SFG3164

ENVIRONMENTAL MANAGEMENT PLAN

Gaza Industrial Estate Solar Energy Project

Palestine Real Estate Investment Co.

(PRICO)

Appraisal Version

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Abbreviations

AMR: Annual Monitoring Report

EHS: Environmental Health and Safety

EMP: Environmental Management Plan

EPC Contractor: Engineering, Procurement, and Construction contractor

EQA: Environmental Quality Authority

ESMMP: Environmental and Social Management and Monitoring Plan

GIE: Gaza Industrial Estate

HR: Human Resources

IFC: International Finance Corporation

NIS: New Israeli Shekel

OHS: Occupational Health and Safety

OP: Operational Policy

PEC: Palestine Electricity Company

PIEDCO: Palestine Industrial Estate Development and Management Company

PIEFZA: Palestine Industrial Estates and Free Zones Authority

PRICO: Palestine Real-Estate Investment Company

PV: Photovoltaic

SOP: Standard Operating Procedures

USAID: United States Agency for International Development

WBG: World Bank Group

1. Executive Summary

This subproject finances o7 megawatt (MW) rooftop photovoltaic (PV) solar energy project to provide the Gaza Industrial Estate (GIE) with a source of domestic power generation. The project has a total estimated cost of up to US$11 million and is expected to provide additional electricity needs of GIE to support a second shift of daily labor at a price substantially lower than the alternatives. GIE is connected to the grid and the surplus of electricity will be fed into the grid under an agreement between the local distribution company (the Gaza Electricity Distribution Company - GEDCO) through a net metering arrangement.

This is a Category B project according to World Bank OP 4.01 Environmental Assessment procedures, as the project footprint is located within an existing industrialized area, and incremental E&S impacts related to an 7 MW rooftop PV solar infrastructure are very limited. Key environmental and social issues applicable to this investment are labor and working conditions for workers, occupational health and safety, water use given the arid environment and the safe structural design and installation of modules on rooftops.

Expected benefits of this project include, but are not limited to, reduced energy bills, and thus less product cost; better continuity in energy inputs to the factory production line; increased job creation; and reduction of greenhouse gases.

More specifically, the project is expected to generate approximately 10.56 gigawatt hours (GWh) of electricity per year. The current carbon dioxide emission performance (from fuel combustion) is 0.69kg carbon dioxide equivalent per kilowatt hour (CO_2/kWh). Using this factor, the project is estimated to reduce 7,253 tons of $CO_{2\ eq)}$ /year of greenhouse gases.

The Environmental Management Plan (EMP) for this Project includes an Environmental and Social Management and Monitoring Plan (ESMMP), which identifies all risks and impacts associated with the multiple phases of the project, it includes mitigation measures, monitoring procedures, demarcation of the monitoring responsibilities, as well as frequency of the monitoring. The ESMMP is supplemented by a Water Management Plan, an Occupational Health and Safety Plan, an Emergency Response Plan, a Construction Management Plan, and Enforcement Procedures for Industrial Estates.

The institutional arrangements section of the EMP includes explanation for all of the roles of parties involved in sub-project implementation, including EMP implementation. EMP monitoring, review, and reporting, as well as consultation and grievance redress mechanisms, are also detailed in this EMP.

2. Gaza Industrial Estate (GIE) Background Information

2.1 Project Description

This subproject is defined as financing of 7 megawatt (MW) rooftop photovoltaic (PV) solar energy project to provide the Gaza Industrial Estate (GIE) with a source of domestic power generation (the "Project"). The project has a total estimated cost of up to US$11 million and is expected to provide additional electricity needs of GIE to support a second shift of daily labor at a price substantially lower than the alternatives. GIE is connected to the grid and the surplus of electricity will be fed into the grid under an agreement between the local distribution company (the Gaza Electricity Distribution Company - GEDCO) through a net metering arrangement.

This project is proposed as an integrated World Bank-IFC investment with the World Bank providing investment co-financing for an expected 10 percent of the project costs through its "Finance for Jobs" (F4J) Series of Projects (SOP). The project is expected to help alleviate the ongoing electricity shortage in Gaza, which has electricity availability averaging only 8 hours a day. Due to the lack of domestic energy resources, the Palestinian Territories are highly dependent on electricity supplies from Israel (63 percent) and Egypt (8 percent). The only domestic power source, the fuel oil fired power plant in Gaza, has an available capacity of 60MW and relies 100 percent on imported liquid fuel.

Gaza is supplied with 120 MW from Israel, 27 MW from Egypt and 63from PEC, this amounts to a total of 210 MW of electricity. Gaza has a shortfall of 190 MW, which amounts to around 47.5% of the need (2014), where for 2016; the energy requirement was ~450 MW of which only 200 MW were secured, resulting in a deficiency of 55.6%. This shortfall of electricity causes an outage of around 18 hours/day in most areas in Gaza Strip; where factories are working on time of available electricity. Some factories are using on-site diesel generators, which Costs 2.6 NIS per 1 KWh rather than the normal 0.64 NIS. Hence, the high cost of energy causes high product cost (20%-30%); Therefore, the urgent need to provide the industrial estate with permanent electricity to operate machines and equipment and provide the factory owners with all requested services, pushed the company to find a replacement of permanent discontinuity of electricity and the electricity working hours by areas in Gaza where the system will provide a constant electricity system to the industrial estate.

GIE Solar Energy project shall supply GIE, located in Gaza, with a hybrid Photovoltaic system that will provide it with around 85% of the Estate's total energy consumption, decreasing the frequent electricity outages, increasing GIE's electricity independence, and reducing energy costs to the Estate and factories. The system is a hybrid system which manages the solar energy, electricity from the grid, and the diesel generators to provide the factory tenants with maximum reliability and cheaper source of energy.

The project would allow factories in the GIE to increase their current levels of production and provide for more jobs, estimated at up to 800 by the World Bank. The impact on job creation will be particularly important, in a context like Gaza where unemployment reaches 43.2 percent (amongst the youth it reaches 58 percent and for women is 59.6 percent), especially in Gaza where it is respectively of and as jobs constitute a high priority for the FCV agenda.

Located in the Palestinian Territories approximately 3 kilometers (km) east of Gaza City, the GIE was established with the assistance of both the World Bank and USAID. The concession agreement between the Palestinian National Authority and Palestine Industrial Estate Co (PIEDCO) was signed in 1996 for a 49-year period with eligibility for an extension of another 49 years. Totaling 50 hectares, the GIE consists of a mix of light industry including bottling factories, food production, woodshops and plastics for domestic products (e.g. plumping, piping). There are currently lease agreements with 68 companies and Memorandum of Understandings with 18 tenants. The GIE also features green lawns and fountains where management often have outdoor events for workers and their families, which are highly valued in Gaza

The project will cover an area of 70,000 square meters and include 32 factories. PRICO will receive payments from 40 industrial and 10 commercial clients within the GIE. The Engineering, Procurement and Construction (EPC) contractor and Operations & Maintenance (O&M) provider is being procured. The same contractor will be procured for both EPC and O&M functions for the first two years.

In total, there is an available area of 70,000 m^2 of factory rooftops (owned by PIEDCO) which will be utilized to install the PV solar panels. Therefore, solar energy is the most stable and

economically viable option for the GIE factories; the proposed system is expected to have a capacity of 7 MW.

The project will deliver the following benefits:

1- Reduced energy bills / less product cost;
2- Continuous green source of electricity;
3- Promote green products market (import / export);
4- Improve GPD and reduce unemployment; and
5- Reduce greenhouse gases.

More specifically, the project is expected to generate approximately 10.56 gigawatt hours (GWh) of electricity per year. The current carbon dioxide emission performance (from fuel combustion) in Israel (nearest country with estimate) is 0.69kg carbon dioxide equivalent per kilowatt hour (CO_2/kWh) (according to International Energy Statistics, 2014). Using this factor, the project is estimated to reduce 7,253 tons of $CO_{2\ eq)}$ /year of greenhouse gases.

2.2 Project Structure

2.2.1. PRICO

Palestine Real-Estate Investment Public Shareholding Limited Company (PRICO) is one of the pioneering companies in the Real-Estate Development and Investment Sector at the country's level due to the financial, technical and human capacities that it possesses. The Company is qualified and classified at the Palestinian Contractors Union and the National Classification Committee in the First Grade in the field of contracting (constructions, building, electro mechanics and infrastructure works). Since its establishment, the Company implemented a number of pioneering projects in Palestinian different cities which serve large sectors of the Palestinian community, such as: housing projects, trading compounds, tourist hotels, general and industrial buildings and contracting projects. Technical, financial and administrative staff works with the Company in order to implement the largest projects, within organized work-teams distributed through its offices, and branches and on its under- implementation projects. The Company has offices and branches in Ramallah, Jerusalem, Gaza, Bethlehem and Amman.

2.2.2 PRICO's Environmental and Social Commitment and Policy for GIE Solar Energy

PRICO Gaza is committed to provide a safe, healthful workplace environment, protect and minimize negative impacts on the environment and surrounding communities, conserve energy and natural resources throughout the life cycle of the project, from construction to decommissioning. With the environmental and social policies and procedures that shall be followed, we strive to protect, and achieve a healthy and safe environment. We are committed to do and will:

- Create and maintain a safe and healthy working environment.
- Ensure that workers on site are trained and inducted about the project and the activities they are responsible for, as well as their rights. As well as to ensure that they work with the appropriate protective gear and safety equipment, and that each worker is assigned a job according to their qualifications.
- Operate in accordance and compliance with the applicable environmental laws and legislations.
- Minimize negative impacts on the environment through environmental friendly work manners and conserve natural resources wherever possible.
- Social and Environmental considerations shall be integrated in decision making.
- Reduce amounts of waste generated by as much as possible, and dispose waste according to the followed procedures at the project site.
- Follow the Environmental and Social Management System through the life cycle of the project.

2.2.3 Gaza Industrial Estate

Gaza Industrial Estate (GIE) was PIEDCO's masterpiece project, although the political instability and conflicts in the area affect the industries, companies and projects, GIE is considered one of the most civilized achievements with respect to environmental and development aspects as it has a key role for ending the problems of many factories and workshops which spread significantly amongst the residential neighborhood in Gaza Strip, also GIE achieves the possibility of establishing small and medium sized industries, which are essential for large industries .

GIE is located in the northern part of the Gaza Strip east of Gaza city which is considered to be a convenient location since it is only 4 km away from Al Shohada Square (down town of Gaza city), and adjacent to Al Montar Crossing.

There are currently available 72 factories built according to the following international standards:

- Thermal insulated roof ;
- Transparent panels on the ceiling and walls for lighting and ventilation of factories;
- Concrete floors with expansion joints to bear heavy weights and pressures;
- Side wall heights of 6.20 square meters;
- Middle height of the hangar of 7.70 square meters;
- Linear ventilation facilities;
- Unbuilt internal and administrative divisions within the hangars, to be built according to factory needs.

Existing industries in the GIE include:

- Sewing and textiles;
- Food processing and packaging;
- Wood, aluminum, and plastic packaging manufacturing.

A photo of the GIE hangar roof structure appears below.

3. Environmental Impact Assessment

The project's environmental and social impacts are minimal according to the ESMMP carried out for the project, in Section 4. Nonetheless, the potential environmental and social impacts identified will be reflected in the management plans prepared and updated for the project.

As the project does not impose any significant environmental and social risks and impacts to the project's surrounding environment, and as the project's plan and proposed actions were studied and evaluated by the EQA of Gaza, in accordance with the Palestinian Authority's Environmental Assessment Policy No. 27-23/4/2000, PRICO Gaza sent an application for environmental approval to the EQA. Based on the nature of the project, there was no need to perform neither an IEE nor an ESIA for the project.

Two EIA studies have been conducted for GIE as a whole in the past. The first was commissioned by USAID in 1996 and includes a description of baseline conditions and presents findings as well as recommendations with respect to water supply, wastewater and storm water,

solid waste disposal, traffic management, among other topics. The second was an Environmental Assessment of transboundary impact of the GIE commissioned by the World Bank that was finalized in 1998. This assessment also contained a comprehensive description of the baseline physical and biological environments, and the impact assessment spanned a number of topics including air quality, noise, groundwater, and surface water.

The site is a former airstrip built by the British during the 1940s when they controlled Palestine. The site consists of hangars, interior roads, and fencing which encircles completely the GIE property. Undeveloped property within the GIE cleared with bare ground and some scrubby shrubs and groundcover. Trees and grass growing on-site have been planted by PRICO. Some vegetation grows along two of the site boundaries. There are no sensitive biological habitats or rare and threatened species known to be on-site or nearby. Biological resources were not considered to be an issue by the EA team, the scoping meeting attendees, or the donors. There are no known archaeological resources at the site.

The land use surrounding the site is mainly agricultural: olive groves, row crops, and pasture. There are some structures, owned by the PA, on the northwest side of the site that were formerly hangars associated with the airstrip. The airstrip itself was converted into the back-to-back goods exchange where goods being shipped from the Gaza Strip into or through Israel are inspected; this crossing facility is now closed.

The site, and indeed most of Gaza, is underlain by deep sandy soils. Where water is available, Gaza soils and climate are well-suited for agriculture. Citrus fruits have long been a mainstay of its economy. Compared to other environmental issues, air quality is not a priority. No ambient data were available. The EA team observed, and EPD staff confirmed, that particulate matter from disturbed surfaces is the pollutant of most concern. Not much heavy industry exists in the Gaza Strip, and the region is well-ventilated by breezes from the Mediterranean. The climate is semiarid and temperate with a distinct rainy season. Almost half of the rainfall (estimated at approximately 300 to 400 mm at the site) occurs in December and January.

After identifying the environmental and social impacts of the project, an ESMMP have been developed for the project, which includes all the risks identified in addition to the mitigation and

monitoring activities. The input provided by local/external stakeholders will also be identified and specifically considered in the evaluation of social and environmental aspects and impacts. Any necessary changes in the aspects/impacts register will be reflected in appropriate modifications or additions to the Project's Management Plans or other performance improvement measures.

4. Relevant World Bank and Palestinian Policies and Regulations

The environmental, social and EHS policies of the GIE solar energy project consist of the following;

- Contractor's Environmental and Social policies and documentations that will be compliant with the World Bank safeguards policies, including;
  - World Bank Operational Policy 4.01 Environmental Assessment
  - The WBG's General Environmental, Health, and Safety (EHS) Guidelines
  - The IFC's Environmental, Health, and Safety Guidelines for Electrical Power Transmission and Distribution
- Emergency, Environmental, social, and enforcement procedures and policies that are an integrated part of the EMP
- Other related management plans and SOPs

Please refer to Section 2 of the F4JII ESMF "Environmental Policy and Legal Framework" for a more thorough treatment of applicable Palestinian laws and regulations relating to environmental management, Palestinian environmental assessment policy, and World Bank project categories and safeguards policies.

Taken in combination, these policies emphasize open communication and consideration of the social and environmental impacts on communities and residents, surrounding environment, regulatory authorities, the project workforce, and other stakeholders. Beginning with the first phase of the Project, the suitability and effectiveness of these policy statements will be evaluated regularly when necessary as part of the management review process. Policy contents will also be communicated to the Project workforce through human resources, social, environmental, and

OHS awareness training by the contractor, and by distribution and posting of the policy documents in key locations at the project site in GIE and its relevant facilities. Project contractors will also be advised on applicable policy requirements through their individual procurement documents. Copies of these policies will also be distributed in response to specific requests for information, or as may otherwise be directed by Project management.

4.1 World Bank Sub-Project Assessment and Categorization

This is a Category B project according to World Bank OP 4.01 Environmental Assessment procedures, as the project footprint is located within an existing industrialized area, and incremental E&S impacts related to an 7 MW rooftop PV solar infrastructure are very limited. Key environmental and social issues applicable to this investment are labor and working conditions for workers, occupational health and safety, water use given the arid environment and the safe structural design and installation of modules on rooftops

5. Environmental Management Plan for GIE Solar Energy

In accordance with World Bank Operational Policy OP 4.01 Environmental Assessment, PRICO has developed an Environmental Management Plan. The EMP contains several procedures and operation manuals that have been specifically developed for the project as well as management plans already being used in GIE where the solar energy project will take place.

This Environmental Management Plan (EMP) describes its overall structure, requirements, and content, as well as the organizational structure, key management responsibilities, and the specific functions fulfilled by other categories of system documents. In addition, this EMP contains integrated management plans (as Annexes) for the social and environmental components of the project, and denotes the Standards Operating Procedures (SOPs) that shall be implemented for the project. Unless noted otherwise, the EMP and its supporting documents are intended to apply only to the areas, facilities, and activities that constitute the GIE Solar Energy Project.

The EMP will be periodically reviewed and updated in response to the changes that will occur in various phases of the Project life cycle. The EMP will be applied to the various components and phases of the project including, but not specific to;

- Assessment of the roof structures and their capabilities
- Installing mounting structures on the rooftops
- Installing the panels
- Installing the cables and inverters
- OHS procedures for working at elevation and working with power transmission and distribution
- Operation and Maintenance Activities
- Cleaning procedures
- Decommissioning and/or termination of the project
- Solid waste management

The EMP and its Annexes shall be followed and updated throughout the project's life cycle to ensure that it remains responsive to social and environmental changes in the project's environment.

The EMP will be applied through the complete project's duration, which includes;

- Construction and installation of mounting structures and panels on rooftops
- Operation and management of the mounting structures and panels
- Decommissioning/ replacement of old panels

To be noted that the replacement of old panels and the rehabilitation of the project to prolong its operation shall be considered as construction and installation works, and according to this EMP, all the works associated with replacing the panels will be treated as construction works in terms of the EMP.

As stated, this EMP will be compliant to OP 4.01. Furthermore, it is recommended that PRICO refer to the WBG's General Environmental, Health, and Safety (EHS) Guidelines, and the IFC's Environmental, Health, and Safety Guidelines for Electrical Power Transmission and

Distribution. These OHS and EHS policies shall be provided to the contractor and operator, and shall be supervised by PRICO Gaza.

Following are general descriptions of the scope and purpose of each part of the EMP briefly summarized:

- **Environmental and Social Management and Monitoring Plan (ESMMP):** The ESMMP identifies all risks and impacts associated with the multiple phases of the project, it includes mitigation measures, monitoring procedures, demarcation of the monitoring responsibilities, as well as frequency of the monitoring. The ESMMP combines the monitoring plan, mitigation measures and identified risks into one all-inclusive management plan. This appears as Section 6.
- **Emergency Response Plan:** The emergency response plan has been developed by PIEFZA for GIE. The implementation of this plan is intended to mitigate or protect property, staff, employees and the surrounding community from injury and prevent the contamination with hazardous material. This plan was designed in accordance with the Palestinian Authority and Civil Defense plans with respect to emergency preparedness, prevention and response. This appears as Annex 1.
- **Enforcement Procedure for Industrial Estates:** This procedure has been developed to be implemented for GIE, but it is applicable for other estates in the West Bank and Gaza Strip. It contains the types of monitoring activities and demarcation of the responsibilities of each type of monitoring as well as their frequency, it also contains the non-compliance situations and actions in relation to the risks imposed. (to be added)
- **Construction Management Plan**: This plan will be annexed to this EMP. It will be developed by the Engineering, Procurement, and Construction (EPC) contractor, and will describe the overall organization and management of the major construction phase of the GIE solar Project, from preparing the roofs with mounting structures, installation of the panels, wiring, etc. (to be added)
- **Environmental Health and Safety Plan**: This plan shall be developed by the EPC contractor as a response to the OHS and ESMMP it shall be annexed to the EMP once developed. It shall address all aspects of occupational health and safety on the Project, with emphasis on the identifying required safety behaviors, preventive/protective

measures, and the routine implementation of SOPs to minimize the potential for accidents, injuries, and illness within the contractor's and operator's workforce. The Occupational Health and Safety Plan shall be an integrated part of the EHS, and shall be updated to specifically to address the OHS aspects of installing PV panels, working with electric loads, and working at height. In addition, the EPC contractor shall include Hazardous material and waste management plan that is also an integrated part of the EHS management plan, the inclusion of such plan depends on whether hazardous material and waste will be used or produced during the project accordingly. See Annex 3 for the current Solid Waste Collection and Disposal Agreement

The EMP and the Management Plans will also be supported by a suite of Standard Operating Procedures (SOPs). The inclusion of any SOPs shall be the EPC contractor's duty to identify, and PRICO Gaza's responsibility to review. Examples of SOPs might include Hazard Identification/Risk Assessment Procedures; Electrical safety; Lifting Procedure; Working at Heights Procedure; Lockout/tag out; and/or Quality Procedures.

SOPs are written specifically to guide the contractor's and operator's workers and (when invoked by contract, all or in part) contractor personnel in the day-today performance of specific field or office activities required by the upper-tier plans. SOPs will be developed with a level of detail commensurate with the phase of the project, the complexity of the task, current staffing levels, and the capabilities and experience of the workforce. SOPs may support one or several Management Plans and one or several Project phases.

6. Environmental and Social Management and Monitoring Plan (ESMMP)

Environmental and Social Management and Monitoring Plan – Pre-Construction & Construction Works

ENVIRONMENTAL CATEGORY	ENVIRONMENTAL FACTORS	ANTICIPATED IMPACTS	MITIGATION MEASURES	MONITORING MEASURES	FREQUENCY	PARAMETER	IMPLEMENTATION	SUPERVISION
Social Environment	Land Use	There is no direct land use associated with the project; the solar panels will be installed on the rooftops. Thus, there is no "Community displacement" and "land acquisition"	Development of the project and installing the panels only on the specified rooftops area, no installation of any panels besides the facilities' premises.	Inspection	During construction	----	EPC contractor	PRICO Gaza
	Visual Impact	Due to the geometry and organization of the panels over the rooftops, they are predicted to add aesthetical value to the GIE's	Making sure that unused machinery and equipment is not left on site. Solid waste should be removed regularly according to					

		landscape. Negative visual impacts of a typical construction site can occur	the solid waste management plan. Housekeeping has to be carried out regularly	Inspection	Continuous	Visual	EPC contractor	PRICO Gaza
	Traffic	Transportation of goods and panels required for the construction shall be through Karm Abu- Salem crossing, which is only 500 meters away from GIE, there is minimal traffic impact resulting from the vehicles movement through the route, and no impact of causing traffic through the cities and the neighborhoods ' roads.	Transportation activities shall not be carried out at times of rush hours and peak traffic movements. Drivers shall be made aware of the travel times they are assigned to and travel logs are to be kept.	Inspection of travel logs	Continuous	Time	EPC Contractor	PRICO Gaza
	Socio-Economic factors	NUMBER OF WORKERS TO	Insure workers' rights and					

		BE CONFIRMED BY EPC CONTRACTOR.	duties are being understood by them through the HR policy.	Continuous Reporting	Frequent	----	EPC Contractor	PRICO Gaza
Physical Environment	Air Quality	The project in general aims to reduce the dependence on power plant supplied electricity which, in its operation, produces a significant amount of GHG. Nonetheless, during construction and transportation, dust and fumes may be emitted	Control activities and procedures need to be implemented in order to decrease the impact of construction activities on air quality if it exists. Frequent measurements need to be conducted to make sure that there is no impact of construction activities on air quality. If the levels of emissions are found to be excessive, then mitigation measures for	Visual inspection and monitoring. Regular analysis of ambient air quality if it is determined that the amount of emissions and fumes is larger than expected.	Frequent, depending on the analysis of air quality on site and surrounding area.	TSP, PM10	EQA	PRICO Gaza

			the specific problems and sources need to be developed. Other activities may include, safe and economic driving practices, installing construction sheets on the site to prevent dust propagation where it may occur, using water sprinklers, etc... (Non-water options shall be more favorable) Moreover, if dust levels are found to be high, workers need to be equipped with proper protective gear.					

	Noise and Vibration	Construction and operational machinery such as inverters, generators, drills and others may emit high levels of noise and vibration.	Continuous inspection of noise and vibration levels shall be implemented; noise suppression methods shall be implemented for machinery that produces high levels of noise and vibration. If the levels were determined to be too high, the use of the machinery that is causing the noise and vibration shall be halted until fixed. Regular maintenance for machinery shall be implemented. When working with equipment and activities that	Audible inspection	Frequent and upon complains from the workers or factory tenants.	dBA	EPC contractor	PRICO Gaza

			are expected to emit high noise levels, workers shall be equipped with proper protective gear.					
	Surface and underground water	As the project is to be built on the rooftops of pre-existing GIE factories, there are no drilling and excavation activities, as well as no land use. Therefore, there is no impact on surface or ground water resources.	Drinking and washing water during the construction phase shall be supplied by the EPC contractor, the EPC Contractor may choose their own water supplier, or they have the option to connect to GIE's line and install a separate meter. As the construction works will be on the	Meter/ Quantity Monitoring	Monthly	M^3	EPC Contractor	PRICO Gaza

			rooftops, the effect on ground water is expected to be very minimal, as the facility is paved as well. Regarding the desalination facility in GIE, it is currently out of order and expected to be fixed during 2017. Water from the desalination facility may be used for construction, depending on forming an agreement between PIEDCO and PRICO Gaza.					
	Storm water	The roofs have already a rainfall water harvesting and collection systems that will remain	Collection of rainfall water from the rooftops will be according to the existing	Visual inspection to ensure no flooding and that the water is being disposed	During Rainy season	M^3	EPC Contractor	PRICO Gaza for Contracting

		intact after the construction of the solar energy project.	method carried out at GIE.	accordingly. Flow readings will be carried out to make sure that the volume transported is within the system's capacity.				
	Wastewater	Wastewater quantities that may be present during construction of the project can form a burden on the existing collection and disposal method followed in the GIE. Wastewater amounts that will result from construction need to be approximated. Temporary washrooms and bathrooms will be installed and connected	Approximate amounts of wastewater generated need to be checked according to the existing collection system and the flow it carries to Gaza Wastewater treatment plant to ensure that it can handle the extra quantity and flow. Wastewater utilities to be used for workers and during	estimations of the expected amount of wastewater compared to the existing system's capacity	Before Construction	M^3	EPC Contractor	PRICO Gaza for Contracting

		to the existing collection station in GIE	construction period need to be assigned and resolved in order to properly manage the amount of wastewater generated.					
	Solid Waste	Accumulation of solid waste on site affects the aesthetical value of the facility, in addition to the risk of odors.	The waste resulting from construction activities shall be treated according to the solid waste collection and disposal agreement between PIEDCO and the municipality of Gaza, where the collected waste shall be segregated from hazardous waste, if exists, and treated according to the	Visual Inspection	Continuous	Kg	EPC contractor/ Gaza Municipality	PRICO Gaza for Contracting

			municipality's procedures. The contractor shall provide Specific construction dumpsters and containers solely for the project activities. Moreover, the contractor should provide an estimation of solid waste produced due to construction activities.					
	Hazardous Waste	Although the production of hazardous waste is not expected during the project. Measures and disposal procedures need to be followed to avoid the risk of contamination	Hazardous waste disposal will be carried out according to the disposal agreement between PIEDCO and Gaza municipality. The method of disposal of hazardous waste is explained in	Visual Inspection	Continuous, along with solid waste inspections	Kg	EPC contractor/ Gaza Municipality	PRICO Gaza for Contracting

		and to avoid environmental, social, and health effects.	the EMP. Separate hazardous waste containers at GIE shall be used for hazardous waste generated by the construction of the solar energy project. If any hazardous waste is produced, the amounts need to be approximated.					
	Hazardous Material	Currently there are no records of any hazardous material that will be used in construction. If any exist, then the contractor shall develop a hazardous	If any hazardous material is to be used during the construction of the project, they have to be kept in specific impermeable containers and away from open land	Visual and Records Inspection	Continuous	----	EPC contractor	PRICO Gaza for Contracting

		material management plan	areas in special storage spaces. Only authorized personnel shall have access, and records of all hazardous material must be kept. Spillages and accidents relating to hazardous material shall be dealt with according to the "Emergency Response Plan".					
Biodiversity	Flora	According to the ESIA carried out for GIE, there are no registered protected flora types in the project area and GIE premises. The rooftops area is empty with no vegetation and	In the case of installing over-head cables, they need to be higher than the existing vegetation. If this measure is difficult to implement, trimming practices	Visual inspection during construction and installing cables	Before construction and installation	----	EPC contractor	PRICO Gaza for Contracting

		surrounding tall trees.	should be carried out.					
	Fauna	There are no registered protected or rare animal species in the project area. Moreover, there are no bird migration activities or any habitats around GIE.	Fumes and other emissions that may harm the fauna species will be dealt with according to the existing SOPs.	Visual Inspection	Continuous	----	EPC Contractor	PRICO Gaza for Contracting
Health and Safety	Occupational Health and Safety	Occupational risks are present at the construction site due to working at height and electrical works as well, in addition to working with machinery and sharp objects and equipment	The EPC contractor is responsible for developing a mirroring EHS/OHS plan. Protective gear must be supplied and worn all the time. Explanatory and preventive signs must be available around the construction area; barriers for sites that are only to be	Visual Inspection	Daily	----	EPC Contractor	PRICO Gaza for Contracting

			entered by authorized and skilled workers should be implemented. Workers shall be given orientation regarding the works they are to be indulged in. In addition to following all the OHS instructions in the contractor's manual, and the "Emergency Response Plan".					

Environmental and Social Management and Monitoring Plan – During Operation

ENVIRONMENTAL CATEGORY	ENVIRONMENTAL FACTORS	ANTICIPATED IMPACTS	MITIGATION MEASURES	MONITORING MEASURES	FREQUENCY	PARAMETER	IMPLEMENTATION	SUPERVISION
	Visual Impact	Due to the large area equipped with solar panels, sunlight reflection to surrounding areas may occur.	In case it was determined that there is light reflection, signs have to be installed in the areas where it causes a constraint, as well as on roads where this effect is determined.	Inspection	One time	Visual	EPC contractor	PIEDCO
	Socio-Economic factors	10,000 work days will be secured; 8 jobs guarantee for O&M, the project is predicted to create around 900 new job opportunities (2,000 to 2,900 permanent jobs). Because of possible two working shifts,	Insure workers' rights and duties are being understood by them through the HR policy.	Continuous Reporting	Frequent	----	HR	PRICO Gaza

		more industrial establishments to operate, more products to export and cover local market needs, therefore more income from local resources.						
	Storm Water	The roofs have already a rainfall water harvesting and collection systems that will remain intact after the construction of the solar energy project.	Collection of rainfall water from the rooftops will be according to the existing method carried out at GIE.	Visual inspection to ensure no flooding and that the water is being disposed accordingly. Flow readings will be carried out to make sure that the volume transported is within the system's capacity.	During Rainy season	M^3	Operator	PRICO Gaza
	Wastewater	Wastewater quantities that shall be generated by the project will be treated according to the	Determine the wastewater utilities for the project operators, whether they will be using existing wastewater facilities, or they will be constructed their own.	Rough calculations and estimations of the expected amount of wastewater.		M^3	Operator	PRICO Gaza

		procedure followed by GIE, where it is collected in the Estate and pumped to Gaza's Wastewater treatment Plant. Approximation of the amount of wastewater generated by the project's operation is preferred to be produced.						
	Solid Waste	Accumulation of solid waste on site affects the aesthetical value of the facility. During operation, there is not much waste expected to be produced.	Solid waste types from operation activities must be determined, as well as an approximation of the quantity produced. Waste generated will be handled according to the agreement between PIEDCO and Gaza municipality.	Visual Inspection	Continuous	Kg	Operator/ Gaza Municipality	PRICO Gaza
		Although the production of hazardous waste is not expected during the project. Measures and	Hazardous waste disposal will be carried out according to the disposal agreement between PIEDCO and Gaza municipality. The method of disposal of hazardous waste is explained in the EMP.					

	Hazardous Waste	disposal procedures need to be followed to avoid the risk of contamination and to avoid environmental, social, and health effects.	Separate hazardous waste containers at GIE shall be used for hazardous waste generated by the solar energy project, and it shall be stored according to GIE's procedures. If any hazardous waste is produced, the amounts need to be approximated.	Visual Inspection	Continuous, along with solid waste inspections	Kg	Operator / Gaza Municipality	PRICO Gaza
	Hazardous Material	No current records of hazardous material to be used in operation.	If any hazardous material is to be used during the operation of the project, they have to be kept in specific impermeable containers and away from open land areas in special storage spaces designated by PIEDCO. Only authorized personnel shall have access, and records of all hazardous material must be kept. Spillages and accidents relating to hazardous material shall be dealt with according to the "Emergency Response Plan".	Visual and Records Inspection	Continuous	Kg	Operator	PRICO Gaza
Biodiversity	Flora	Tall vegetation may cause damage to over-head cables or even electrical problems. Unwanted vegetation may	In the case of installing over-head cables by tall vegetation, make sure that the trimming activities are in place continuously, and make sure that the project area is kept clean to avoid any unwanted vegetation.			----	Operator	PRICO Gaza

		be harmful at sight and cause an unpleasant sight.		Visual inspection	On regular basis			
	Fauna	There are no registered protected or rare animal species in the project area. Moreover, there are no bird migration activities or any habitats around GIE. The lake effect may be the only impact on avian species where panels fool birds into thinking the panels are lakes, forcing them to change routes during migration. During construction however, fumes noise and dust may affect wild animals and bird migration	As the panels are located on the rooftops, the lake effect is expected to be minimal due to continuous human activity in the facility, industrial activities, and distance between the roofs. This in order minimizes the outlay of a water body. Monitoring activities need to be implemented to record avian species fatalities and injuries. If the numbers are high, then mitigation measures need to be carried out such as habitat restoration in nearby areas. Moreover, fumes and other emissions that may harm the fauna species will be dealt with according to the existing SOPs.	Visual Inspection	Continuous	----	Operator	PRICO Gaza

Health and Safety	Occupational Health and Safety	Occupational risks are as well present during the operation and maintenance of the project due to working at height and electrical works as well, in addition to working with machinery and sharp objects and equipment	EHS and OHS are the EPC contractor's/ operator's responsibility. Where they are required to develop an EHS/OHS plan. They are also required to provide Protective gear and insure they are worn all the time. Explanatory and preventive signs must be available around the construction area; barriers for sites that are only to be entered by authorized and skilled workers should be implemented. Workers shall be given orientation regarding the works they are to be indulged in. In addition to following all the OHS instructions in the contractor's manual, and the "Emergency Response Plan".	Visual Inspection	During on-site operation and maintenance works	----	Operator	PRICO Gaza for Contracting

Environmental and Social Management and Monitoring Plan – Decommissioning

ENVIRONMENTAL CATEGORY	ENVIRONMENTAL FACTORS	ANTICIPATED IMPACTS	MITIGATION MEASURES	MONITORING MEASURES	FREQUENCY	PARAMETER	IMPLEMENTATION	SUPERVISION
	Visual Impact	Change in the aesthetical outlay due to removing the panels.	The rooftops must be restored to their previous state; all mounting structures need to be removed.	Inspection	One time	Visual	EPC contractor	PRICO Gaza for Contracting
	Noise and Vibration	Machinery and equipment such as generators, drills, hammers	Continuous inspection of noise and vibration levels shall be implemented; noise suppression methods shall be implemented for machinery that produces high levels of noise and vibration. If the levels were determined to be too high, the use of the machinery that is causing the noise and vibration shall be halted until fixed. When working with equipment	Audible inspection	Frequent and upon complains from the workers or factory tenants.	dBA	Operator	PRICO Gaza for Contracting

		and others may emit high levels of noise and vibration.	and activities that are expected to emit high noise levels, workers shall be equipped with proper protective gear.					
	Solid Waste	Waste resulting from the decommissioning activities including disposing the panels and the other structures and components related to the project may exist in large quantities.	If recycling is a possibility, then it shall be the most favorable action to dispose the PV panels. Also, Coordinate with the municipality whether they will be able to dispose and deal with the large quantity of waste that may be generated. If not, then a private contractor has to be hired.	Visual Inspection	----	Kg	Gaza Municipality/ Private contractor	PRICO Gaza for Contracting
	Hazardous Waste	Although the production of hazardous waste is not expected during the project decommissioning-ng. Measures and disposal procedures need to be followed to avoid the risk	Hazardous waste disposal will be carried out according to the disposal agreement between PIEDCO and Gaza municipality. The method of disposal of hazardous waste is explained in the EMP. Separate hazardous waste containers at GIE shall be used for hazardous waste generated by the solar energy project, and it	Visual Inspection	Continuous, along with solid waste inspections	Kg	PRICO Construction/ Gaza Municipality	PRICO Gaza for Contracting

		of contamination and to avoid environmental, social, and health effects.	shall be stored according to GIE's procedures. If any hazardous waste is produced, the amounts need to be approximated.					
Health and Safety	Occupational Health and Safety	Decommissioning activities constitute several risks and hazards due to working at height, dissembling all the panels and structures, in addition to working with machinery and sharp objects and equipment	Protective gear must be supplied and worn all the time. Explanatory and preventive signs must be available around the construction area; barriers for sites that are only to be entered by authorized and skilled workers should be implemented. Workers shall be given orientation regarding the works they are to be indulged in. The Emergency Response Plan is a part of the OHS procedures.	Visual Inspection	Continuous	----	Operator	PRICO Gaza for Contracting

7. Water Management Plan

During Construction, water will be used for housekeeping purposes, general construction activities that may require water usage, drinking water, and for the washing basins and toilets for workers. Drinking water and water for other activities may be supplied from different sources. Depending on the number of workers, and the construction activities and procedures the EPC contractor will follow, the EPC contractor shall provide PRICO Gaza for Contracting with an estimation of the expected water usage.

For Construction activities and toilets, Water may be provided to the construction site through the GIE's connection point, where the standard procedure for construction works at GIE is that the EPC contractor is provided with a connection point to GIE's water supply, the EPC contractor shall install their own water meter to the connection point and their consumption shall be calculated accordingly. However, the EPC contractor may provide water from other sources of their choice, such as by trucks and storing the water in tanks, or any other method that is suitable. As for drinking water, the EPC contractor takes the responsibility to provide drinking water on site, and has to coordinate and inform PRICO Gaza of the supplier and source.

Moreover, GIE has a desalination facility that has been out of order, and that is expected to be fixed and restored to operation by mid-2017. This desalination facility may assist in providing water that can be used for cleaning and housekeeping activities rather than using fresh water. In case it is to be used, the EPC contractor must specify the quantity required as well as the purpose for it, and has to arrange with PRICO Gaza and PIEDCO.

During Operation, the cleaning mechanism of the panels shall constitute the largest or total water consumption. The EPC Contractor has to evaluate all mechanisms and technologies available, and consider mechanisms and options that have the least water consumption, in addition to acceptable efficiency as priority options.

8. Occupational Health and Safety

Occupational Health and Safety will be the EPC contractor's responsibility, and shall be developed under the EHS Plan, PRICO Gaza's Human Resources shall supervise the implementation of the OHS plan, as well as to ensure that it mirrors and includes PRICO Gaza's OHS procedures, which will be annexed to this EMP, the Contracting Procedures Manual section CC-OS "Workplace Environment and General Health Procedure" , and HR Policy section HA-WI, "Work Injuries Procedures", which includes PRICO Gaza's Internal OHS and work injuries procedures and mechanisms, insurance, and reporting. It includes reporting templates for recording accidents and injuries, and a log of injuries through the construction duration.

Furthermore, PRICO Gaza's Workers Handbook shall be the cornerstone for the Contractor's workers Handbook. Where the Contractor may adopt PRICO's Workers Handbook and add modifications to it as required by the nature of the works to be carried out for the realization of the project. The Contractor is also free to develop their own Workers Handbook, under the supervision of the HR manager of PRICO, having PRICO Gaza's Workers Handbook to be the basis and to cover the same grounds PRICO's Handbook does.

During operation, implementing and enforcing the OHS plan and providing the Workers handbook shall be the operator's responsibility, where they are obliged to provide and enforce their OHS policy. PRICO Gaza will monitor and supervise the contractor's and operator's OHS policy as well as making sure that the OHS policy and procedures are compliant to the World Bank's safeguards policies as well as WBG OHS standards. The EPC Contractor is responsible for performing regular monitoring on the OHS conditions in the project site, providing protective gear for the workers, as well as hazards and risk identification and training their employees, workers, and the contracted workers as well. Moreover, the contractor shall install hazard and protective signs in the workplace, and shall install barriers and other protective measures to ensure that workers are aware of the work instructions, as well as to ensure that only qualified and authorized workers can enter to specific locations in the work place.

The EPC Contractor is required to perform Hazard and risk identification on the project's construction site, the rooftops, and determine and procure the necessary safety and protection equipment. Moreover, the contractor shall formalize an accident and risk reporting system in which he will document accidents or possible risks that occur or may occur on the project site.

The contractor shall report and supply the documentation to PRICO Gaza for contracting accordingly and through the reporting scheme in Figure 1.

Throughout construction and operation, hazards or unsafe conditions that may be observed will be documented and reported through the system developed by the contractor with the supervision of PRICO Gaza, and will be investigated and considered, as appropriate, in updates or additions to affected Management Plans. Should additional SOPs be required to address newly observed conditions or other Management Plan needs, they will be developed accordingly.

In order to ensure that all of the preceding points are implemented and are carried out accordingly, the EPC contractor is advised to employ an OHS/EHS point person, if they do not have any, to carry out the implementation of the EHS points and tasks that this EMP includes, the OHS/EHS specialist shall perform the tasks and duties mentioned throughout the EMP under the supervision of the HR manager and the environmental manager.

9. Emergency Preparedness and Response

As the project shall be developed on the rooftops of the already existing factories in GIE, PIEFZA has already developed an “Emergency Response Plan” that is intended to be used for the Industrial Estate. Nonetheless, the Emergency Response Plan has been developed in 2001 with no new revisions to it; hence all the contact details are outdated.

PRICO has developed a Project Specific Emergency Response Plan that is considered an integrated part of the old ERP. The two plans are interconnected, with new aspects that are specific for the Solar Energy Project. For incidents that extend beyond the premises of the Solar Energy Project, incident management procedures of GIE’s Emergency Response Plan shall be applied.

Implementation of this plan is intended to mitigate or protect property, staff, employees and the surrounding community from injury; prevent contamination with hazardous materials; prevent damage to the environment; or a combination of these. This plan is designed in accordance with Palestinian Authority and Civil Defense plans with respect to emergency preparedness, prevention and response. The document is also intended as a reference to familiarize local emergency response agencies, fire and police departments, on operations relating to hazardous materials and emergency response at GIE and the Solar Energy System. Emergencies extending outside the boundaries of GlE or having such potential shall involve EQA; EQA will then determine the degree and nature of response in accordance with national plans.

Accident and drill recording forms will be annexed to the Emergency Response Plan and will also contain requirements for periodic tests and drills to ensure that necessary response actions are understood by GIE solar energy project’s team, other project staff, and the Contractor and subcontractors

10.Institutional Arrangements

10.1 Demarcation of Responsibilities

All PRICO Gaza and contractor's employees are individually and collectively responsible for:

- working safely, within the guidelines and requirements established by the EMP and the management plans
- supporting the environmental, social, and OHS policies established for the GIE solar Energy Project, in the day to day performance of their work;
- Notifying their supervisors, the Environmental Manager, Construction Manager, or the Project Manager of any observed spills, equipment malfunctions, unsafe or unhealthy situations, improper environmental practices, worsening trends, or other issues that could represent nonconformance with the requirements of the EMP and its Annexes.
- In cases of emergency, GIE's Emergency Response Plan shall be followed by PRICO Gaza and the EPC Contractor's employees.
- All of PRICO Gaza and the EPC Contractor's employees and workers may be asked to participate in emergency response drills at the discretion of the Construction Manager and/or the Environmental Manager. Any such participation requirements will be incorporated in the Contract and OHS documents.
- Regarding the OHS policy and procedures, the contractor shall be responsible for complying with the WBG's OHS standards and guidelines, as well as training their staff and employees or contracted workers

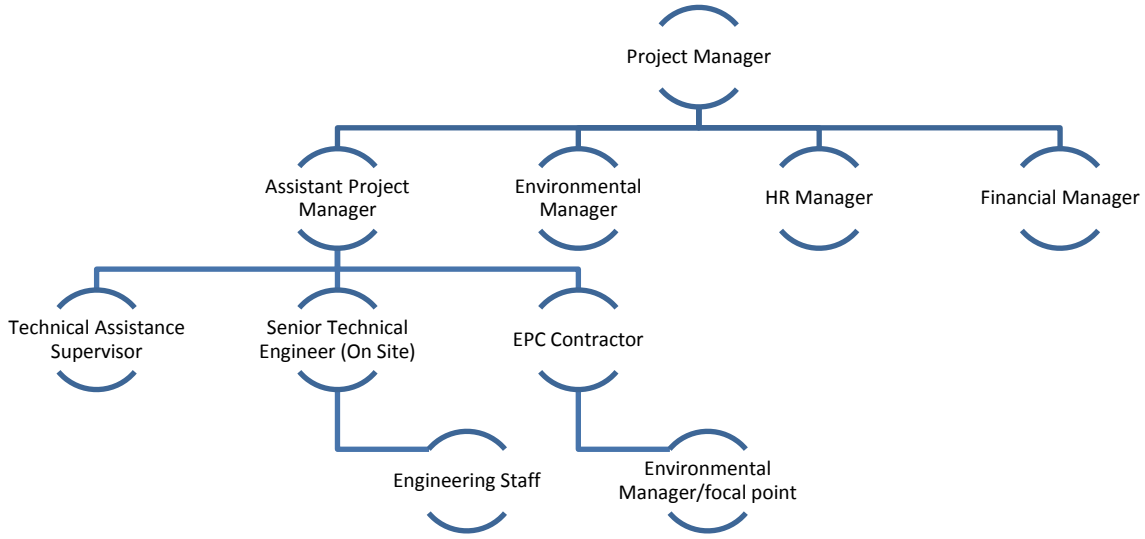

Figure 1 GIE Solar Energy Organizational Hierarchy

- **Project Manager – Mohammad Alterawi:** has overall responsibility for successful completion Project activities in the manner described in this EMP. The project manager also assumes a lead role in the investigation and resolution of any community relations issues that may occur in the course of the Project.

- **Environmental Manager – Faisal Kilani:** The Environmental Manager is responsible for administering the EMP, and will participate in the review, approval, and as necessary, update or modification of this EMP. The Environmental Manager will also oversee the EPC Contractor with respect to E&S and OHS topics. See Annex 2 for the Terms of Reference for the Environmental Manager.

- **HR Manager – Fatima Eid:** The Human Resources Manager will assist the Construction Manager in the resolution of any workforce concerns or complaints that may be encountered in the course of the Project. The Human Resources Manager may also be requested to assist the project manager in the investigation and resolution of any issues that involve local communities or stakeholders.

- **Assistant Project Manager – Husam Farah:** The Construction Manager is responsible for overseeing day to-day clearance and/or construction activities. These duties include review of construction reports to monitor progress and issues encountered, and in assisting the Environmental Officers in the timely resolution of any observed health, safety, and environmental (HSE) issues.

- **Technical Assistance Supervisor – Royal Haskoning DHV:** The technical assistant shall aid the contractor in their activities during construction and provide technical support during operation; the technical assistant shall report to the project manager and be in direct contact with the construction manager.

- **EPC Contractor:** The contractor is responsible for monitoring their own workers as well as contracted workers activities and making sure that the OHS conditions and necessary equipment is available. The contractor shall report to the environmental manager in case of any accident or unsafe working conditions. The contractor shall prepare monitoring forms and share with the environmental and project managers.

- **Senior Technical Engineer – Akram Mughrabi:** The Senior Technical Engineer shall be located on site during the construction of the project, they shall supervise the technical installation and construction activities, and shall conduct technical investigations on the work done by the contractor. The Senior Technical Engineer shall follow up with the EPC Contractor and monitor their activities, and check the quality of the work done.

- **Engineering Staff:** Each with their own specific duties, the engineering staff shall report to the construction manager, each shall report any condition or situation that they believe might be a potential risk to the working environment or the surrounding environment and communities.

- **Financial Manager – Samer Mar'ie:** Project Financial Manager is responsible for budgeting, accounting, conducting financial reporting, internal control, auditing, procurement, disbursement and the physical performance of the project with the aim of managing project resources properly and achieving the project's objectives.

10.2 EPC Contractor's Duties and Responsibilities

This section describes the Environmental and Social duties of the EPC Contractor with regard to the realization of the project. The EPC Contractor shall follow an EHS plan and policy that mirrors the EMP, as the EPC Contractor is more familiar with, but not limited to, the construction and installation works, their workforce, and the health and safety risks and measures to be identified while working with such projects. This assumes that the EPC Contractor will be operating GIE Solar Energy Project for 2 years.

The EPC Contractor shall develop an overarching construction plan which covers the procedures that shall be followed during construction. In the operational phase, a separate operational phase plan shall be developed as well, all under the supervision of PRICO Gaza.

The following are the main responsibilities that have to be achieved by the EPC Contractor to ensure a safe work environment and minimize impacts on the surrounding environment;

- The EPC Contractor shall produce an overarching construction plan, in addition to an operation plan for the 2 years period.
- The EPC Contractor shall develop an EHS Plan and Policy that mirrors and responds to this EMP, under the supervision of PRICO Gaza
- The EPC Contractor shall develop a monitoring and registration plan for possible risks and hazards on the site, as well as mitigation measures and assigning the duties of executing these tasks to their team members.
- The EPC Contractor has to assign an Environmental Focal Point to coordinate with PRICO Gaza's Environmental Manager and/or the Project Manager, in order to facilitate proceeding with the development of the EHS Plan and Policy, identification of risks and hazards, and the other duties listed in this section.

- The EPC Contractor's EHS Policy shall include an integrated OHS Plan and Policy, which includes training procedures for new workers, instructions on safely working from altitude and with electricity, providing protective gear, installation of barriers for areas where only authorized and skilled workers are allowed to operate, installation of signs around the site, inductions over their rights and duties, work hours, complaints mechanism, and the HR policy.
- The EPC Contractor shall formulate a complaint form for their workers, and the subcontractor's workers.
- PRICO Gaza shall ensure that the workers are covered under the EPC Contractor's insurance.
- The EPC Contractor shall identify measures and operations that require SOPs, and shall develop and execute these SOPs under the supervision of PRICO Gaza.

10.3 Environmental Competency, Awareness, and Training

The GIE Solar Energy Project‘s workforce will be provided appropriate types and levels of training in accordance with the contractor in a mandatory induction, this applies to the daily laborers as well. Training subjects and methods will be selected based on the characteristics of routine and emergency work assignments, as well as any OHS hazards or environmental and social impacts that may be associated with such assignments, it will include HR aspects associated with the workers, Emergency response, and the reporting and grievance mechanism. The EHS/OHS personnel appointed by the EPC contractor shall carry out the trainings and inductions, in addition to the hazard identification. Training methods will be selected based on job descriptions and the experience and qualifications of the employee.

The workers shall be provided with a Handbook developed by the EPC Contractor, which contains the HR policy, Grievance mechanism, work health and safety, working arrangements and other topics that concern that work labor of the project.

At a minimum, all employees and new hires will receive awareness training that (as appropriate for the phase of the Project) addresses:

- The project’s social, environmental, and health policies including this EMP and the impacts identified.
- PRICO Gaza for Contracting Human Resource policy
- The most prominent environmental and social impacts of the project, as well as the primary workplace hazards that are likely to be encountered, and how to avoid such hazards.
- Workers Handbook and the Grievance Mechanism
- Emergency Response Plan and the Incident Reporting Form

11 Monitoring, Review & Reporting

11.1Project Reporting Hierarchy

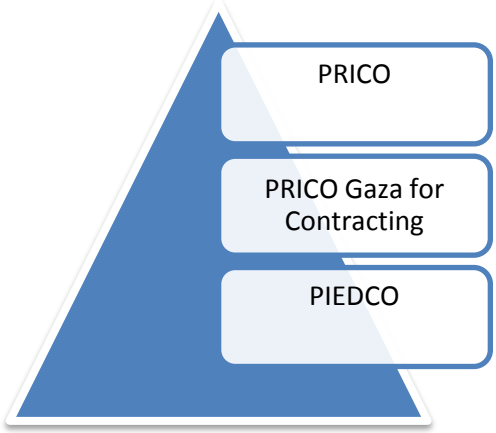

Figure 2: PROJECT REPORTING HIERARCHY

11.2EMP Implementation Recording

Records generated as output from the implementation of the EMP and its supporting plans and procedures whether filled by the contractor or the project's staff shall be maintained by the administrative staff in PRICO Gaza, under the direction of the Environmental Manager, in accordance with procedure retention, and storage and retrieval requirements, as well as access control and other requirements designed to preserve the accessibility and integrity of records.

Drills, accidents, and other forms and records shall be maintained by the Assistant Project Manager and PRICO Gaza administrative staff; these shall be organized and sorted according to the existing procedures followed by PRICO Gaza. In addition, copies of the records shall be provided to the Environmental Manager.

11.3EMP Monitoring and Measurement

Specific EMP monitoring considerations may be addressed in individual Management Plans and supporting SOPs. However, an ESMMP has been developed to capture all of the specific monitoring needs identified in these documents. During Construction and the first two years of operation, it is the EPC Contractor's responsibility to follow up on the monitoring procedures

and comply with their duties as specified in the ESMMP, as well as it is the operator's duty during operation accordingly.

The Contractor and Operator shall keep records of their monitoring activities, prior to monitoring activities the Assistant Project Manager shall be notified, and shall supervise the activities; the Assistant Project Manager may appoint any qualified personnel from PRICO Gaza to supervise the monitoring activities. Monitoring reports shall be communicated to the Environmental Manager.

The Environmental Manager is expected to prepare an Annual E&S Monitoring Report (AMR) to be shared with the World Bank Group in order to report on E&S performance. This AMR will be complemented by site visits by World Bank Group staff as part of overall sub-project supervision visits. The AMR format will be detailed as part of the Operations Manual.

11.4 Non-conformance Reporting and Corrective and Preventive Action

The ESMMP covers the risk and impacts associated with the project's phases; it includes mitigation measures, monitoring activities, and responsibilities. Non-conformances reporting shall be issued if the items in the ESMMP are not met or executed. Preventive actions and measures will be taken when non-conformances occur in order to prevent such situations from reoccurring.

11.5EMP Reviews

After the start of the major construction phase, a comprehensive internal review of the functionality and effectiveness of the EMP will be performed by the Environmental Manager and the HR Manager. Additional reviews may be performed at the discretion of the project's senior management.

The reviews will involve the independent examination of several layers of environmental, social, and OHS performance information, developed through the routine implementation of the EMP and its supporting Management Plans and SOPs. This information will be assembled by or at the direction of the Environmental Manager.

The management review will be documented in report format, and, as appropriate, will include specific recommendations for EMP improvements, external sharing or publication of Annual Monitoring Report (AMR) results, or other appropriate management actions. It will be presented to the Project Manager for final review and approval. Recommended performance improvement tasks will be documented that address any required EMP, Management Plan, or SOP updates; policy modifications; external communications; or other appropriate improvement actions.

12 Consultations and Grievance Redress Mechanisms

12.1 Defining the Stakeholders

During the impact identification process, the negative impacts and effects on surrounding and nearby communities did not exist or were very minimal. Hence, GIE Solar Energy Project's stakeholders are limited.

As there are no nearby settlements and residential areas in the project's site, and regarding the type and scale of the project, communities in the area are not expected to be affected by any of the construction or operation activities. Nonetheless, there shall be a reporting system that will allow individuals and communities that claim to be affected by any of the project's activities to communicate to the project's administration. These claims shall be dealt with thoroughly and mitigation measures and solutions shall be carried out accordingly.

In case PIEDCO or PRICO Gaza receive a considerable amount of complaints and objections to the project, then a stakeholder engagement framework and public participation meetings will be carried out in order to reach a resolution to outstanding problems and formulate mitigation measures and alternatives where possible.

12.2 Disclosure of Information

In accordance with the World Bank policy on Access to Information, the disclosure of relevant project information (the PID/ISDS, PAD, and EMP) will be posted on both the PRICO and the World Bank external website. The involved stakeholders will be provided with information regarding the purpose, nature and duration of the project.

12.3External Communication and Grievance Mechanism

PRICO Gaza shall implement a reporting system from and to the affected communities during the operation of the project. While during construction activities, the contractor is responsible for resolving and studying complaints from their contracted or own workers. Reporting and complains forms shall be issued, and the affected communities and individuals shall be informed on how to report to PIEDCO or PRICO Gaza. Information on the project's nature, duration and contact details shall be communicated to the public through newspaper.

Complaints shall be reviewed by the appointed official in PRICO Gaza and report to the project manager and/or the environmental manager. The complaints shall be sorted out and categorized, each shall be dealt with and discussed accordingly, the communities and individuals shall be contacted and either provided with information and explanations regarding their complaints, mitigation measures and alternatives shall be formalized as well.

ANNEXES

ANNEX 1: Emergency Response Plan

ANNEX 2: Terms of Reference for Environmental Manager

ANNEX 3: Solid Waste Collection and Disposal Agreement

Emergency Response Plan

Gaza Industrial Estate

Palestinian Industrial Estates and Free Zones Authority

PIEFZA

Check for latest revision before each use
Revision: Initial Release
April 2001

Prepared by:
Amjad Jaouni, UNDP Consultant to PIEFZA

Table of Contents

I. INTRODUCTION

I.1 PURPOSE & SCOPE

The following Emergency Response has been prepared for The Gaza Industrial Estate (GIE). Implementation of this plan is intended to mitigate or protect property, staff, employees and the surrounding community from injury; prevent contamination with hazardous materials; prevent damage to the environment; or a combination of these. This plan is designed in accordance with Palestinian Authority and Civil Defense plans with respect to emergency preparedness, prevention and response.

The document is also intended as a reference to familiarize local emergency response agencies, fire and police departments, on operations relating to hazardous materials and emergency response at the GIE. Emergencies extending outside the boundaries of the GIE or having such potential shall involve MEnA; MEnA will then determine the degree and nature of response in accordance with national plans.

This plan is an integral part of the PIEFZA Environmental Management System. The Civil Defense response procedures and internal procedures developed by tenants shall be consistent with this document.

I.2 APPREVIATIONS & DEFINITIONS

PIEFZA	Palestinian Industrial Estates & Free Zones Authority
MEnA	Ministry of Environmental Affairs
PIEDCO	Palestinian Industrial Estate Development & Managing Company
GIE	Gaza Industrial Estate
EO	Environmental Officer
MSDS	Material Safety Data Sheet

Accident means an unexpected event that results in loss or injury to a person and/or damage to property or the environment.

Dangerous Goods include explosives, compressed and liquefied gases, flammable and combustible materials, oxidizing materials and organic peroxides, poisonous and infectious substances, radioactive materials, corrosives, and miscellaneous dangerous goods.

Emergency means, in the context of these guidelines, an accidental situation involving the release or imminent release of dangerous goods or other substances that could result in serious adverse effects on the health and/or safety of persons or the environment. An emergency may be the result of man-caused or natural occurrences such as, but not limited to, process upsets, uncontrolled reactions, fires, explosions, threats, structural failures, tornadoes, earthquakes, floods, and storms.

Emergency Response Plan, Emergency Plan, or Contingency Plan means a detailed program of action to control and/or minimize the effects of an emergency requiring prompt corrective measures beyond normal procedures to protect human life, minimize injury, optimize loss control and reduce the exposure of physical assets and the environment.

Hazard means an event with a potential for human injury, damage to property, damage to the environment, or some combination thereof

Incident Command System means a method by which the response to an extraordinary event, including a spill, is categorized into functional components and responsibility for each component is assigned to the appropriate individual or agency.

Risk means the chance of a specific undesired event occurring within a specified period or in specified circumstances. It may be either a frequency or a probability of a specific undesired event.

Risk Analysis means the identification of undesired events that lead to the materialization of a hazard, the analysis of the mechanisms by which these undesired events could occur and, usually, the estimation of the extent, magnitude, and likelihood of any harmful effects.

Risk Assessment means the quantitative evaluation of the likelihood of undesired events and the likelihood of harm or damage being caused by them, together with the value judgments made concerning the significance of the results.

Risk Frequency means the number of occurrences per unit of time.

Risk Management means the program that embraces all administrative and operational programs that are designed to reduce the risk of emergencies involving acutely hazardous materials. Such programs include, but are not limited to, ensuring the design safety of new and existing equipment, standard operating procedures, preventive maintenance, operator training, accident investigation procedures, risk assessment for unit operations, emergency planning, and internal and external procedures to ensure that these programs are being executed as planned.

Spill means an uncontrolled or unauthorized release or discharge of a dangerous good into the environment.

I.3 GENERAL FACILITY INFORMATION

I.3.a Facility Identification

Facility Name:	Gaza Industrial Estate (GIE)
Managing Company:	PIEDCO
Owner:	PIEFZA – Ministry of Industry
Occupants:	Multi-Tenant (See Tenants List, Appendix V.3)
PIEFZA Office	: (08) 283-0529
Preventive security	: (08) 283-0519
Private Security Co.,	: (08) 283-0012
GIE Civil Defense Unit	: 102
Desalination Facility	: (08) 283-0011

I.3.b Directory Information

Mailing Address:	P.O. Box 5143, Shuhada'a Street, Rimal, Gaza
Physical Address:	East of the Intersection of Road No. 4 and El-Mansoura Road. Al-Shuja'eiyah, Near Mintar Terminal, Gaza
Telephone:	(08) 284-3353

I.3.c Emergency Contacts & Resources

PIEFZA Director General
Mr. Ismael Abu Shehada
Telephone: (08) 284-3353

GIE Operation Director
Mus'ed Abu Ajwah
Telephone: (08) 283-0529

PIEFZA Environmental Officer
Mr. Mahmoud Erhim
Telephone: (08) 284-3353

Palestinian Civil Defense
Dr. Abedel Halim Safi
Civil Defense Incident Commander
Telephone: (08) 286-3633/ (08) 283-6884/ 102

Investors services Director - PIEDCO
Mr. Hashem Rustum
Telephone: (08) 282-6303

Ministry of Environmental Affairs
Mr. Ayman Al Sheqaqi
Hazardous and Environmental Emergency Officer
Telephone: (08) 282-2000/(08) 284-0449

II. CONTINGENCY PLANNING

II.1 HAZARD IDENTIFICATION & RISK ANALYSIS

Because of the nature of operations at the GIE and the type of industries, hazards and potentials for emergencies are limited to few sources, such as: chemical releases from storage areas and points of use, fires from solvents and fuels, acts of nature and other unforeseen circumstances, (Appendix V.2). Therefore, this plan will address such emergencies in general, and will be expanded to include specific procedures as warranted.

Tenants will identify hazards associated with their own operations, analyze risks and develop their specific response procedures accordingly.

II.2 ORGANIZATION & RESPONSIBILITIES

- The Palestinian Civil Defense is the primary respondent to all emergencies within the GIE. The Civil Defense is also responsible for extending the perimeters of emergencies outside the GIE and for liaison with agencies.
- PIEFZA is responsible for maintaining and making this document available to all tenants and for participating in post-incident actions.
- PEDICO is responsible for facilitating emergency preparedness and contingency planning.
- Tenants are responsible for initial response and for drafting specialized response procedures based on their unique processes.

II.3 PUBLIC AFFAIRS

The GIE Civil Defense will establish good working relationship and channels of communication with surrounding communities and the media (whose action and cooperation is needed during an emergency). The GIE Civil Defense will designate a spokesman who will be responsible for issuing media statements and answering questions and concerns about emergencies.

II.4 PREPARDNESS

II.4.a Training

Competency in responding to emergency incidents requires a complete understanding of the roles and duties of each party. Comprehensive training in evacuation, use of emergency response equipment, personnel protection devices and tactics is necessary to ensure the best response capability. Provision for training is an integral part of a complete contingency planning and implementation program. Initial training will be followed by periodic updates to maintain familiarity with all aspects of the plan.

PIEFZA will coordinate annual training (or whenever this plan is revised) to include tenants, the managing company and the Civil Defense. Tenants are responsible for training their workers in their specific response procedures.

II.4.b Practice Drills

A periodic simulation exercises or practice drills shall be arranged between tenants and the GIE Civil Defense. It is important to develop employee skills and evaluate the adequacy of the contingency plan through the use of mock exercises or drills. The objectives of a drill include evaluation of the following:

- Practicality of the plan (structure and organization)
- Adequacy of communications and interactions among parties
- Emergency equipment effectiveness
- Adequacy of first aid and rescue procedures
- Adequacy of emergency personnel response and training
- Evacuation and personnel count procedures

The complexity of the drill may be increased as the response team gains proficiency. Drills must be frequent enough to ensure that the response team maintains proficiency in all aspects of the contingency plan. Drills should be conducted in a variety of situations.

II.4.c Emergency Equipment:

Occupants and responding agencies (PEDICO, PIEFZA, Civil Defense and Tenants) shall maintain emergency equipment that will enable them to respond efficiently, based on their overall emergency roles and responsibilities). The GIE Civil Defense --the primary respondent-- is equipped with the following equipment (subject to change):

- Communication devises
- Fire suppression devises
- Sirens and Alarms
- Chemical/spill detection devises
- Spill control equipment
- Self-Contained Breathing Apparatus
- Gas Monitoring Equipment
- Personal Protective Equipment

Owners of emergency equipment are responsible for maintaining such equipment in good working order. PIEDCO is responsible for maintenance of GIE shared systems; PIEFZA is responsible for maintaining emergency equipment related to infrastructure operation. Tenants are responsible for maintaining factory systems.

III. EMERGENCY RESPONSE

III.1 RESPONSE ACTION DECISION

All emergencies can be classified into three categories, each requiring a different level of response depending on their severity, potential to spread and the level of response warranted. The three levels of emergencies may be identified as follows:

LEVEL I: minor incidents requiring an on-site worker to respond and take necessary collective actions that will not jeopardize individuals safety, health, or result in exposure. Level-I incidents are not likely to spread beyond the affected area and will remain under control at all times. Examples of level one incidents are small oils spills, mechanical or minor electrical problems.

LEVEL II: intermediate level incidents requiring response by on-site or off-site trained staff but posing no danger to the public. Level-II can involve large quantities non-toxic chemicals that remain in containment areas, small quantities of toxic chemicals that do not have the potential to cause harm to individuals inside or outside the facility, and minor non-structural fires.

LEVEL III: a major incident beyond the resources of a single facility, where there are subsidiary problems to complicate the situation such as fire, explosion, toxic compounds, and threat to life, property and the environment. Assistance will be required from local or regional organizations.

III.2 PLAN ACTIVATION & MOBILIZATION

Level-I incidents do not warrant activating the emergency response plan. Level-II incidents warrant activation of the Emergency Response Plan at the affected facility. The Civil Defense determines if Level-II incident needs to be elevated to level-III. Level III incidents normally warrant complete site evacuation and liaison with MEnA for possible mitigation involving neighboring communities. Level II & III incidents shall be immediately communicated to PIEFZA.

III.2.a Communications & Initial Reporting

Facility personnel shall be trained to recognize the hazards in their workplace and immediately report emergencies in the following order:

III.2.a.1 Level-I Alerting (Direct Area & Facility Alerts)

Upon discovery of any emergency situation inside the facility, a quick assessment shall be made to the degree of the potential hazard. At a minimum, for level-I incidents, all personnel in the direct area shall be notified. Facility public address system or building alarm can be used to initiate an alert.

III.2.a.2 Level-II Alerting (Contacting the GIE Civil Defense)

Upon discovery of a level-II or III emergency, the facility must contact the GIE Civil Defense Unit and provide the following information:

- Name, location, and phone number of facility;
- Type of incident;
- Name, and quantity of material(s) involved;
- Nature and extent of emergency (leaks, fires, injuries)
- locations and quantities of hazardous chemicals
- Any relevant information about facilities and processes
- An assessment of actual or potential hazards to human health or the environment, where applicable;

III.2.a.3 Level-III Alerting (External Notification)

The GIE Civil Defense Unit will contact PIEFZA and PEDICO who will turn contact the MEnA and outside resources as necessary. Vehicle mounted or stationary sirens maybe used for additional alerting. MEnA shall be contacted if:

- The incident exposes individuals which are not solely within the boundaries of the facility; or
- The amount of hazardous material released is above the reportable quantity and is not contained on an impervious surface.

III.2.b Initial Response

The purpose of the initial response is to minimize the damage from the incident where safely possible. This would include minimizing exposure of personnel to hazards, limiting the extent of a leak or spill, and limiting the spread of minor fires. The Civil Defense will organize and train and mobilize teams that can:

1. Identify the nature of the emergency and ascertain if there are casualties.
2. Locate the source, the area of immediate risk and the potential for escalation.
3. Mobilize the appropriate resources to isolate the hazard as far as safely possible.
4. Initiate procedures for the protection of personnel, plant, property and the environment. Consider the need to evacuate non-essential personnel and the need for an emergency shutdown of operations.
5. Implement procedures for the protection of vital resources, continuity of critical services and security of the property and records.
6. Guide officers of the emergency services and with other response personnel as they arrive on-site, and cooperate as required.

III.2.c Equipment Shutdown

While most equipment can be shutdown using the emergency switches, certain machinery or process lines (ovens, chemical process tanks, etc.) may require specific shutdown procedures. Tenants shall assess their need for such procedures and include in their plans as needed.

III.2.d Building Evacuation

1. All building evacuations will occur when an alarm sounds and/or upon notification of Civil Defense or the Building Coordinator.
2. When the building evacuation alarm is activated during an emergency, all occupants shall stop work immediately and leave by the nearest marked exit and alert others to do the same.
3. Equipment shall be shutdown as appropriate.
4. Factory aisles shall remain clear at all times. All obstacles that may hinder evacuation or response shall be removed.
5. All personnel shall proceed to a clear area that is at least 150 meters away from the affected building.
6. A designated tenant representative shall provide all needed information to response personnel. This shall include information about the facility and available details about the incident
7. Only authorized personnel are allowed to enter the facility. The facility can be re-occupied when cleared by the Civil Defense.
8. All GIE driveways shall remain unobstructed. Loading and unloading shall be performed in designated areas only. Streets, fire lanes, hydrant areas, and walkways shall remain clear for emergency vehicles and response personnel.

III.2.e Evacuation Routes & Assembly Point

All site occupants shall famili arize themselves with the GIE layout, (Appendix V.1). GIE Evacuation routs follow the layout of internal roads. In addition to the primary rout, and secondary evacuation rout must be planned.

After evacuation, all individuals shall muster near PEDICO offices or at a site designated by the GIE Civil Defense.

III.2.f Head-Count (Accounting for Personnel)

It is suggested that keeping persons together by their naturally occurring work-groups (such as staff from same office, workers from same factory)

provides the most natural and workable framework for "head counting." The responding agency shall be informed of the results of the headcount upon completion and verification.

III.2.g Emergency Operations Center

During emergencies, emergency response operations should be directed from the GIE Civil Defense Building. In the event the main center cannot be used, one or more, alternate locations should be selected as backup.

Consideration should be given to the types of potential emergencies in order to provide maximum safety to personnel and equipment. In the event where a complete site evacuation becomes necessary, an off-site command post may also be required.

The functions of the Emergency Operations Center may include:

- Notification of internal and external personnel and agencies
- Planning and evaluation of response actions
- Mobilization of response equipment, personnel, and resources
- Liaison with on-scene response coordinator
- Documentation of events, decisions and activities

III.2.h Incident Site Security

The GIE Civil Defense will identify the need for security after analyzing all potential risks at the incident site. In addition to preventing unauthorized persons from entering the site, security will assist in protecting human life, preventing or minimizing personal injury, protecting vital information and resources, and restoring normal operations.

III.2.i Site Restoration/Remediation

The required degree of restoration before resumption of normal operations will be determined through consultation among all involved agencies. Restoration can include physical removal of contaminated surface materials, high-pressure washing, chemical cleaning, removal of structural and mechanical hazards, isolation of exposed electrical wiring, etc.

Care shall be taken when disposing of spilled chemicals, absorbents or contaminated debris as it is often classified as hazardous waste and needs to be handled and disposed of accordingly.

All emergency response equipment and supplies shall be inspected and returned to its pre-emergency condition.

III.3 RESPONSE PROCEDURES

III.3.a Fires & Explosions

Explosions may result in fires, falling debris, exposed power lines, and mechanical hazards. Response to explosions will be grouped with fires because both involve a fuel source and require similar response.

1. In case of a fire or explosion, activate the alarm (thus activating the plan) before attempting further action.
2. Explosions require the initiation of a Level-III response. Fires that cannot be extinguished instantly require a Level-II response. Persistent, large, structural, fast spreading, of volatile fuel fires requires a Level-III response.
3. Immediately contact the Civil Defense. If access to telephone is blocked, evacuate to an area where such communication is available. Provide summary information about the facility and describe what happened.
4. Leave the area immediately. Evacuate to a safe location that is at least 150 meters from the affected building. Do not remain in the area if you smell fuel or natural gas. Do not remain in the area if there is falling debris, exposed power lines, chemical or mechanical hazards.
5. The Civil Defense will assume total control of the situation. They will mobilize proper personnel and equipment to contain the fire.
6. After the fire is out, the area will be carefully checked for other hazards, cleaned and decontaminated and the site and equipment restored to normal conditions.

III.3.b Chemical Spills

The properties of a hazardous substance (toxicity, volatility, flammability, explosiveness, corrosiveness, etc.), as well as the specific circumstances of the release (quantity, confined space considerations, ventilation, etc.) will have an impact on the way in which a release should be handled and the procedure that should be followed. These considerations combined to define the distinction between Levels I, II and III emergencies and are facility-specific. Tenant must determine the potential for an emergency in predictable worst-case scenario and plan response procedures accordingly.

1) The first person observing a Level II or III emergency should close the affected area, activate the alarm system, inform coworkers and exit the building.
2) This person –or designee- should then notify The GIE Civil Defense and provide information about the facility and the incident.

3) The GIE Civil Defense should be the first to arrive on scene and will have absolute authority. They will summon appropriate rescue services.

4) The GIE Civil Defense will be responsible for securing the affected area/building so that unauthorized persons cannot enter, directing traffic to allow emergency vehicles ease of entry on to the industrial estate, and assisting the Hazardous Materials Specialist, and the responding agencies, as required.

5) If evacuation is necessary, personnel should report to their designated assembly areas, participate in the "head count", and remain there until given further instructions. The Civil Defense may declare and expanded evacuation area.

6) Provide information regarding the spilled material, its amounts, toxicity and any relevant information.

7) Obtain an appropriate spill-fighting agent and proper Personal Protective Equipment (PPE)

8) Contain the spill by diking with the fighting agent. Neutralize and/or absorb any spilled liquid. Place in plastic bags or other appropriate containers. Place all spilled material, including absorbent, into an appropriate closeable container. Leaking containers should be treated as described for spills. Leaking containers should be over-packed into larger container or the contents transferred to a new container. Any absorbent material in the original container should be treated as contaminated waste.

9) Thoroughly decontaminate the area, including any equipment used. Treat all rinsates as contaminated waste.

10) Clean, repair and bring to working condition all emergency response equipment.

III.3.c Personnel Injuries

Emergency notification procedures should be used to communicate the occurrence of injuries, exposures or medical conditions requiring hospitalization.

1. The Civil Defense will respond to such conditions, perform first aid as necessary and transport the affected individual to a care facility. If the injury involves hazardous a substance. The Civil Defense will assess the situation and may declare an evacuation.
2. The Emergency Respondent or their designee, must accompany the victim to the hospital and provide health information regarding the person and details about the substance involved, description of the incident and first aid measures that were provided.
3. Incidents resulting in multiple injuries or fatalities will require securing the site and conducting a formal investigation.

III.3.d Bomb Threat

In the case of a bomb threat or discovery of a suspicious object the Civil Defense will assume full control of the situation.

1. A decision will be made as to whether to evacuate the facility and adjoining structures.
2. A decision will be made as to the area to be secured or searched.
3. A decision will be made as to when to release the facility back to occupancy.
4. If a suspicious object or potential bomb is discovered, the Civil Defense will coordinate disposal and restoration of normal operating conditions.

III.3.e Utility Failure

PIEFZA owns and operates standby power generators which will used during power outages. In the event of an extended outage any operations that require electrical power to be performed safely shall be shut down until the power returns.

III.3.f Other Emergencies

In the unlikely event of unforeseen emergencies (hurricanes, earthquakes, flooding, violent acts, etc.) The Civil Defense officer will assess the situation and issue orders accordingly.

III.3.g Tenant Emergency Procedures

In an emergency situation it is extremely important that response personnel at tenant facilities have immediate access to vital information. Types of information that may be needed:

- Key company personnel call out list
- Facility maps, drawings and product hazard list
- Organization, roles and responsibilities
- Emergency shut down procedures
- Mobile and emergency equipment list by location
- Emergency evacuation plan and escape routes
- Decontamination procedure
- Material safety data sheets
- Emergency Response Manual

This requirement will be phased-in as guidance documents become available from MEnA and the Civil Defense. All tenants are expected to post all emergency numbers (Civil Defense, Police, MEnA, PIEFZA, PEDICO) near a telephone. Tenants are expected to have their own emergency response and evacuation plans. These plans shall address their specific hazards and shall be in-line with this Emergency Response Plan.

IV. Post Incident Evaluation

IV.1 INCIDENT REVIEW & INVESTIGATION

An evaluation shall be done on both mock exercises and actual emergency incidents and describe the manner in which the evaluation is to be done. The primary purpose of the post-incident evaluation is to identify from the spill response operation the weaknesses or strengths in the Action Plan and to make appropriate corrections to the plan. Other uses for post-incident evaluation include accounting, legal, and public relations matters.

The post-incident evaluation should include the following:

- Suitability of the organization structure, equipment, communication system, etc.
- Adequacy of training, alarm systems, contingency manual, control center, communication plans, security, spill containment and recovery procedures, monitoring, etc.
- Appropriateness of the emergency response action plan, media communications plan, mutual aid plans, etc.
- A written report should be prepared on each incident. The report should include:
  - A general description of the incident
  - Source and cause of the incident
  - Description of the response effort
  - Quantity of the spill and percent recovered
  - Recommendations for preventative and mitigative measures
  - Plans for upgrading emergency preparedness and response plans

IV.2 PLAN EVALUATION & REVIEW

The purpose of evaluation of an emergency plan is to determine the adequacy and thoroughness of the plan. The ease of understanding and using the plan will also be important considerations. The plan evaluation will be headed by PIEFZA, and will include all parties involved in the emergency. The plan will be evaluated following each drill or incident.

IV.3 PLAN UPDATE & DISTRIBUTION

PIEFZA will maintain the controlled copy of this document. Requests for revisions are reviewed immediately and incorporated in the revised plan as necessary. Revised plans shall have a new revision number and release date. Revised copies are made available to all relevant parties. Users are responsible for ensuring that they are using the most current version.

V. Appendices

V.1 Facility Map

V.2 Chemical Storage Database

No.	Chemical Name	Chemical Symbol	Max. Quantity on Site	Place Used
1	Nitric Acid	HNO3	220 Kg	Oro 2000
2	Sulfuric Acid	H_2SO4	90 Kg	Oro 2000, RO
3	Potassium Cyanide	KCN	50 Kg	Oro 2000
4	Ammonium Hydroxide	NH_4OH	30 Kg	Oro 2000
5	Ammonia	NH3	60 Kg	Oro 2000
6	Hydrochloric Acid	HCL	200 Kg	Oro 2000, RO
7	Oxygen water		120 kg	Oro 2000
8	Powder Coating	PH-42		Lex light
9	Thinner			Lex light
10	Benzene			Benzene, M. Bar, United Equipment
11	Sodium Hypochlorite	Na OCL		RO
12	Antiscalent AF 600			RO
13	Sodium Hydroxide	Na OH		RO
14	Phosphoric Acid	H2 PO4		RO
15	Sodium Hydrosulfate	Na2 SO4		RO
16	Citric Acid			RO
17	Dezel			RO
18	Anti freeze			RO

V.3: List of tenants phone number

No.	Project Name	Lot no.	Telephone	Mobile	Meres
1*	Private Label Co.,	C: 95/2	2830411	052 775773	
2*	Younipal 2000 Co.,	C: 95/1	2830511	050 543908	1399
3*	Lex LightCo.,	B: 65/1	2830524	37761436	1396
4*	El Bowab for modern fashion	B: 79/1	2830614	050 353381	
5*	El Ramli Co.	C: 94/1	2830510		5545
6*	El Ramli Co.,	C: 94/3	2830510		5545
7*	Egyption Palestinian International Co	B: 80/1		050 326628	1391
8*	Hafez Co., for tex.	C: 94/4	2830410/20	052 290555	
9*	Bilal & Pateners Co.,	B: 64/1	2830714	050 390427	502/3
10	Jaber Tex Co.,	C: 94/2	2830611		307
11*	National Co. for Textile	C: 95/3	2830310		
12*	National Beverage Co.,	B: 65/2-66/1	2830114	059 408129	
13*	Gaza for Industrial Tech. Co	C: 95/4	2830230		
14*	M. Bar Ltd.	B: 49/1	2830016/26		
15*	Sharhabeel Al Zaim office	service office	2830119/29		
16*	Oro 2000 Co.,	C: 98/3	2830317/27/37		
17	Gel Co. for Trade & Industry	OL: 98/1			
18*	Younibal Co.,	B: 65/1	2830324		2130
19*	Salha Co.,	OL: 98/2			
20*	Coral Co.,	C: 94/2	2830014		
21*	Trust Co. for Insurance	service office	2830012		
22	Abu Jahal Co.,				
23	Ahmed El Faloji Co.,	OL:98/4			
24	Goldstone Infotec co.,	service office	2830089/79		
25*	United Co., for Equipment	B: 34/1	2830855		
26	Crown Company				
27*	El Nabahein Co.,	B: 48/1	2830216/26/36	050 205339	
28*	Bremier Co.,	B: 50/1	2830715/25	050 420947	
29	Abu Ghazi & Parteners Co.,				
30	Middle East Star Co.,	B: 79/2			
31	Harbor Co. for Trade & Ind.				
32	Yazji Group for soft drinks				
33*	Al Hulul co. for computer sys.	service office	2830159/79/89		
34	Al Shamel co., for Computer				
35	Abu Ramadan Group Co.,	OL: 55L			
36*	Gold Eng. For ind. & Trade	B: 48/2	2830266/67		
37*	Soleq 2000 Co.,	B: 50/2	2830755	050 326628	
38	Faiq Al Nazli Co.,	C: 97/2			
39	British American Tobacco	Adm. office		59611611	10909
40	Al Farram Co.,	C: 106/3			
41*	Alpha co. for mark. & Invest.	B: 49/2	2830815/25/35		
42	Ziyad mohana co	OL			
43*	Palestinian Roya litex	B: 34/2			
44	Food specialities Bethlehem (Nestle)	B: 82/2			
45	Winpal Co. for Trade & Ind.	C: 100/2			
46	Abdu Co., for Trade& Ind.	C: 96/2			
47	Ayman Hassuna & Partenrs Co	C: 100/1			

* companies in operations

GAZA INDUSTRIAL ESTATE SOLAR ENERGY PROJECT

Palestine Real Estate Investment Co.

Terms of Reference

Environmental Manager

March, 2017

Project Title: Gaza Industrial Estate Solar Energy Project

Job Title: Environmental Manager

Supervisor: Project Manager

Introduction:

GIE Solar Energy project shall supply GIE, located in Gaza, with energy from the Photovoltaic system which will contribute to around 85% of the Estate's total energy consumption, decreasing the frequent electricity outages, increasing GIE's electricity independence, and reducing energy costs to the Estate and factories. The system is a photovoltaic solar energy system which manages the solar energy and electricity from the grid to provide the factory tenants with maximum reliability and cheaper source of energy.

In total, there is an available area of 70,000 m2 of factory rooftops (owned by PIEDCO) which will be utilized to install the PV solar panels. Therefore, solar energy is the most stable and economically viable option for the GIE factories; the proposed system is expected to have a capacity of 7 MW.

Scope of Work:

Under the supervision of the Project Manager, and in cooperation with the project staff, the Environmental Manager shall be responsible for overseeing the EPC Contractor's and subcontractor's EHS activities, and to ensure that the EHS management plans and monitoring activities are being carried out. The Environmental Manager is also responsible for developing and sustaining the EHS management plans related to the project, all of which constitute the Environmental and Social Management System (ESMS) of the project.

Functions and Responsibilities:

- Ensuring that EHS incidents and reporting is being implemented and recorded, including grievance forms and public complaints.

- In accordance with the HR Manager, the Environmental Manager should ensure that the inductions and trainings are conducted, and that the worker handbooks are distributed.
- Ensure that monitoring measures for the EHS aspects included in the ESMMP and EMP are being conducted.
- Prepare monthly reports concerning the EHS aspects of the project, including any incidents and their reports.
- Oversee the EPC contractor in the implementation of their EHS Management Plan, and ensure that the EPC contractor is aware of reporting requirements.
- Conduct any necessary revisions for the management plans of the ESMS
- Ensure that the EPC Contractor has appointed an EHS focal point on site
- Act as a focal point between PRICO Gaza, the EPC Contractor, Independent engineer, IFC, and the other financing parties.

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2015

عقـــد اتفـــــاق

فريق أول: بلدية غزة ويمثلها **السيد/ رئيس البلدية المهندس. نزار حجازي**

فريق ثاني: شركة فلسطين لإنشاء وإدارة المناطق الصناعية ويمثلها **السيد/ المدير العام المهندس / طارق حسني زعرب.**

مقدمة الاتفاق

حيث أن الفريق الأول هو الجهة التي تمتلك المعدات والأجهزة والإمكانيات المادية والبشرية المدربة فيما يتعلق بالنظافة بشكل عام وهي المشرفة على أعمال النظافة في مدينة غزة وضواحيها

وحيث أن الفريق الثاني هو الجهة التي لها حق إنشاء وإدارة المنطقة الصناعية الواقعة شرق مدينة غزة.

وحيث أن الفريق الثاني يرغب في الاتفاق والتعاقد مع الفريق الأول فيما يتعلق بتنظيف المنطقة الصناعية من حيث جمع وترحيل النفايات الصلبة العادية والخطرة وقد وافق الفريق الأول على التعاقد مع الفريق الثاني وفقاً للشروط التالية:-

1- يقر الفريقان بأهليتهما القانونية للتعاقد وإبرام العقود.

2- تعتبر مقدمة هذا الاتفاق جزء لا يتجزأ منه وكل كلمه فيه مكملة ومفسرة للأخرى.

3- اتفق الفريقان على أن يقوم الفريق الأول بأعمال تفريغ حاويات النفايات الموجودة في المنطقة الصناعية ونقلها إلى مكب النفايات التابع لبلدية غزة.

4- في حال طلب الفريق الثاني لحاويات إضافية يلتزم الفريق الثاني بدفع ثمن كل حاوية وبالثمن الذي يتفق عليه الفريقان مع بقاء أجرة الترحيل كما في العقد.

5- يلتزم الفريق الثاني بدفع كافة تكاليف عملية النقل والمتفق عليها للفريق الأول في المواعيد المحددة دون تأخير وبدون أي مبرر وفي حالة إخلال الفريق الثاني بتسديد تكاليف تفريغ حاويات النفايات وترحيلها في مواعيدها المحددة يحق للفريق الأول اتخاذ الإجراءات الإدارية والقانونية لتحصيل قيمة المبالغ المستحقة على الفريق الثاني.

6- يقوم الفريق الثاني بتزويد الفريق الأول بين الحين والآخر ببرنامج النظافة في المنطقة الصناعية في غزة وعلى الطرف الأول التنفيذ بموجبه وبما لا يتعارض مع البرنامج والنظام المعمول به في قسم النظافة ببلدية غزة والبرنامج المتفق عليه بين الفريقين وفي حالة تخلف الطرف الأول عن ترحيل النفايات في مواعيدها ووفقاً للبرنامج يحق للطرف الثاني عمل اللازم لتفريغ الحاويات ونقل محتوياتها لخارج المنطقة وعلى نفقة الفريق الأول الخاصة مهما بلغت التكاليف وذلك بعد إعلام الطرف الثاني الطرف الأول خطياً في موضوع التخلف وإعطائه مهلة أقصاها أسبوع واحد للتمشي حسب البرنامج.

7- اتفق الفريقان على أن يقوم الفريق الثاني بتسديد التكلفة المطلوبة منه شهرياً وذلك خلال فترة أسبوعين من تاريخ استلام فاتورة من الفريق الأول.

8- اتفق الفريقان على أن تكلفة عملية التخلص من النفايات تتم وفقا لما يلي:-

أ- أجرة دخول آلية البلدية وخروجها من المنطقة بناء على طلب الفريق الثاني (آلية تبر كرين) لترحيل النفايات (300 شيكل) ثلاثمائة شيكل فقط.

ب- أجرة ترحيل معالجة صندوق الرمسا (500 شيكل) خمسمائة شيكل فقط.

ج- ساعة كنس الشوارع آلياً (150 شيكل) مائة وخمسون شيكل فقط للسيارة الواحدة في حالة توفرها لدى البلدية.

د- أجرة معالجة المتر المكعب من النفايات الصلبة الخطرة (250 شيكل) مائتان وخمسون شيكل.

9- اتفق الفريقان على أن مدة هذا الاتفاق سنة وتبدأ من 2016/1/1 وحتى 2016/12/31.

10-يقر الفريق الثاني ويلتزم بعدم مطالبة البلدية بأية أضرار أو خسائر قد تصيبه في حالة عدم تمكنه من استرداد قيمة التكلفة من أصحاب المصانع مهما كانت الظروف والأسباب وبأي حال من الأحوال.

11-اتفق الفريقان على وضع آلية عمل معينة لضبط عملية جمع وترحيل النفايات العادية وفقاً لما يتم الاتفاق عليه بين الفريقين.

12- يتم الاتفاق على تجديد الاتفاقية أو تعديلها سنوياً وبموافقة الطرفين.

حرر هذا الاتفاق في 2016/1/1

على هذا تم الاتفاق والتراضي بين الفريقين

فريق أول

بلدية غـــزة

فريق ثاني

شركة فلسطين لإنشاء

وإدارة المناطق الصناعية (بيدكو)