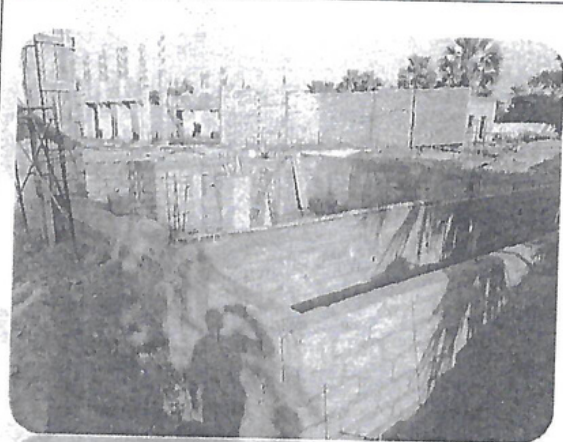
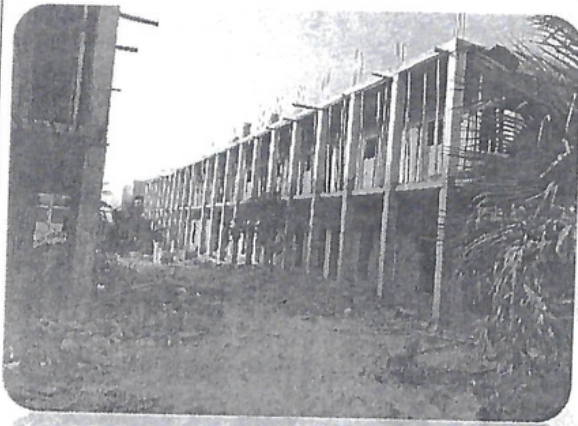


ENVIRONMENTAL MANAGEMENT PLAN
FOR
DJELIBA LEISURE GROUP
SUBSIDIARY OF BALAFON COMPANY LIMITED
MAY, 2018



The Environmental Management Plan (EMP) for Djeliba Leisure Group a subsidiary of BALAFON COMPANY LIMITED serve as a mandatory requirement of planning approval for new hotel developments in most jurisdictions. The EMP assess all applicable environmental, social and economic issues associated with the proposed redevelopment and propose appropriate mitigation strategies as necessary.

The nature of proposed project is such that construction phase is considered as an essential component of the development and implementation of an Environmental Management Plan (EMP) will help to offset, reduce or mitigate all the negative social and environmental impacts. The identified potential environmental and social impacts associated with construction and major refurbishment work of the proposed project has been defined in the EMP. Furthermore, EMP clearly define the actions to be taken to mitigate the environmental impacts and how these can be communicated to construction staff.

II. Abbreviation

Biological Oxygen Demand	BOD
Chemical Oxygen Demand	COD
Environmental Impact Assessment	EIA
Gambia's Environmental Action Plan	GEAP
Gambia Tourism Board	GTB
Gross Domestic product	GDP
Health Impact Assessment procedures	HIAs
National Water and Electricity Company	NAWEC
Nitrogen oxide	NOX
National Environmental Management Act	NEMA
National Environment Agency	NEA
Personal Protective Equipment	PPEs
Sulfur dioxide	SO2
Program for Accelerated Growth and Employment	PAGE
Tourism Development Area	TDA

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1. Introduction

The Gambia is the thinnest country on main land Africa. The country is situated along the west coast of Africa with a population of 1.8 million people (GBos - Population and housing census 2013). A vast number of the population, estimably 80%, depends on agriculture for their livelihood. However, tourism is another significant contributor to the national economy. The sector is a major employer and contributes about 8% of the National Gross Domestic Products (GDP) (CIA world Fact Book, 2014). However, over the years, this figure has increased to 12%. Tourism is not only a major foreign exchange earner but its status as a viable area of investment translate into more hotel construction over the years thus propelling the country up as a popular destination on the West Africa coast.

Like most other major tourism destinations the world over, tourism has had a humble beginning in the Gambia. It is reported that up till the 1960s the only tourist to have visited The Gambia were rich stop-over sightseers from Sweden, who arrive in their cruise ships and then their participants allowed an opportunity to ride to places of interest. Soon afterward, more visitors began to arrive from other European countries.

Of peculiar interest to tourist are the beautiful sandy beaches, the sunny climate and friendly nature of the people of the country hence name the smiling coast of Africa. These unique attributes of the Gambia made her to stand out amongst a host of other major tourism destinations in Africa despite the lack of adequate tourism infrastructure and a host of other requirements to make the sector much more attractive.

It is obvious, the tourism potentials of The Gambia is not exploited optimally. As mentioned above, tourism infrastructure is one of the areas lacking adequate investment. During peak arrivals for instance, accommodation issues are usually a major challenge. Most tourists, especially first timers, prefer lodging at the hotels, which is relatively safe and convenient to them. The lack of or acute shortages of rooms in hotels during these peak arrival times, means that those that could not get bookings will be forced to reschedule their arrivals or cancel it. In either of these scenarios, there is a huge potential for inconvenience on the part of the visitor and a loss of revenue on the part of the country (both the government and the industry service providers).

It is in light of the foregoing that the Djeliba Leisure Group thought of investing in the sector by constructing a 5 star hotel- Sunprime Tamala. It is hope that this project will contribute in major ways toward meeting the accommodation demands of the industry, improve on quality of sectors' service delivery, create more employment opportunities for young Gambia and contribute positively towards the national economy.

2. Background of Djeliba Leisure Group

Djeliba Leisure Group is a subsidiary of BALAFON COMPANY LIMITED, which is registered an incorporated in The Gambia in line with the Company's Act. The company carved a niche in tourism sub-sector with hotels and related ventures in the country. The subsidiary is also meant to further exploit the vast potentials of the sector in a form of building a 5 Star hotel in kotu, Kanifing Municipality.

It is hoped that, as indicated in the introduction above, this project will help to address the accommodation challenges experienced especially during the times of peak tourism arrivals in the country. The venture will also help create employment opportunities for the may unemployed young Gambian, who in recent times have become disillusioned and looked up to very dangerous alternatives as in embarking on perilous sea journeys with the hope of finding better live in Europe. The venture will therefore help to provide a source of employment for these people thereby helping to improve their lives and those of their families in particular and generally, improve the national economy.

3. Contribution of company to national development

The ventures contribution to national development is unquestionable. The positive socio-economic impact relates to the increase in job opportunities for locals which is going to translate to economic empowerment. The visitors that will be lodge at the hotel will bring in the needed foreign exchange thus contributing towards empowering the local currency.

The services to be provided will require personnel who are skilled and motivated. It is hoped that the project will provide customers a unique experience that will motivate them to what to come back and encourage others to come too. Therefore, the project will serve to market the good image of the country as a top tourism destination.

4. Site and project description

4.1. Location of the project

The proposed 5 Star hotel will be situated in Kotu in Kanifing Municipality. The site is a Tourism Development Area (TDA) the entirety of which extends from Banjul to Kartong covering 48Km along the Atlantic Coastline. The project location is an area mainly reserved for industrial activities. The proposed site nest between two existing hotels on both East and the West. On the northern part is the sandy beach that serves as a buffer to the ocean. It is accessed through the road leading to Bungalow Beach Hotel (BB Hotel) off the Bertil Herding Highway. See annex for the map.

4.2. Land use of the site and surrounding area

As indicated above, the site is a Tourism Development Area. Giving the name, the area is mainly for hotels, restaurant and leisure related infrastructure. The proposed project will not be in anyway different from the nature and character of the permitted development at the site.

4.3. Site characteristics

The land is generally flat and sandy. However, the land appears sloppy towards the sea front but slightly elevated above the sea level. As indicated above, the area is mainly housing tourism and hospitality related infrastructure. The vegetation is generally palm trees and creepers; however, much of these is removed especially along the beachfront.

4.4. Access plans

The main access to the proposed project is through the road leading to BB Hotel as mentioned above. This road branch off the Bertil Herding Highway, which also connects the Banjul Serrekunda Highway and Serrekunda-Brikama Highway. The road leading to BB Hotel also connects the hotels to the main town of Serrekunda. There is an existing taxi service at the BB area that enable guest to move to Serrekunda and other places for site seeing. Most importantly, the Bertil Herding Highway connects the hotels in the area to the Airport. Thus, hotels, through their existing bus services, easily pick and drop their guest at the Airport without having to go through any huddles due to traffic jam.

5. Confirmation of safety plan including first aid

Health and safety is an essential requirement as far as operation of hotels are concerned. A 5 Star hotel that is earmarked to accommodate a significant number of people and provide them with the needed service must take into account health and safety measures. It is anticipated that the hotel management hierarchy will also include a person who will deal exclusively with this aspect.

A health and safety expert's responsibility will include, among other things, making sure that the hotel environment is safe from any potential hazard from construction right through operational phases, the necessary safety apparatus are provided and placed in strategic locations, draw up an emergency response strategy and ensure all staff are acquainted with such, direct the emergency evacuations as and when necessary, conduct routine inspection to ensure that the hotel is at all times emergency prepared and liaising with relevant government institutions for the required health screening of staff and training of safety and related concerns.

6. New facilities or infrastructure:

The proposed project site has already got some buildings. These are being rehabilitated and new ones being built. A vast number of these buildings will be use to accommodate the guest. The main administration building, restaurant and a bar and a swimming pool will also be provided.

7. Utility

The main source of power supply to the plant is the National Water and Electricity Company (NAWEC). However, nature of the proposed project requires that it has its own standby generator as power backup.

8. Water supply

Water will be needed in large volumes mainly to cater for the swimming pool, severs as well as gardening. As with utility above, the main source of water supply is NAWEC.

9. Waste disposal:

9.1. Solid waste:

The most complex part of these will come from construction waste, some of which may contain hazardous materials. There will be a need to have these sorted to allow for the hazardous waste to be separated from the non-

hazardous one. In the operational phase much of the waste to be generated will be mainly biodegradable, which is mainly food waste and dropping or cuttings from flowers and trees. However, there may be a need for occasional repairs during which some hazardous waste is also anticipated. Mainly electrical and electronic waste will be generated as maintenance of the wiring systems and replacement of computers and other electrical and electronic gadgets takes place.

9.2. Sewage:

Substantial volumes of sewage will be generated given the magnitude of the proposed project. The volume of water usage both in the swimming pool and sewers goes to determine the extent of sewage. Most hotels in the area are connected to a centralized treatment facility- Kotu Oxidation managed by Agua Inc. However, nothing stops the management to venture into innovative management practices such as installing a treatment plant in situ to enable recycling of sewage waters to minimize wastage.

10. Project description

As stated in the both the introduction and the project background above, the proposed project entails construction of a 5 Star hotel ostensibly to contribute to meeting the accommodation requirement of the tourism industry, create employment opportunities for young Gambians, and contribute towards the country's economic development.

10.1. Project components

The main component will be service provision.

10.2. Project equipment

The equipment requirement will be largely determined by the various section needs. For administrative purpose, the required equipment will include furniture, computers and other electrical and electronic equipment. At catering, electrical cookers, microwaves and other needed utensils will be provided. The rooms will have standard air conditioning system that will be relying on ozone friendly gases, etc.

10.3. Project staff

Djeliba Leisure Group has a well-structured organogram, which features the managerial chain of command. At the apex, is the General Manager who is responsible for the overall management of the company, including the hotel

There are also, Finance Manager, Procurement Manager, Human Resource Manager and HSE manager. There is also a good number of support staff (including both skilled and unskilled) who are responsible for implementation of the day to day activities of the hotel. It is anticipated that the hotel following inauguration will provide employment for over 300 people, including expatriates.

11. Policy and legislative framework for EIA

The aim of Environmental Impact Assessment (EIA) is to enable the approving authority and the developer to properly consider the potential environmental impacts of the project and to put in place recommendations to reduce it. It is important to provide sufficient information for the approving authority to make a decision on whether to approve the project and if so, under what conditions. The information provided should be clear, objective, and supported by maps or other descriptive detail.

11.1. Relevant Policies:

11.1.1. The Gambia Environmental Action Plan (GEAP)

The Gambia's Environmental Action Plan provides the overall policy framework for sound environmental management in The Gambia. It seeks to promote and implement sound environmental policy. The GEAP puts special emphasis on environmental management, pollutions and nuisances and the necessity to safeguard the well-being of the populations. It is the first integrated environmental and natural resources management policy framework of the country that provides an overview of the existing environmental situation and outlines approaches to deal with the problems, including institutional changes and other actions required. Therefore, the development of an Environmental Management Plans for activities like this one means fulfilling the objectives of the GEAP.

11.1.2. The Program for Accelerated Growth and Employment PAGE- (2012-2015)

The Program for Accelerated Growth and Employment (PAGE) is The Gambia's development strategy and investment program for 2012 to 2015. It provides the microeconomic development framework for the socioeconomic development of the Gambia with the overall objective of significantly increasing the welfare of The Gambia's population through accelerated and sustained economic growth and employment. Thus the need for addressing this policy in the EMP

stems from the fact the construction of a 5 Star Hotel is expected to bring a reasonable employment opportunity for people in the country and beyond.

11.1.3. National Health Policy (2011)

The current National Health Policy, titled "Changing for Good", was formulated in 2001. The vision of the policy is the attainment of accessible quality health care for the Gambian population by the year 2020. It has as a mission provision of quality health care services within an enabling environment, delivered by appropriately trained, skilled and motivated personnel at all levels of care. The mission will be accomplished with the involvement of all stakeholders to ensure a healthy nation. The key guiding principles of the policy are: equity, health system reform and partnerships

11.2. Relevant Acts:

11.2.1. The National Environmental Management Act 1994

The National Environmental Management Act (NEMA, 1994) and the Environmental Impact Assessment Regulation 2014 are the legal framework for the control and management of the environment and for matters connected therewith; it is under the purview of the National Environment Agency (NEA). Part V of the NEMA provides for certain projects listed under Schedule A to be considered for environmental impact assessment. These include tourism projects, large scale agricultural investment projects, large scale aquaculture projects, roads, waste management, and urban development; the construction of the polder certainly suits the large-scale infrastructural development projects described in the Act such that provisions of the Act need to be considered in the assessment.

11.2.2. The Local Government Act, (1990)

This Act and its re-enacted version of 2002 establishes, and empowers, local government Councils to, among others, ensure, in their areas authority,: (i) prevention of soil erosion; (ii) the management of forests and forest products, especially as it will impede soil erosion and (ii) the regulation of the disposal of refuse, the prevention and generally for the oversight of health and sanitation;(iii) the establishment and management of recreation grounds open spaces and parks. This Act was enacted in 2002 to make provisions for (i) the functions, powers and duties of local authorities, (ii) development in the decentralized governments, (iii) local government civil service, traditional

authorities and the co-ordination of local government authorities. The activity has connection to all aforementioned hence the relevance of the Act.

11.2.3. The Gambia Tourism Authority Act 2004:

This is the Act that regulates the Tourism sub-sector. It designate the Tourism Development Area of the entire Atlantic Coastline of The Gambia extending from Banjul to Kartong, covering an area of 48km. The Act also establish the Gambia Tourism Authority, which is now transformed into a Gambia Tourism Board (GTBoard) responsible solely for coordination of tourism and related matters in the country.

12.Details of any preliminary investigative work and any other approvals obtained

The consultants of the project proponent carried out an extensive assessment of the proposed site to determine its suitability for the planned project. In the process of the assessment, potential negative impacts of major activities such as excavation, bringing in of foreign materials (cement) on to the land and a host of others on the area's environment were looked at. Equally, health and safety issues relating to employees both during construction and operational phases of the project were also considered.

A review all the required documentations including the title deed to the proposed site as well as development approvals from the Department of Physical planning and housing were also carried out.

It can be confirmed with certainty that the proponent indeed possessed a valid legal tile to the land of the proposed site and that all relevant permits necessary for application of the environmental approval have been secured.

13.Environmental management plan

The potential adverse environmental impacts that are associated with the proposed project can be controlled or contained by careful planning and adopting proper management practices, as well as relying on effective environmental monitoring and training to support management decisions. The best means of impact mitigation is to avoid it in the planning and design process.

However, in the context of the present environmental assessment conducted by the consultants, a mitigation plan proposed several impact-mitigation or

control measures that will earn project more acceptability, by eliminating or reducing to the extent possible potential impacts.

14. Aim and objectives

The purpose of developing this EMPs is to make sure that the proposed project's operations are undertaken in an environmentally responsible manner. Effective management of environmental and social impacts can help hotels reduce costs, improve their reputation with communities and customers, and can also help ensure a higher quality product and service

The objectives of the EMPs include:

- I. To prepare a detailed action plan for implementation of mitigate measures.
- II. To suggest preventive and mitigate measures to minimize adverse impacts and to maximize beneficial impacts.
- III. To suggest a monitoring programme to evaluate the effectiveness of mitigate measures.

Potential environmental and social impacts

14.1. Land impacts

There are enormous potential negative impacts of construction activities on land environment most particularly the use of cement where large quantities of chemicals additives are used. The use of heavy machinery such as excavators and compactors will break the soil and impact of micro-organisms. The potential for oil spills is high with heavy machinery being used on land thus degrading the soil and land quality. In addition, during re-fueling, loading and offloading operations, there is high potentials for leakage and spillages to occur and this activities could potentially negatively impacted on the land environment.

14.2. Atmospheric air/dust impacts

The concentration of dust in the atmosphere is what is largely responsible for the atmospheric impacts. It is a well-known fact that cement dust contains heavy metals like nickel, cobalt, lead, and chromium, pollutants hazardous to the biotic environment, with adverse impact for vegetation, human and animal health and ecosystems. The dust can irritates the skin, the mucous membrane

of the eyes and the respiratory system. Any reaction that may occur from such dust is potentially reversible. However, excessive concentrations of dust in the workplace may reduce visibility, may cause unpleasant deposits in eyes, ears, and nasal passages, and may cause injury to the skin or mucous membranes by chemical or mechanical-action. The high concentration particulate dust in air can eventually deteriorate air quality thus affecting the worker within and outside environment. Similarly the emission of other harmful substance like Nitrogen oxide (NOX), Sulfur dioxide (SO₂), and combustion of fuel into atmosphere can significantly pollute the air. The impacts of air and dust can be minimized if the reduction treatment are in place for the company to use during operations. The Installation of Electrostatic Precipitator and Bag Filter can greatly help to reduce the emitted gases in the atmosphere.

14.3. Impacts on water bodies

The proposed project near the Atlantic coastline. However, it not anticipated that there will be any irreversible effects caused by the implementation of this project.

14.4. Biodiversity

Hotels also place considerable demand upon energy and often scarce water resources, which can have broader negative impacts upon biodiversity. However in the case Djeliba Leisure Group there are no such major biodiversity rich areas close to the proposed project that could be affected.

14.5. Social impacts

The population composition of a place changes due to various factors viz, topography, availability of water, agricultural practices, economic development, transport facilities and migration of people. Migration of people brings changes in population size, sex ratio, adult-child ratio and size & composition of labor force. These will unavoidably have a bearing on land, water as well as other natural resources, which the population depend on for their livelihood.

The proposed area of the project has been synonymous with tourism related activities for decades thus the EMP could not ascertain the result of any baseline study conducted in order to examine and analyze all relevant social dimensions as indicated above. What is however known is that the establishment of hotel could have potential social and economic impacts on local people. It will increase employment by generating various indirect jobs helping in creating an employment cycle. Indirect jobs involve various activities

such as transportation, advertisement, petty trading, etc. These involve many people in the primary & secondary jobs and helped in generating income.

As a guaranteed source of employment, there is an increased influx of people from outside of the study area. A significant increase in population as a result of the many indirect jobs created also translates to an increased in earning potentials and livelihoods.

On the flip side, the increased in number of people also go along with other potential social vices such as increase in crime rate, heterosexual activities, which could result in spread of sexually transmitted infections (STIs) amongst the workforce.

14.6. Noise Pollution

The proposed project's operation will generate noise, albeit on a limited scale. The noise effects associated with the company's operation are predominantly anticipated to come from the extensive use of generator and other machines within the hotel. The high noise generating machines are mainly excavators, compactors during construction phase, and a standby generator during operational phases. The standard prescribed by the Occupational Safety and Health Administration (OSHA) is 90 dB (A) not more than 8 hours exposures for the worker. However, no such condition and any standard limitations have been available for any animal group.

14.7. Waste management

14.7.1. Solid waste:

Both bulk and solid particles will be generated during construction. Some of these materials may be hazardous and so required careful management to avoid contamination of the land and water bodies. Another source of hazardous material includes discarded electrical and electronic items to come from repairs of the hotel wiring system as well as discarded equipment during operational phase.

However, the vast quantity of anticipated waste will be biodegradable. These are to come from food remnants as well as cuttings of flowers and trees within the hotel during both construction and operational phases. The major problem with these organic materials is that they easily decomposes and generate offensive smell that could discomfort those within the surrounding.

14.7.2 Sewage

Hotel industries in general is a major source for sewage. This is largely due to number of people accommodated especially during peak season. Consequently the use of swimming pool and sewers will generate a large volume of sewage. There is often a large concentration of BOD, COD and other toxic element that will require that such waters are treated before being allowed to discharge into the environment. Discharge of raw sewage into the environment will not only result in creating unsightly scenes but will potentially cause the death of micro-organism, eutrophication in water bodies, bad orders, etc.

14.8. Health and safety

The Health profiling of the local population is based on Health Impact Assessment procedures (HIAs) was not conducted by the proponent. HIAs could have seek to predict the health impact of the project (including the development) usually before implementation, and ideally early in the planning stage thereby facilitating the reduction or avoidance of negative impacts on human health and enhance positive impacts.

Handling of products like cement during construction are well known for their health and safety problems. When the people within and outside the construction site are exposed to the harmful concentration of fine particulates, it could eventually lead to severe health impacts. The health problems that are linked to the inhalation of fine particulate matter ranged from asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing, and premature deaths.

These risks could be more severe on the elderly since their immune system are weaken due to old age or other health problems such as cardiopulmonary diseases. Similarly, individuals with pre-existing lung diseases and children area also vulnerable. Moreover, prolonged exposure of concentrated fine cement particulates by staff and individuals could be potential respiratory problems. The construction phase of the proposed project will be such that, lots of fine particulate matters are suspended in air and if the wet area of the body are exposed to such particulate beyond threshold values can cause tissue destruction most especially skin or eye damage in the form of chemical burns/irritants.

14 8.1 Disaster management and emergency response

Hotel operation and processes are usually synonymous with accidents such as fire outbreaks, explosions, and electrocutions, etc, which could have devastating impact on the lives and properties with untold human sufferings and substantial financial losses.

Djeliba Leisure Group processes entail handling of major reactive and highly flammable substances such as additive of cements during construction phase of the project and hydrocarbons mostly for generators (HFOs, LFOs and lubricants). The proposed project location is such live and properties and business are concentrated within area of operation therefore any eventualities could negatively impacted on these mentioned above.

It is hoped that the operation of the Djeliba Leisure Group most especially during peak period will be done with great care bearing in mind measures to consider if such incidence happened.

15.Mitigation of potential environmental and social impacts

15.1. Land Impacts

The impacts of construction activities most especially with the use of heavy machineries could be reduce by using intermittent machines during construction operations. Ensuring a supply of suitable absorbent materials is available at re-fueling points for use in dealing with minor spills. If a leak or spill occurs during loading or offloading operations, the operations will be stopped and the spill will be contained, cleaned up and collected.

15.2. Atmospheric air/dust quality

A range of measures can be adopted to counteract these highlighted impacts. One of such measures include the Installation of Electrostatic Precipitator and Bag Filter to help reduce the emitted gases in the atmosphere. Additionally, provision of personal protective equipment to staff and visitor during construction phase help significantly reduce the inhalation of dust thereby reducing the potential health implications. Dust control measure - wetting of roads, dust screens and equipment which generates low dust emissions could also help to offset the effect of dust during operations.

15.3. Impacts on water bodies

The Atlantic coastline is of significant importance to the proposed project. It is therefore anticipated that the operations phase will not have any negative

effect, instead the project operation will be done in such manner to ensure the coastline is protected from damage,

15.4. Biodiversity

Since the proposed project location is not close to any biodiversity rich zone, therefore there are no negative effects anticipated on the biodiversity during construction and operation phases.

15.5. Social impacts

The social negative impacts of the proposed project are anticipated to be limited. This is largely attributed to the precise location of the hotel. Although huge projects like Djeliba Leisure Group can attract the influx of new people in the name of job searching which can eventually lead to some social problem as highlighted under 14.5 above. Although the nature of the hotel operation is such that the participation of females is very minimal; however, it is imperative that measures are taken to avert or minimize the highlighted potential negative impacts such as sensitization of people on STIs and regular health screening of employees.

15.6. Noise pollution

The impact of noise could be well managed if adequate measures and Personal Protective Equipment (PPEs) are adopted. Intensive afforestation program with appropriate plant species can also take care of this localized and short term disturbance in the long run. Provision of acoustic shields or enclosures to limit the sound level inside the Hotel. Selection of low noise equipment such as mufflers at air inlets and outlets of fan and air compressors in addition to regular maintenance of machinery and vehicles will minimize noise generation and. Ear muffs/plugs should be provided to the workers in the close vicinity of noise source. Noise from generators and heavy machineries during construction will be reduced by providing silencers at the outlets.

15.7. Waste management

15.7.1. Solid waste

The collection and transportation of the solid waste generated during the operational phase of the project will be as follows:-

The solid waste generated will be collected and segregated as biodegradable and non-recyclable/ non-biodegradable waste. Biodegradable waste will be

made compost and used in the form of manure in green belt development. Non-biodegradable waste will be stored separately and handed over to the authorized agency for its further disposal.

It is therefore important to build appropriate infrastructures within the premise for temporally storage before disposal to designated landfill site. Pollution may be caused if wastes are not properly managed, and may also have an adverse effect on the health and environmental quality of the residents nearby. To minimize littering and odors, waste will be stored in well – designed containers/bins that will be located at strategic locations to minimize disturbance.

15.7.2. Sewage

As reported under section 14.7.2 that hotel industries in general produces sewage in large volume of which Djelibia Leisure Group hotel is no exception. The high volume sewages is largely due to number of people accommodated especially during peak seasons. Appropriate measures are required to handle such a volume of sewage during operations. The treated effluent shall be of a quality suitable for use as flushing and for horticulture for external areas. The BOD COD, PH and suspended solids of the sewage should always reach the threshold value before any discharged to the environment.

Like most hotels around the area are connected to facilities of Aqua Inc. for processing of their sewage raw before discharging into the environment, Djelibia Leisure Group hotel could also applied to be connected the same facilities for sewage treatment. However, nothing stops the management to come up with their own sewage treatment facilities and avoid discharge of raw sewage into environment.

15.8. Health and Safety

This parameter is considered as one of most sensitive factor as such, great attention is required by the management of Djelibia Leisure Group in ensuring that necessary measures are in place to avoid any major risks related to occupational health and safety of workers and visitors during operations.

Transportation, traffic, and dust are place under greater risks with regards to public health and safety. Only certified and trained drivers should be allowed to carry out transportation related activities. In addition, the management should have a plan for Emergency Response Procedures. The management should ensure workers to constantly use the PPE during construction by placing a thorough monitoring mechanism. The use of PPEs will greatly help minimize

the inhalation of particulate matter/dust that escaped during construction phase. All visitors should be restricted from entering areas of high risk and where necessary PPEs should be issued to such visitors.

15.8.1. Disaster Management and Emergency Response:

To mitigate the potential risk highlighted under 16.8.1 above it is essential that the hotel management should institute measures to ensure that highly reactive and flammable substances are handled with outmost care. Of particular importance is to make sure that activities within the Hotel that could cause fire outbreaks and explosions are avoided as much as possible. The storage sites of HFOs and LFOs should be distance from ignition sources. Similarly, HFO sites should be bunded to enable containment and recovery of oil during spills.

An important element of mitigation is emergency planning- i.e. recognizing accidents as soon as possible, assessing the impacts of such accidents and deciding on the emergency procedures both on-site and off-site, that will need to be implemented in the event of an emergency. The on-site measure should include making sure that all potential hazards are identified, mapped out and monitored. Minimizing the potential negative impacts will include rescue, first aid, evacuation, rehabilitation and giving information promptly to people living nearby. In the same vein, the off-site measures should take onboard identifying potential hazards within the immediate surroundings of the plant and put in place an alert system to enable preventive/defensive actions.

Emergency prevention will be provided in the hotel through good design, operation, maintenance and inspection to reduce the probability of occurrence and consequential effect of such eventualities

To make sure of an effective and efficient disaster management and emergency response, it is important that staff undergo an orientation on a regular basis on adopted measures and that collaboration is made with specialized government as well as private sector institutions on safety, rescue and emergency preparedness and response.

16. Mitigation plan/matrix

Impact	Mitigation measures	Attributes/location of intervention	Responsibility	Timeframe
Solid waste	Segregating, properly storing, as well as disposing of empty chemical and fuel tanks along with the hazardous wastes generated at the Djeliba Leisure Group hotel operations	Temporary solid waste storage areas at Djeliba Leisure Group hotel	Management of Djeliba Leisure Group hotel	Construction and operational phase
	Collecting waste bags of cements for proper disposal	Cement work place		Construction phase
	Transporting non-recyclable equipment especially old fabric filters to a government approved sanitary landfill	Temporary solid waste storage areas at Djeliba Leisure Group hotel		Construction phase
Air quality	Ensuring proper maintenance of equipment on-site	Djeliba Leisure Group hotel workshop		Construction and operational phase

Noise	Using water sprays (with and without surfactants) on all open piles and storage yards	Open and temporary storage piles at Djeliba Leisure Group hotel	Management of Djeliba Leisure Group hotel	Construction phase
	Adopting good housekeeping measures at Djeliba Leisure Group hotel to reduce dust build-up	Throughout construction phase Djeliba Leisure Group hotel		Construction phase
	Using low-sulfur fuels and raw materials	Fuel tanks and purchasing department		
	Installing adjustable conveyors to reduce dropping height during work	Raw materials storage yard		
	Covering trucks carrying dusty cargo with tarps or screening material, when practical			
	Using personnel protection gear such as earplugs, muffs, etc.		The management Djeliba Leisure Group hotel	
	Ensuring that equipment that may be intermittent in use should be shut down between			

	work periods or should be throttled down to a minimum			
	scheduling noisy activities during the daytime periods			
	Controlling air-flow generated noise by adopting adequate sizing of inlet/outlet ducts			
	Installing noise barriers around air blowers, pumps, and generators to reduce noise impacts at nearby receptors	Near motors, generators, and fans (primary crusher, raw mill, clinker cooler, cement mill, homogenization silos		
	Adopting proper scheduling of for all operation activities			
	Operating well-maintained mechanical equipment on-site			
	Devising and implementing a rigorous inspection and maintenance program applicable to equipment on-site	Djeliba Leisure Group hotel workshop		

Traffic	Adopting on-site traffic control measures	One way traffic within Djeliba Leisure Group hotel; speed limit of 10 Km/hr on unpaved roads and 20 Km/hr on paved roads within Djeliba Leisure Group hotel; adequate off-street parking spaces for heavy equipment and trucks	Management of Djeliba Leisure Group hotel	
	Installing adequate warning and signing at least 300 m down and up-gradient from the entrance of the Djeliba Leisure Group hotel as well as on the exit that links Djeliba Leisure Group hotel to the main road	Stop signs, heavy machinery signs, and speed bumps		
	Limiting truck movements to off-peak hours	Coordinate with the security of Djeliba Leisure Group hotel		
	Surface and groundwater All fuel tanks at Djeliba Leisure Group hotel should be banded	Bunds should be impermeable and resistant to the stored materials, avoid drains or taps that lead to a blind collection point,	Management of Djeliba Leisure Group hotel	

		incorporate the distribution pipes within the bunded areas while avoiding the penetration of contained surfaces, have a design capacity in excess of 110 percent of the largest tank or greater than 25 percent of the total volume of the tanks, and be subject to regular visual inspection		
	Cleaning the existing spillages within the premises is required whereby dried fuel spills should be collected and transported to a designated landfill sites	Hiring a qualified contractor with previous experience in cleaning oil leaks		
	Imposing heavy fines that can reach up to dismissing any truck driver that practices uncontrolled discharge of fuels along the road	Patrol on highways		

	Installing an appropriate drainage system coupled with a sedimentation tank and grease/oil traps in order to reduce exposure time to potential discharge sources	Near fuel tanks, workshops, storage piles/yards		
Soil quality	Developing procedures for emergency clean-up of spilled fuel	Implement yearly drills for emergency clean-up crew	Management of Djeliba Leisure Group hotel	
	Properly storing chemicals and fuels on site			
	Providing for adequate storage, appropriate disposal practices,	Disseminate reuse safe practices and monitor application rates and soil pH in affected lands		
Health & Safety	Enforcing site security	- Restricting access to the facility by proper fencing - Maintaining a buffer area around the facility and the quarry with a radius of 500 m	Management of Djeliba Leisure Group hotel	

		Installing warning signs in English at the entrance of the facility to warn people about the risks associated with the working with cement during construction • Displaying emergency telephone numbers for Police, Ambulance, and Fire services in English • Locking gates outside working hours • Erecting a fence along the perimeter of the site, consisting of non-combustible wire screens, 3 m high, and with a mesh of 50 mm or less to prevent unauthorized access • Erecting site identification board of durable material and finish at the entrance of the site giving the name of		
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		the site, and the name, address and telephone number of the site operator		
		• Providing at least one 24 hour guard for the facility • Keeping a daily record of persons and vehicles entering/leaving the site		
	Ensuring site safety	• Visitors report to the site office where they should sign-in and be issued a pass. • Visitors should also sign out on departure and surrender their pass. • No visitors should be permitted to access the operational areas unless they have received the express permission and have attended a site safety briefing or - are accompanied by an		

		employee familiar and knowledgeable in site safety procedures • Staff and employees working on-site attend a safety and operational course before commencing work • Personnel and visitors to the operational areas of the site wear personal protective clothing inclusive of high visibility clothing, protective footwear, and safety helmet		
	Enhancing safety at site facilities	• Explosives are stored in a remote site within the boundaries of Djeliba Leisure Group hotel that is far from residential buildings, fuel tanks, and office spaces • The explosive storage facility is fenced with barbwire, locked, guarded, and has access to a well-compacted		

		road and firefighting equipment		
		• A drinking water supply is provided at the site • Tanks are clearly labeled with details of contents, potential hazards (e.g. explosive, flammable, toxic etc.), and emergency services telephone numbers • Closed working spaces are properly ventilated (at least 5 Air Changes per Hour) • Electrical grounding is ensured while handrails and guard railing should be regularly inspected and maintained Compacted service roads are provided and maintained from the site entrances to the active quarry areas		

	Establishing environmental controls	• Maintaining a record of the types and quantities of wastes generated • Maintaining a record on the disposal/reuse practices being adopted • Cleaning vehicles leaving the site of debris from chassis and under-parts • Ensuring that no waste materials are burned within site boundaries. • A fire should be regarded as an emergency and immediate action should be taken to extinguish it • Preventing stagnation of water volumes to hamper insect and vector breeding		
	Regulating transportation on-site	• Vehicles should be cleaned at the end of daily operations		

		• Vehicles should be fitted with automatic backing lights and warning sound device • Vehicles should be licensed and have appropriate third party insurance • Drivers must be in the possession of a current relevant truck driving license		
Developing emergency/contingency plans	• A safety specialist should be responsible for the preparation, implementation and maintenance of a safety program, which should be periodically evaluated. • The responsibility of the safety specialist includes performing safety training and conducting safety inspections, sessions and practice. He should also be			

responsible for the investigation of accidents.

- A safety committee should be formed and regular safety meetings should be organized.
- Contingency plans should be established to maintain occupational health and safety procedures for various aspects of operations, identify likely accidents, outline emergency scenarios, establish command hierarchy, organize communication lines, determine response actions, delegate responsibilities, designate evacuation signal, identify rendezvous points mark on appropriate maps for each work area, and coordinate

		investigation of fire incidents All emergency exits at Djeliboulevard Leisure Group hotel should be clearly marked (emergency lights and/or fluorescence), and free from debris to ensure quick and free passage in case of emergency		
Ensuring personnel protection	- Individuals working on the cement bagging line should be provided with overalls, PVC type overalls for wet weather working, respiratory masks, eye protection plugs and defenders, ear protection plugs and defenders; - Uniforms and Personal Protection Equipment (PPE) should be kept hygienic and in good condition.			

		with local fire service, police and ambulance services. • All safety equipment and tools should be regularly maintained. In addition, environmental friendly firefighting equipment such as dry powder extinguishers should be provided within the premises of the facility. • Annual firefighting training drills for the operating staff should be conducted. The safety specialist should prepare, implement and maintain a comprehensive fire protection and prevention program. • The safety specialist should also be responsible for the inspection and maintenance of the fixed and portable fire protection equipment and for the		
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		- Workers should also be trained on the appropriate use of PPE and be convinced with the importance of using PPE for their own safety and welfare. - Personal ID cards should be provided for all employees - A trained first aider should be present on-site at all times during operational hours. - First aid kits should be kept at several locations and be regularly inspected to replenish any deficiencies - The periodic health monitoring program for on-site workers should be enhanced to allow record keeping of all illnesses and accidents occurring on-site.		
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Socio-economic			Regular medical checkups should be provided for staff on a semiannual basis		
	Reducing potential exposure to emissions, especially dust			Management of Djeliba Leisure Group hotel	
	Restricting the movement and transportation of heavy machinery outside the sites to off peak traffic hours and night time (if noise levels do not exceed the standards)				
	Providing the local community residing in the vicinity of Djeliba Leisure Group hotel priority in terms of providing job opportunities, especially to individuals or families that may be negatively affected				

	Adopting policies to recruit locally and to hire local contractors when possible			
	Adopting a monitoring plan to assess potential adverse impacts on nearby receptors	Regular monitoring reports should be made available		
	Instigating a formal system which responds in a timely fashion to complaints about nuisances (air pollution, noise, etc.)	Provide a hotline number with an operator that can dispatch an investigating team within 24 hours		
	Making emergency response teams available to local municipalities	Coordinate with local firefighting squadron		
	Making company clinics available to the surrounding community			
	Committing to the publishing of data and reports on environmental performance			
	Providing in-kind contributions to the local community either			

	through cement or other building products as part of Cooperate Social Responsibility(CSR)			
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17. Implementation and monitoring

The aim of monitoring with regards to Djeliba Leisure Group hotel operation is to ensure hotel have the least negative impacts on the physical and human environments. Monitoring plan should mainly focus on the significant negative impacts identified in the EMP, and how these will change the baseline conditions from construction through to operational phase of the project.

Two forms of monitoring is scheduled for Djeliba Leisure Group hotel operational phase.

- Impact monitoring: the principal objective here is to determine whether the environmental impacts mentioned in section 14 will come to pass. Therefore, measurements of the parameters cited above should be undertaken by the hotel HSM during operations, in order to determine changes, if any, to the baseline conditions. The frequency of monitoring during the operational phase should be tied to the various stages of the works as will be provided by work plans of the company operations.
- Compliance monitoring: where impacts are established, it needs to be confirmed that the EMP developed to deal with the impacts and other conditions attached to the company's operation are being implemented as designed and planned. Again, the timeline of monitoring will be as defined in the EMP for the various mitigation measures. The EIA Working Group coordinated by NEA, a multidisciplinary body from various government institutions, shall perform the monitoring as per EIA Regulations 2014 as and when necessary. Equally, routine monitoring will be carried out by the Agency under the auspices of the Environmental Quality pollution monitoring programmes.

18. Cost estimate for implementation of EMP:

Activities identified in this EMP as mitigation actions to prevent or significantly minimize anticipated negative impacts such as trainings, provision of personal protective equipment, monitoring gadgets, health screening, etc do require a substantial financial investment on the part of Djeliba Leisure Group hotel Company. In light of this reality, the following undermentioned cost estimate is provided to ensure effective implementation of the provisions of this EMP:

No	Activity	Frequency	Budget (USD)
1	Sensitization workshop for employees on environmental and social safeguards, health & safety and emergency preparedness and response	Biannually	10,000.00
2	Rehabilitation of access road to minimize dust	-	200,000.00
3	Provision and installation of air quality monitoring devices within the plant	-	30,000.00
4	Capacity building of staff on use of equipment and their maintenance	Biannually	5,000.00
5	Environmental audit	Annually	5,000.00
6	Total cost		250,000.00

19. Conclusion

This EMP preparation has followed the format of desk review of pertinent documents, discussion with hotel management and more importantly an EIA visit to the hotel, where a transient walk was done within the premises, was conducted. The potential impacts highlighted in the EMP were therefore as a result of facts gathered during interaction with the hotel staff, customers as well as observations made. The mitigation actions proposed, if followed, will go a long way in preventing and/or significantly minimizing or offsetting the anticipated negative impacts as well as enhance the positive ones.

