. The residual impacts following mitigation are shown during construction and operations.

Table 8.1 Summary of Impact Significance: Pre and Post Commitments/ Mitigation/ Enhancements

Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
Economy / Employment													
Construction													
Employment Opportunities	+3	+3	+4	+2	+12	Moderate Beneficial	Commitments: <ul style="list-style-type: none"> A fair and open competitive bidding process will be incorporated for local contractors. The BMP will provide local tender opportunities for local contractors and jobs openings will be advertised via local recruitment agencies. The BMP will provide local tender opportunities for local contractors and jobs openings will be advertised via local recruitment agencies. Compliance with IFC Performance Standard 2. Bapco will collect data for monitoring and evaluation of the project, i.e. % of local and international contractors. 	+3	+3	+4	+2	+12	Moderate Beneficial
Employment – Vulnerable Groups	+1	+1	+2	+2	+6	Minor Beneficial	Commitments: <ul style="list-style-type: none"> Bapco will ensure that measures are taken to promote social inclusion of vulnerable groups through the Stakeholder Engagement Plan. An equal opportunity policy will be implemented for the project and all contractors will be expected to implement it. As part of the BMP, Bapco will identify employment opportunities for vulnerable groups such as female and disabled employment opportunities and advertise them accordingly. Bapco will collect data for monitoring and evaluation of the 	+1	+1	+2	+2	+6	Minor Beneficial



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
							<p>project: i.e % women employed for relevant jobs opportunities, number of disabled employees, etc.</p> <ul style="list-style-type: none"> Bapco will work with local organizations and community leaders to ensure that all members of the community can access information on employment opportunities. 						
Economic Impact	+1	+1	+2	+2	+6	Minor Beneficial	<p>Commitments:</p> <ul style="list-style-type: none"> As per the ESIA mitigation measures the project will promote the employment of local labour and sourcing of local materials through contractors. 	+3	+3	+2	+2	+10	Moderate Beneficial
Training and Capability Enhancement	+1	+1	+2	+2	+6	Minor Beneficial	<p>Commitments:</p> <ul style="list-style-type: none"> Bapco will conduct training of contractors on the BMP health, safety, environmental and social policies. The project will enhance the regional and local suppliers capacity. 	+1	+1	+2	+2	+6	Minor Beneficial
Operational													
Long Term Employment	+5	+4	+4	+5	+18	Major Beneficial		+4	+4	+3	+5	+17	Major Beneficial
Long Term Employment – Vulnerable Groups	+1	+1	+2	+2	+6	Minor Beneficial	<ul style="list-style-type: none"> Bapco will ensure that measures are taken to promote social inclusion of vulnerable groups. An equal opportunity policy will be implemented for the project and all contractors will be expected to implement it. As part of the BMP, Bapco will identify employment opportunities for vulnerable groups such as female and disabled employment opportunities and advertise them accordingly. Bapco will collect data for monitoring and evaluation of the project: i.e % women employed for relevant jobs opportunities, 	+1	+1	+2	+2	+6	Minor Beneficial



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
							number of disabled employees, etc.						
Economic Impact	+5	+4	+4	+5	+18	Major Beneficial		+5	+4	+4	+5	+18	Major Beneficial
Infrastructure and Public Services													
Construction													
Disruption on road	-3	-3	-3	-2	-11	Moderate Adverse	<p>Mitigation:</p> <ul style="list-style-type: none"> As per the BMP ESIA, a traffic management plan (TMP) will be devised . Stakeholder consultation will be undertaken with occupants of Um Al Saad Road to address any concerns they may have. Consultation will be undertaken with Alba and GPIC to agree an approach to manage the logistics during construction. There will also be a need to liaise with CPO to manage the interactions with other local developments on KHH and Highway 96. 	-2	-3	-3	-2	-10	Minor Adverse
Pressure on local services	-5	-2	-3	-2	-12	Moderate Adverse	<p>Mitigation:</p> <p>As per the BMP ESIA:</p> <ul style="list-style-type: none"> The labour camps will have a dedicated electricity supply. The project will have its own medical facilities which will be capable of treating minor to moderate injuries and illnesses and will be sized to adequately service the workforce. Develop a Medical Emergency Response Plan 	0	0	-0	-2	-2	Negligible
Operational													
Disruption on road	0	0	0	-5	-5	Negligible	<ul style="list-style-type: none"> Improved access for BMP. 	0	0	0	-5	-5	Negligible



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
Utilities	0	0	0	5	5	Negligible		0	0	0	5	5	Negligible
Land and Livelihoods													
Construction													
Access to Open/ Public Areas	0	0	0	0	0	Negligible		0	0	0	0	0	Negligible
Livelihoods and Household Income (Fishermen)	0	0	0	0	0	Negligible		0	0	0	0	0	Negligible
Operations													
Land and Livelihoods	0	0	0	0	0	Negligible		0	0	0	0	0	Negligible
Community Health, Safety and Security													
Construction													
Health Risks / Communicable Diseases	-3	-2	-3	-2	-12	Moderate Adverse	Mitigation: As per the BMP ESIA: <ul style="list-style-type: none"> Labour camps will be constructed in accordance with the guidelines identified in the Labour and Working Conditions chapter of the BMP ESIA. Contractors will have prevention and control measures regarding the use of drugs and alcohol in the facilities. All construction contractors to provide health education campaigns to their workers to provide information on the policies regarding STDs, their impacts, symptoms and prevention measures. 	0	0	-3	-2	-5	Negligible



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
Environmental Health and Quality of Life – Air Quality	-2	-2	-1	-2	-7	Minor Adverse	Commitments: <ul style="list-style-type: none"> • GIIP as per ESIA. • The BMP will need to finalize the assessment of the annual average concentration of nitrogen dioxide concentration for on health of workers for camps 1 and 2 and subsequently mitigation measures should be proposed. 	-1	-2	-1	-1	-5	Negligible Further assessment will be required for Camps 1 and 2.
Environmental Health and Quality of Life – Noise	-2	-2	-1	-2	-7	Minor Adverse	Mitigation: <ul style="list-style-type: none"> • The labour accommodation facilities will be designed so that they meet the WHO guideline of 30dBA as an 8 hour mean for noise within bedrooms. 	-2	-2	-1	-2	-7	Negligible
Security	-3	-1	-3	-2	-10	Minor Adverse	Mitigation: <ul style="list-style-type: none"> • Development of a Security Management Plan in line with the UN Voluntary Principles for Security and Human Rights . • The facilities will be fenced and security will patrol the boundary of the BMP from the Refinery along to Sitra Wharf. Access and egress to all sites associated with the BMP will be strictly controlled. • A grievance mechanism will be provided for Affected Communities to express any concerns. • Security guards will not carry firearms. • Security arrangements will be well planned using licenced businesses, security personnel will be background checked and trained. • Further consultation will be undertaken with GPIC during the 	-1	-1	-2	-1	5	Negligible



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
							completion of the design of the labour accommodation.						
Traffic and Communities	-3	-2	-2	-2	-9	Minor Adverse	Mitigation: <ul style="list-style-type: none"> As per the BMP ESIA, a TMP will be devised. Consultations will be undertaken with the business of Um Al Saad Avenue. 	-3	-2	-2	-2	-9	Minor Adverse
Operations													
Health Risks/ Communicable Diseases	0	0	-3	-2	-5	Negligible	Enhancement: As identified in the BMP ESIA: <ul style="list-style-type: none"> Access to health care for employees will be provided. 	0	0	-3	-2	-5	Negligible
Environmental Health and Quality of Life – Air Quality	0	+3	+1	+5	+9	Negligible for NO ₂ , PM ₁₀ and CO Beneficial for SO ₂ concentrations	Commitments: As identified in the BMP ESIA: <ul style="list-style-type: none"> Stacks designed to allow adequate dispersion of pollutants into the atmosphere. Periodic monitoring of existing sources and BMP processes. Maintain emissions inventory to ensure that emissions remain within designed limits. 	0	+3	+1	+5	+9	Negligible for NO ₂ , PM ₁₀ and CO Beneficial for SO ₂ concentrations
Human Health and Quality of Life – Noise	-2	-1	-2	-2	-7	Minor Adverse	Commitments: <ul style="list-style-type: none"> In case results of EPC noise study confirm a minor adverse effect on N4 and N5, mitigation measures should be applied. 	-2	-1	-2	-2	-7	Minor Adverse
Security	-2	-2	-3	-2	-9	Minor Adverse	Mitigation: <ul style="list-style-type: none"> Security Management Plan in line with the UN Voluntary Principles for Security and Human Rights. It is expected that facilities will be fenced and security will patrol the boundary of the BMP from the Refinery along to Sitra Wharf. 	0	-2	-1	-2	-5	Negligible



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
							<ul style="list-style-type: none"> A grievance mechanism will be provided for Affected Communities to express any concerns. Security guards will not carry firearms. Security arrangements will be well planned using licenced businesses, security personnel will be background checked and trained. 						
Traffic and Communities	0	0	0	5	5	Negligible	Mitigation: <ul style="list-style-type: none"> A traffic management plan will be devised during operations which will include procedures for entering the refinery, traffic requirements and emergency plans. 	0	0	0	5	5	Negligible
Unplanned Events	-3	-2	-3	-1	-9	Minor Adverse	Mitigation: As per the BMP ESIA mitigation measures: <ul style="list-style-type: none"> General safety in design practice studies; Operating and maintaining the equipment in accordance with operation and maintenance manuals and approved procedures; Working to a formal H&S management system; Implementation and update of an Emergency Response Plan and Oil Spill Contingency Plan. A process hazard analyses will be undertaken during current detail design phase. 	0	-2	-3	0	-5	Negligible
Workers Management and Rights													
Construction													
Worker Health and Safety	5	2	4	2	13	Moderate Adverse	Mitigation: <ul style="list-style-type: none"> As per the measures identified in the ESIA, a formal health and safety management system will be implemented and 	2	2	1	1	5	Negligible



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
							specific risk assessments and procedures will be developed for marine construction activities and working near water.						
Worker Security	-3	-1	-3	-2	-10	Minor Adverse	Mitigation: <ul style="list-style-type: none"> • Security Management Plan in line with the UN Voluntary Principles for Security and Human Rights. • Security arrangements will be planned using licenced businesses and security employees will be background checked and trained personnel. • A grievance mechanism will be provided for workers to express any concerns. • Security guards will not carry firearms. 	0	-1	0	-2	-3	Negligible
Workers Rights and Conditions of Employment	-5	-2	-5	-2	-14	Moderate Adverse	Mitigation: <ul style="list-style-type: none"> • Bapco should prepare a specific employment policy and procedures to be implemented on the project to ensure it is compliant with Bahraini law and IFC PS2 requirements. The requirements should be applicable to direct employees, main contractors and sub-contractors. Compliance of documentation should be audited annually. • The project will implement a grievance mechanism for all contractors and suppliers. All workers, and migrant workers in particular, should have access to grievance mechanisms that allow them to voice concerns without fear of punishment or retribution. The mechanism should include procedures for the following: Registering the grievance; screening and assessing the complaint; formulating a response and settling the issue; evaluate and monitor the results; and sharing results for the 	0	-1	0	-2	-3	Negligible



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact	
							<p>purpose of 'lessons learnt'.</p> <ul style="list-style-type: none"> The grievance mechanism should be available in a language understandable to the workers and awareness campaigns should be implemented to raise awareness of the worker grievance mechanism. Contractors and sub contractors should report regularly to Bapco regarding any grievances raised and if/how these were resolved. All workers will be provided with a code of conduct. 							
Use of Forced Labour	-5	-2	-5	-2	-14	Moderate Adverse	<p>Mitigation: Bapco should ensure that all (sub) contracts with suppliers include clauses on the following:</p> <ul style="list-style-type: none"> Banning forced labour. To only use recruitment companies, in the workers country of origin, that are accredited. Banning the charging of fees for the positions of employment (recruitment fees). Banning payment of other fees by the worker (e.g. for accommodation or transport). Allowing workers to retain access to their passports. Monitor implementation by contractors and sub contractors of the above. <p>As per the BMP ESIA:</p> <ul style="list-style-type: none"> Procurement should undertake a risk assessment to identify any high risk sub-contractors or suppliers and all contracts will contain clauses banning forced labour. Documents will be audited annually. 	0	-1	0	-2	-3	Negligible	
Payment of	-5	-2	-5	-2	-14	Moderate	Mitigation:	0	-1	0	-2	-3	Negligible	



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
Workers						Adverse	<ul style="list-style-type: none"> Bapco should implement payroll audits for construction contractors and the supply chain to provide evidence on a monthly basis that all workers have been paid in accordance with their contracts and no illegal fees are deducted from salaries. Auditing should include the should include provision of terms and conditions of employment for all workers for auditing, as needed. 						
Labour Accommodation	-5	-2	-5	-2	-14	Moderate Adverse	<p>Mitigation:</p> <p>As per the BMP ESIA:</p> <ul style="list-style-type: none"> The worker accommodation should be designed and managed in accordance to Bahraini law and IFC guidance. Worker accommodation should be inspected and approved before contractor mobilisation to site. Thereafter the labour camps will be audited 2 months following occupation and then every 6 months during their use until the end of construction. 	0	-1	0	-2	-3	Negligible
Child Labour	0	-1	0	-2	-3	Negligible	<p>Enhancement:</p> <ul style="list-style-type: none"> As per the BMP ESIA, Bapco should ensure that all procurement contracts contain clauses banning child and forced labour. 	0	-1	0	-2	-3	Negligible
Operations													
Worker Security	-3	-1	-3	-2	-10	Minor Adverse	<p>Mitigation:</p> <ul style="list-style-type: none"> Security Management Plan in line with the UN Voluntary Principles for Security and Human Rights Security arrangements will be planned using licenced businesses and security employees will be background checked and trained personnel. 	0	-1	0	-2	-3	Negligible



Impact	Magnitude	Extent	Sensitivity	Duration	Impact Score	Pre-Commitments /Mitigation/ Enhancement Impact	Commitments/ Mitigation/ Enhancements	Magnitude	Extent	Sensitivity	Duration	Impact Score	Residual Impact
							<ul style="list-style-type: none"> A grievance mechanism will be provided for workers to express any concerns. Security guards will not carry firearms. 						
Workers Rights and Conditions on Employment	-5	-2	-4	-2	-13	Moderate Adverse	Mitigation: As per BMP ESIA: <ul style="list-style-type: none"> Establishing HR policy and procedures for BMP in compliance with IFC PS2 requirements, including provision of a clear and understandable written statement of rights to each employee. Applicable to employees of all contractors and suppliers. Auditing of documents. 	0	-1	0	-2	-3	Negligible
Community Cohesion													
Construction													
In-Migration Social Cohesion	-3	-3	-3	-2	-11	Moderate Adverse	Mitigation: As per BMP ESIA: <ul style="list-style-type: none"> Provision of labour camp, transportation to main shopping centres and entertainment centres. Development of a Code of Conduct for construction workers. 	-0	-0	-3	-2	-5	Negligible
Operation													
Operation	0	0	0	-5	-5	Negligible		0	0	0	-5	-5	Negligible

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Appendix 6A

**Meeting Minutes**

Project Title	Bapco Modernization Program (BMP)
Venue	Bahrain Women Association (BWA)
Date and time	June 6 th 2018
Attendees	Saba Al Asfoor, Board Member, BWA Mahnaz Khademi, Environmental Citizenship Program, BWA Meena Kadhimi, Head of Media and Internal Affairs, BWA Jehad Ja'afar, Environmental Citizenship Program, BWA Eman Rafea, Environmental Consultant, EACS Mohammed Ghassan, Environmental Engineer, Bapco/ BMP Mohammed Asim, Environmental Specialist, Worley Parsons/ BMP.
Subject	Stakeholder Engagement Meeting

No.	Item	Action by
1	EACS briefed BWA regarding the BMP project and the purpose of the meeting.	
2	BWA briefed EACS and Bapco about their association which was founded in 2001 and introduced them to their programs and mission, one of which is spreading environmental awareness.	
3	BWA expressed concern about the potential impacts of the project on public health, especially emissions from industrial activities in the area. EACS assured BWA that the BMP will result in improved emissions level from the refinery relative to existing conditions.	
4	BWA also highlighted the importance of engaging the local communities, especially in Ma'ameer village and introducing them to the project, for example through local councils and NGOs. Furthermore, BWA suggested providing job opportunities to Ma'ameer locals.	
5	BWA suggested implementation of green buffers around potentially affected communities to reduce visual impact.	



Meeting Minutes

Project Title	Bapco Modernization Program (BMP)
Venue	Central Planning Office (CPO)
Date and time	06 June 2018
Attendees	Dominic McPolin, Chief Planning Officer, CPO Andy Booth, Technical Director, Environment Arabia Consultancy Services (EACS) Eman Rafea, Environmental Consultant, EACS Mohammed Asim, Environmental Specialist, Worley Parsons/BMP
Subject	Cumulative Impact of BMP

No.	Item	Action by
1	EACS briefed CPO of the purpose of the meeting and the supplementary studies EACS were undertaking for the BMP, including the cumulative impact assessment.	
2	EACS noted the project included the building of Ma'ameer pipe bridge which would include temporary reclamation. CPO inquired about the possibility of dredging Ma'ameer Channel. EACS stated that widening and deepening of the channel was not likely to be a realistic possibility due to the presence of bridges at either end of the channel which would probably need rebuilding if flows are significantly increased or the channel widened. This would likely be prohibitively expensive. An Environmental Impact Assessment shall be conducted by the EPC as per SCE requirements.	
3	EACS inquired about the East Sitra Link Road. CPO advised that the road has been granted cabinet approval for the southern section, from the newly reclaimed plot 2 "Mumtalakat plot" to the King Hamad Highway; however, it is unlikely that construction will commence in the near future. The project still requires further planning consultation and agreement from Bapco, Noga and Alba. CPO also highlighted that the upgrade of Highway 96 and King Hamad Highway has been granted approval for construction and may impact on the BMP construction.	
4	CPO informed that the hydrodynamic modelling for the East Sitra Housing reclamation did not take into account the impact of reclamation on turbulence. Furthermore, CPO indicated that there is an increase in water temperature at the GPIC intakes, flooding in the Mumtalakat Plot (south of the Noga plot) and sediment deposits at the Sitra port. Finally, CPO advised that the design of the Alba port must be done in coordination with the BMP.	
5	CPO expressed safety concerns over the location of the BMP Labour Camp 2 on the Noga Plot, suggesting use of the Mumtalakat Plot instead. EACS noted that NOGA 1 & 2 plots are allocated for Bapco to use for BMP and a QRA had been completed for the Camp 2 site and found that the site was acceptable in terms of risk to the camp occupants.	
6	CPO also pointed that the current proposed BMP construction access road from King Hamad is considered inadequate and suggested an additional one way exit to the King Hamad Highway might help traffic flows.	
7	Finally, CPO suggested putting in place a technical interface officer for the BMP that will liaise with relevant authorities regarding all necessary permits. Technical interface meetings for major projects are held weekly by CPO.	

**Meeting Minutes**

Project Title	Bapco Modernization Program (BMP)
Venue	Environment Arabia Consultancy Services (EACS)
Date and time	June 5 th 2018
Attendees	Marietta Dias, Chairperson, Migrant Workers Protection Society (MWPS) Catherine Ball, General Secretary, MWPS Katib Ahmed, Head of Labour Safety, MWPS Andy Booth, Technical Director, Environment Arabia Consultancy Services (EACS) Eman Rafea, Environmental Consultant, EACS Mohammed Ghassan, Environmental Engineer, Bapco/BMP Mohammed Asim, Environmental Specialist, Worley Parsons/BMP.
Subject	Stakeholder Engagement Meeting

No.	Item	Action by
1	EACS briefed MWPS regarding the BMP project and the purpose of the meeting.	
2	MWPS spoke about the general issues and challenges facing expatriate workers such as delayed wages, poor accommodations, difficulty in communication, withholding of travel documentation, lack of awareness regarding safety and grievance mechanisms and so on.	
3	Bapco assured MWPS that stringent measures will be put in place to ensure proper requirement and adequate training of workers. Bapco also explained that the labour camp will be designed to international standards and equipped with medical and recreational facilities and in line with relevant local regulations. MWPS emphasized that maintenance of new labour camps is essential to the well being of the workers.	
4	MWPS suggested that safety instructions must be made available in multiple language (English, Hindi, Bengali, Malyalim, etc) and pictures as to be understood by all workers.	
5	MWPS offered to share safety videos (in Hindi, Bengali, Malyalim and Tiligo) that can be presented to the workers at the labour camp.	
6	MWPS identified BD 120-140 per month plus accommodations is generally considered as a fair rate pay for unskilled construction labourers.	
7	MWPS noted that literacy competencies can be quite poor so the grievance mechanism should be explained to the workers.	

**Meeting Minutes**

Project Title	Bapco Modernization Program (BMP) – Social Impact Assessment
Venue	Supreme Council for Women (SCW)
Date and time	June 5 th 2018
Attendees	Bedoor Al Ansari, Head of Public Relations, SCW Fay Al Ammadi, Senior Public Relations Specialists, SCW Andy Booth, Technical Director, Environment Arabia Consultancy Services (EACS) Eman Rafea, Environmental Consultant, EACS Mohammed Ghassan, Environmental Engineer, Bapco/BMP Mohammed Asim, Environmental Specialist, Worley Parsons/ BMP.
Subject	Stakeholder Engagement Meeting

No.	Item	Action by
1	EACS briefed the SCW about the BMP and the purpose of the meeting.	
2	SCW briefed attendees of their mission, achievements and programs.	
3	SCW expressed concern regarding women's health in the workplace, citing that they had recently participated in a health and safety event organized by Bapco.	
4	SCW indicated that they interface with various ministries and government bodies to achieve their goals and programs.	
5	SCW stated that they have an ongoing relationship with Bapco, providing guidance and advice regarding the safety of women in the workplace as well as promoting equal job opportunities for women.	
6	SCW welcome further consultation with their information and strategy centre for women or other relevant departments at the SCW.	

**Meeting Minutes**

Project Title	Bapco Modernization Program (BMP)
Venue	Sitra Fishermen Society (SFS)
Date and time	August 5 th 2018
Attendees	Jaffar Abdul Hussain, Member Khalil Mohammed Ali, Member Ibrahim Ahmed, Member Hassan Mohammed, Member Mohammed Ridha Mansoor, Member Abdulla Mohammed Ali, Member Michael Arora, Director, EACS Eman Rafea, Environmental Consultant, EACS Mohammed Ghassan, Environmental Engineer, Bapco Mohammed Assim, Environmental Specialist, Worley Parsons.
Subject	Stakeholder Engagement

No.	Item	Action by
1	Bapco briefed SFS regarding the BMP project and the purpose of the meeting.	
2	EACS inquired about the fishing activity around Sitra Port. SFS informed that historically, Sitra was a rich Saffi ground; however, catch is now quite scarce and the fishermen need to sail about an hour away to find fish.	
3	Regarding Ma'ameer Channel, SFS suggested that widening and deepening of the channel may improve circulation in Tubli Bay and consequently restore fishing grounds, citing that Tubli area is an important shrimping ground. Bapco pointed that no dredging or reclamation will be undertaken in the channel as currently, a pipe bridge is proposed to be constructed over the channel.	
4	EACS inquired about the nature of fishing ground around the Bapco outfall. The SFS responded that the shrimp occurring in that area was found to be greyish and smelly. Bapco pointed that under the new BMP, water quality is expected to improve.	
5	SFS expressed concern over the discharge of chemical used for cleaning the outfall pipe. Bapco responded that chemicals used for pipe cleaning is treated and disposed to properly and not discharged to the sea.	
6	SFS expressed their gratitude for their engagement in the stakeholder consultation process and offered support to EACS with regards to future marine surveys.	

QMinutes of Meeting (MoM)

Project Title	Bapco Modernization Program- Proposed Labour Camp
Venue	Calcine and Marine Conference Room-Alba Calciner Plant-Sitra
Date and time	09:00 on the 25 January 2018
Attendees	<ol style="list-style-type: none"> 1. Dr. Andy Booth-Technical Director-Environment Arabia Consultancy Services (EACS) 2. Eman Rafea-Environmental Consultant- Environment Arabia Consultancy Services 3. Mohammed Ghassan-Environmental Engineer- Bapco 4. Majed Al Ansari-Trainee Head- Alba 5. Sayed Abbas Sayed Baqer-Marine Operation Superintendant-Alba 6. Sushanta Samal-Superintendant Engineering-Alba 7. Ahmed Al Qaed-Security and Fire-Alba
Subject	Consultation Meeting

Item No.	Subject	Item	Action by
1	Introductions	<ul style="list-style-type: none"> • Each of the attendees provided an introduction. 	-
2	Project Background	<ul style="list-style-type: none"> • EACS briefed ALBA of the scope of work and purpose of the meeting 	-
3	Stakeholder concerns	<ul style="list-style-type: none"> • Alba expressed concern over the impact of increased traffic associated with the labour camp on the Alba Truck Haul Route. Currently, the traffic load is an estimated one truck per two minutes or 16-24 trucks per hour, in addition to light vehicles used by Alba staff. The frequency of trips is expected to increase in October 2018 by about 30%. • Alba expressed that any delay in the delivery of their raw material will impact their daily targets and have significant consequences • Alba inquired about the total number or trips which will be made daily using the Alba road. EACS indicated that roughly 300 buses will be needed per days, transporting worker from the camp to the work site and back during the early morning and evening periods. • Furthermore Alba inquired about the route that will be used by other vehicles providing services to the labour camp. EACS explained that alternate routes will be used for these vehicles. • Alba also expressed concern over safety issues and explained that no pedestrians should be permitted to walk along the road. Bapco assured Alba that all safety related issues will be analysed and addressed. • • Alba discussed the potential possibility of a handover system i.e. that Bapco might be able to utilize the haul road freely at specific designated time intervals. • Alba request to be provided with a Traffic Management Plan (including type of vehicles, number of trips per day, etc). Bapco indicated that this will be achieved during the EPC phase of the project. 	

Item No.	Subject	Item	Action by
		<ul style="list-style-type: none"> • All above issues have been discussed in detail including a preliminary risk assessment in several coordination meetings held between ALBA and Bapco/BMP teams. Bapco plans to further address these issues during the early stage of the forthcoming EPC phase of BMP alongside the appointed EPC Contractor. • Finally, Alba requested to know the concerns and opinions of the other stakeholder. 	

Minutes of Meeting (MoM)

Project Title	Bapco Modernization Program (BMP)- Proposed Labour Camp
Venue	Bahrain National Gas Company (BANAGAS)
Date and time	11:00 on the 07 February 2018
Attendees	<ol style="list-style-type: none"> 1. Dr. Andy Booth-Technical Director-Environment Arabia Consultancy Services (EACS) 2. Eman Rafea-Environmental Consultant- Environment Arabia Consultancy Services (EACS) 3. Prasad Kondaramvalappil- Acting Superintendent-Health, Safety and Environment (BANAGAS) 4. Ahmed Al Hassan-Acting OPS superintendent-BANAGAS 5. Waleed AlAwadhi-Acting Senior Engineering- Health, Safety and Environment (BANAGAS)
Subject	Consultation Meeting

Item No.	Subject	Item	Action by
1	Project Background	<ul style="list-style-type: none"> • EACS briefed Banagas of the scope of work and purpose of the meeting. EACS informed Banagas that Bapco is considering to utilize the reclaimed Noga plot as a laydown area and potential labour camp for a maximum 15000 labourers for a period of 4 years, starting around September 2018. 	-
2	Stakeholder concerns	<ul style="list-style-type: none"> • Banagas stated that there are four gas pipelines that run in the channel south of the proposed project location and they are concerned regarding the safety of the labourers in case of any gas leaks. • Furthermore, Banagas added that there is a 11KV cable which extends from the tank farm to the Banagas facility. Banagas requested that a health and safety risk assessment should be undertaken by Bapco and shared with Bangas. • Banagas stated that a way leave is required prior to mobilization. • Banagas wanted Bapco to make sure that any increase in road traffic would not increase emergency response time • Banagas also recommended an alternative transport route in event of an incident • Banagas noted that there is an 11.5 tonne per axle limit on the access road to Sitra wharf, near the security barrier, where the pipes cross the roads. 	

Minutes of Meeting (MoM)

Project Title	Bapco Modernization Program- Proposed Labour Camp
Venue	Gulf Petrochemical Industries Company (GPIC), Sitra
Date and time	10:00 on the 31 st January 2018
Attendees	<ol style="list-style-type: none"> 1. Mr. Jassim Darwish, Safety, Security, Health & Environment Manager, Port Facility Security Officer (PFSO), Gulf Petrochemical Industries Company (GPIC) 2. Mohammed Al Naham, Security Superintendent, GPIC 3. Dr. Andy Booth-Technical Director-Environment Arabia Consultancy Services (EACS) 4. Eman Rafea-Environmental Consultant- Environment Arabia Consultancy Services 5. Mohammed Ghassan -Environmental Engineer- Bapco
Subject	Consultation Meeting

Item No.	Subject	Item	Action by
1	Introductions	<ul style="list-style-type: none"> • GPIC began by stating that they are aware of Bapco Modernization Program (BMP) as they were part of the stakeholder engagement process. 	-
2	Project Background	<ul style="list-style-type: none"> • EACS updated GPIC on the project, specifically the proposed site for the labour accommodation. GPIC had internally discussed the use of the NOGA plot as a site for BMP labour accommodation and laydown area and the following concerns were presented. 	-
3	Stakeholder concerns	<ul style="list-style-type: none"> • GPIC is concerned with the increased traffic flow that the labour accommodation will introduce to the ALBA road. Bapco informed GPIC that Alba has already been engaged and that their concerns are being addressed. Further consultation with BANAGAS is also planned. • Another concern is the close proximity of the proposed labour accommodation to the Bapco and GPIC wharfs which are critical for the country's economy. Development of the labour camp on the Noga plot would be a security concern. • GPIC express high concern for the safety and emergency responses for the labour camp personnel. • GPIC also pointed to the East Sitra Housing Plot north of the proposed project location and its future occupancy being also a safety concern. • In the land south of the proposed plot, over ground gas pipes are present and their integrity is also a matter of concern. Add additional statement: Bapco responded that the over ground pipelines belong to Bapco and will be beyond the fenced area of the proposed labour camps. • GPIC stated that the proposed option for the BMP labour accommodation is not ideal from their perspective and they would prefer if other options are considered. Bapco clarified that there are only two proposed locations which are allocated as BMP TCF areas (to accommodate worker 	

Item No.	Subject	Item	Action by
		<p>camps and lay down areas). Further details will be determined during the Detailed Engineering Design phase of the project, in which the EPC Contractor shall be responsible in finalizing the plans of the TCF. Bapco stated additionally that the purpose of this stakeholder meeting was to take into account the concerns of all stakeholders when determining the exact location, design and logistics of the worker camps.</p> <ul style="list-style-type: none"> • GPIC proposed that as another option, the subject area could be utilized for equipment laydown and fabrication workshop. • Finally, GPIC requested that other major project (i.e. ALBA Line 6) and their approach to the labour camp be assessed as well. 	

Minutes of Meeting (MoM)

Project Title	Bapco Modernization Program (BMP)- Proposed Labour Camp
Venue	Ministry of Housing – Diplomatic Area
Date and time	10:00 on the 04 February 2018
Attendees	<ol style="list-style-type: none"> 1. Dr. Andy Booth-Technical Director-Environment Arabia Consultancy Services (EACS) 2. Eman Rafea-Environmental Consultant- Environment Arabia Consultancy Services (EACS) 3. Dr. Fattah Al Dafai- Civil Engineer-Strategic Project-Ministry of Housing (MoH)
Subject	Consultation Meeting

Item No.	Subject	Item	Action by
1	Project Background	<ul style="list-style-type: none"> • EACS briefed MoH of the scope of work and purpose of the meeting 	-
2	Stakeholder concerns	<ul style="list-style-type: none"> • MoH specified that the timeframe for the development of the East Sitra Housing plot is unspecified at the moment and as such, it is not expected that the use of the Noga plot as a labour accommodation for the BMP is not expected to pose a conflict. • MoH requested from EACS to be kept update with regards to construction start dates. • EACS inquired where the East Sitra Housing Project construction worker will be housed. MoH responded that they will be housed on the East Sitra plot; therefore, no potential conflict of access or traffic issues. • The MoH offered to consult with Mr. Mohammed Al Ghatam from Noga who coordinates with MoH and provide EACS with any useful comments. 	MoH

Minutes of Meeting (MoM)

Project Title	Bapco Modernization Program (BMP)- Proposed Labour Camp
Venue	National Oil and Gas Authority (Noga) - GP Corp Building - Seef
Date and time	09:00 on the 08 February 2018
Attendees	<ol style="list-style-type: none"> 1. Dr. Andy Booth-Technical Director-Environment Arabia Consultancy Services (EACS) 2. Eman Rafea-Environmental Consultant- Environment Arabia Consultancy Services (EACS) 3. Jassim Isa Al Shirawi - General Manager - NOGA 4. Yusuf Al Ansari - Petroleum Engineer - Noga 5. Adnan al Mukharag - Head of Gas Affairs - Noga 6. Abdulla Al Ansari - EHS Coordinator - Bapco Modernization Program (BMP) - Bapco 7. Adel MG Abdulla –Project Coordinator - Bapco Modernization Program (BMP) – Bapco 8. Mohammed Ghassan -Environmental Engineer- Bapco
Subject	Consultation Meeting

Item No.	Subject	Item	Action by
1	Project Background	<ul style="list-style-type: none"> • EACS briefed Noga of the scope of work and purpose of the meeting • Bapco explained the need for using the Noga plot as lay down area and labour camp for the BMP project. • Bapco explained that a maximum of 15000 workers will be housed in temporary accommodations for a period of 4 years in the allocated plots at NOGA plot (Sitra) and South of the Refinery based on EPC plans • Up to 3000 of these workers may have to stay at the site to work in the workshops. The rest of the workers will be transported via the Alba road to the BMP construction site during the morning and evening periods (6 days a week), on a fleet of buses. • Bapco also pointed that the Alba line 6 expansion project is expected to be completed in time for the BMP project to commence the construction phase, thereby reducing the traffic load. • Bapco also informed Noga that a quantitative risk assessment (QRA) was undertaken for both proposed camps locations by ioMosaic Corporation. This assessment concluded that this option is viable because the duration of residency is temporary and the residences are healthy labourers of working age. 	-
2	Stakeholder concerns	<ul style="list-style-type: none"> • Noga inquired about the details of the labour accommodation. Bapco informed Noga that labourers will be housed in temporary accommodations (portable cabins) and provided with all the necessary facilities a canteen, medical centre, recreational centre, etc in line with local and international guidelines.. • Noga inquired about utilities for the labour camp. Bapco 	

Item No.	Subject	Item	Action by
		<p>stated the EPC contractor would need to provide all necessary utilities and Bapco had signed a memorandum of understanding with EWA for the electricity supply to the BMP.</p> <ul style="list-style-type: none"> • Noga suggested the use of solar power and a bulk LPG storage tank in lieu of cylinders for cooking. Noga also inquired about refuelling for buses. Bapco pointed that the EPC contractor will be responsible for making these arrangements. • Noga pointed that there is a proposed East Sitra Housing Link road and one of the routes considered will cross the Noga plot (proposed labour accommodation location) and also south of the Refinery areas. Bapco stated that they had met with the General Directorate for Urban Planning who in turn provided that this project is still in the planning phase and could take a few more years before it is implemented. • Finally, Noga offered support for the project and emphasized the importance of the BMP project for the kingdom of Bahrain. 	