# Stakeholder Engagement Plan

## Gul Ahmed Wind Power Limited

GUL AHMED
WIND POWER

Report

R14GMASEPPD
August 13, 2014

TEKCELLENT
(PVT) LIMITED
TECHNOLOGY ENGINEERING KNOWLEDGE MANAGEMENT

Gul Ahmed Wind Power Limited

# Stakeholder Engagement Plan

Jhimpir, Sindh

**Report**

TPL REF.: R14GMASEPPD

**August 13, 2014**

Tekcellent Private Limited

Karachi, Pakistan

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# 1. Introduction

## 1.1 About the Document

This document comprehends a detailed stakeholder plan as part of Environmental and Social Management Plan (Section 8 of updated IEE report) of the GAWPL wind power project. It provides guidance for construction of a dynamic stakeholder engagement plan that would encompass mechanisms for proper and timely information disclosure, community participation and grievance redressal. It was required to elaborate the stakeholder engagement plan based on the framework presented in “Annex L” of the updated IEE report of ERM. This document addresses that requirement.

In accordance with the suggestions presented in the IEE report, this manuscript accounts for the following prospects:

- Mechanisms to address and engage key stakeholders of the project (identified in section 5.2 of the updated IEE report) in culturally appropriate manner
- Staff and resources involved in management and implementation of stakeholder engagement plan.
- Detailed procedures of Grievance Redressal Mechanism (GRM)
- Monitoring and evaluation procedure of stakeholder engagement plan and third party monitoring

This stakeholder engagement plan will enable GAWPL to undertake regular consultation in a phased, planned and systematic manner which will be culturally appropriate and gender sensitive. This stakeholder engagement plan will bridge the information gaps and provide an opportunity to the stakeholders to make relevant decisions.

## 1.2 Timeframe

The stakeholder engagement will be valid for all phases of lifecycle inventory of project. Different activities involving the stakeholders will take place in different phases of project. The list of activities with their objectives, focused stakeholder group and expected outcomes are enlisted in appendix B.

The duration for construction activities will be about 15 months while it will be operational for a period of 20 years. Although this strategic plan is practically applicable throughout project development but amendments can be made in it upon requirement and depending on the circumstances.

### 1.2.1 Mechanism of Change

This stakeholder engagement plan is flexible and can be amended by the senior management of GAWPL when required. It can be reviewed and revised upon the need as appropriate as the programme or project evolves and/or stakeholder feedback and insight is received.

# 2. Stakeholder Engagement Mechanism

## 2.1 Key Values

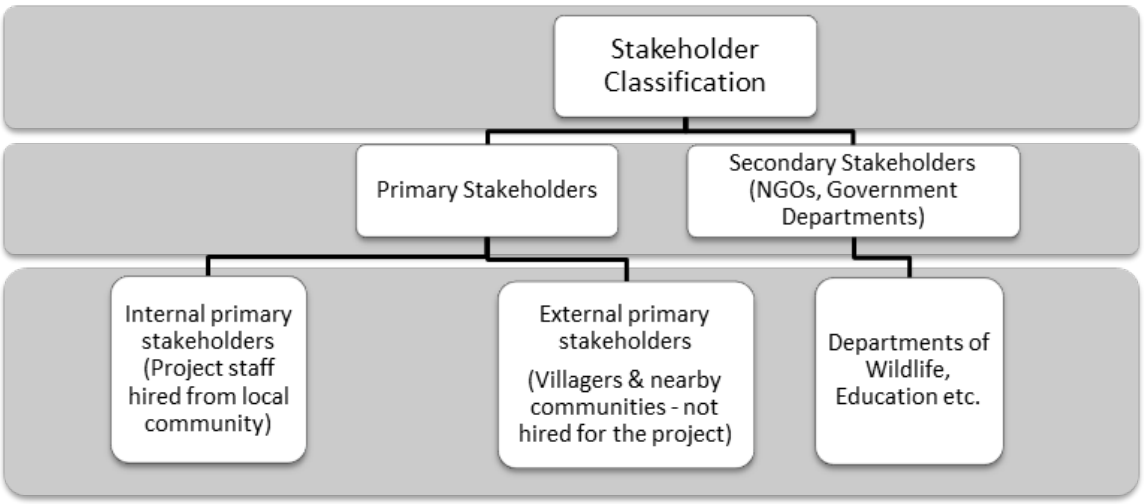
Following principles will be taken into account throughout planning and implementation stage for effective and fruitful stakeholder engagement.

- Provision of adequate information to the stakeholders about the project in advance before the consultation meeting. Disclosed information should cover the following aspects:
  - Key results /impacts/ risks related to the project
  - Key mitigation measures as set up by GAWPL to minimize adverse impacts,
  - Proposed community interventions and engagement activities
  - Proposed changes in project design, schedule of meetings, and potential activities associated with labour camps construction, establishment of dormitory, road diversions etc.
- Clear and simple mechanisms for addressing people's concerns,
- Focus on the needs of stakeholders (mainly community),
- Understandable language and format of the plan and conveyance of information in a socially and culturally inclusive manner,
- Encouraging two-way dialogues and open ended approach while addressing concerns of stakeholder,
- While consultation with local communities, keeping in consideration the human dignity and well-being, equality and respect for diversity,
- Following all inclusive approach, i.e., involving women, men, old, young, everyone in the process of engagement,
- Development and strengthening of trust and confidence with the stakeholders, by active listening and commitment to cohesion and pluralism, respect for cultural diversity, social and local norms,
- Taking into account, the Corporate Social Responsibilities (CSR) at all stages of the project lifecycle, and
- Solving the grievance matters with non-judgemental approach and critical thinking, finding out collaborative negotiation/ meditation measures, informing everyone with the Grievance Redressal Mechanism (GRM).

## 2.2 Stakeholder Grouping

Stakeholder grouping has been broadly done by ERM on basis of possible impact that they may encounter due to the project. Those stakeholders which are directly affected can be grouped under **"Primary Stakeholders"** while those which are not affected directly, but as a part or consequence fall into the category of **"Secondary Stakeholders"**. (Refer to **Section 5.2** of IEE Report)

**Figure 1: Stakeholder Grouping**




## 2.3 Organizational Hierarchy

Referred to Section 2.6 of the IEE updated report of GAWPL, community relation officer will look after social issues and collaborate with human resource officer when there is a chance of employment for semi-skilled and unskilled labour. During construction phase, community relations officer will report to EHS officer who will be responsible for reporting to CEO, while during operation phase, community relation officer will be responsible for reporting to CEO. Community relations officer will be responsible for managing issues related to stakeholder engagement, carrying out CSR activities, security and communication during the project.

## 2.4 Engagement Activities

The stakeholder engagement is a continuous method. It will involve all the stakeholders at different phases of the project.

### 2.4.1 Mechanism of Communication

A communication mechanism will be established in order to facilitate effective communication so that all necessary information can be carried to community promptly and timely. GAWPL will make a community relations section comprising of two important components of the organizational hierarchy that serve as bridge between community

and the proponent and contractor. The community relations section will include two personnel i.e.

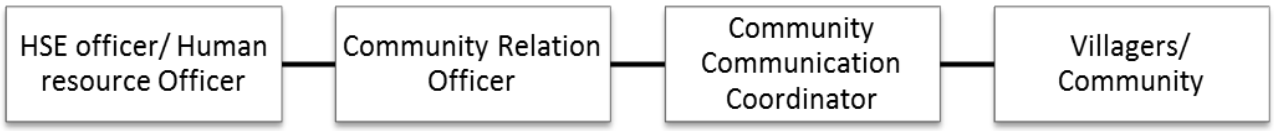
- Community relations officer
- Human resource officer

Community relations officer will appoint one person from each stakeholder village as Community Communication Coordinators. Another person will be appointed as their alternative. These coordinators will be hired for full day/ part-time employment and paid by the company. These coordinators will also be provided with facilities for communicating with community relations team at any time, i.e. cellular phones and arrangement for transport (motorcycles or pick-and-drop service).

These community communication coordinators will be responsible to stay always in alliance with community relations officer. Selection of these coordinators will be done by community relations team after consultation with the communities. To cross-check whether or not the coordinator is communicating information promptly and to ensure transparency of the process, contact numbers of village elders will be taken on record.

The information that will be shared through these coordinators will include dissemination of project activities in specific areas at specific time and their relevant information, announcement of new vacancies, any change in proposed plan of project, adverse impact (if any, rose at any time during project timeline), emergency response mechanisms etc. This will be a two way mechanism and the query from communities will be treated in the same way.

**Figure 2: Hierarchy for Mechanism of Communication**




Primary stakeholders (laborers and local community) will be informed using the existing communication channels which comprise: periodical meetings, announcements, information letters and notifications posted on information boards, training, and flow of information through the mechanism of communication.

The disclosure of information to Secondary stakeholders (non-governmental organization, neighboring communities) will take place via the project website and in response to direct queries, complaints or objections.

Disclosure of information to lenders will routinely be provided in a form of summary reports presented to the lenders on periodical basis.

### 2.4.2 Consultation with Communities

Community involvement and consultation at all steps of project is mandatory. It will include disclosure of all information to them related to project. Consultation will also

include two-way communication so that not only information is shared but also their concerns are addressed and responded in a positive way.

The following mechanisms will enable prompt consultation with the communities.

### *General Stakeholder Meeting*

The first step of an effective stakeholder engagement is to disclose all project related information and findings to all stakeholder groups. A general stakeholder meeting has been conducted for sharing of information of all necessary aspects of project in a socially inclusive manner. People of the community, administrative and all other stakeholders were invited in the meeting by different communication tools:

- Invitation cards
- Announcements through village representatives

This meeting included sharing of executive summary of the project and findings of Initial Environmental Examination (IEE) study. All stakeholders were invited to share their views and concerns. A separate consultation session for women has done since it emerged as a requirement due to cultural sensitivity of the project area.

### *Sharing of project plan*

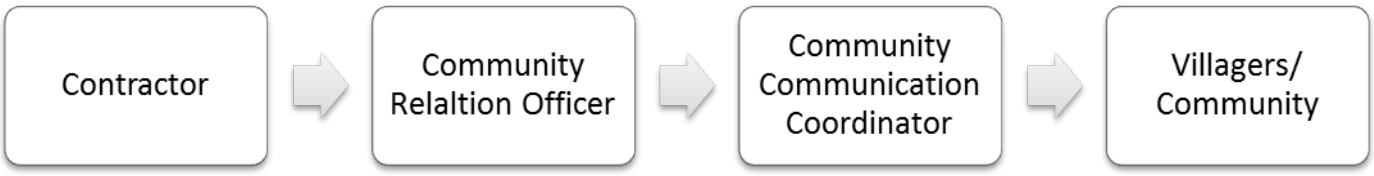
Disclosure of project plan appropriately and timely is very important. In sharing the information of on-going project activities to the community, matters of crucial importance will be the level of technical details, local language and dialects, cultural sensitivity, roles of women and men, ethnic composition of communities, literacy levels, community leadership structures, and local methods of disseminating information within stakeholder groups.

Keeping these sensitivities in mind, disclosure of overall plan has been done in general stakeholder meeting but it is not sufficient. Communities are highly conscious in knowing what activities will be carried out in their areas and when they will be done. A mechanism is required to be established for this purpose so that activity schedule in a specific area at certain time can be shared with the people.

At the start of month, contractor will inform community relation officer about the activities that will be carried in the specific area during that month. The information will be shared with the respective communication coordinator of only those settlements where activities are expected to impact the people's daily life. The coordinator will convey this information to the community and it would include detail of activity, duration, probable impacts that can occur and their preventive measures. The women will be conveyed this knowledge separately.

The construction area specific to the individual wind turbines will be demarked by cordoning off and unauthorised persons will not be allowed to access that area during the activities.

**Figure 3: Chain of Flow of Information regarding Project Activities**




### 2.4.3 Enabling Community Participation

All participants will be equally involved and welcome to share their views in different meeting sessions. For healthier engagement of communities in the project, participatory approach for all stakeholders will be enabled. Their views and suggestion will always be received and recorded appropriately. They can be involved at various stages by:

- Surveying through Questionnaires
- Provision of vacancies to local people
- Provision of small contracts to local people
- Providing correct knowledge of Grievance Redressal mechanism

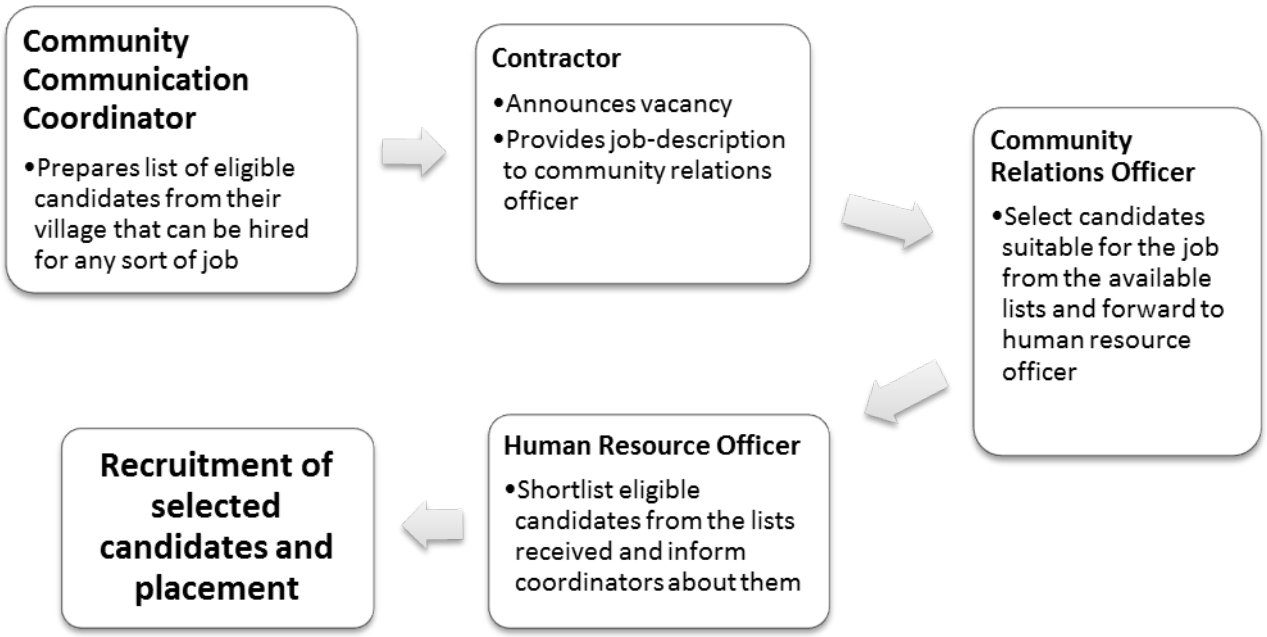
***Questionnaires:***

Various questionnaires can be designed to ascertain the views, concerns and suggestions of people on specific topics. These questionnaires will be prepared specific to each stakeholder group and purpose for which the data is required. The forms will be prepared in a language and format that is easily understandable by local community. The questionnaires can help in driving collective views and responses from local community which can serve as a monitoring tool.

***Employment opportunities for local communities***

Unemployment is one of the major issues of people in project area. An approach to establish effective community participation is by provision of employment to the unemployed people in the area. A criterion can be established for providing employment opportunities based on the skill set of individuals. This will be helpful in building relationship with local communities and at the same time will reduce possible danger of influx on natural resources in area due to migrant labour. Thirdly, it will help in enhancing the skills and capacities of people.

**Figure 4: Mechanism for Announcing Vacancies**




### 2.4.4 Communiqué Format

All the information relevant to project activities, roles and responsibilities, information related to health and safety should be shared with the people in an appropriate and culturally inclusive manner. As soon as an activity starts, the community relations office is required to communicate it to people. Information boards will be mounted at designated places in the nearby villages. Information regarding any new activity, area at which that would take place, its procedure and format will be shared on the boards in advance so that everyone could be aware of it.

Since most people especially women are not likely to understand written material easily due to illiteracy therefore it is preferred to communicate such information either through pictorial posters supported by recorded audios or through dedicated female liaison officers.

### 2.4.5 Corporate Social Responsibilities (CSR) and Building Effective Community Relationship

GAWPL with the help of different local/national NGOs could work together on agenda of community development and mobilization as part of its CSR policy. Already some work has been done by the GAWPL personnel to support community infrastructure. Early identification of public needs have resulted in commencement of work for investment in different community support project like provision of facilities for drinking water & sanitation. Construction of access roads for the project would be an additional benefit to people. Social investment suggests models of interventions to suit the needs of

community. While looking onto CSR activities for the project, following points must be considered.

- Activities should be according to needs of local public
- CSR activities should not be detrimental to environment and safety of any component in project area.
- Activities shall not target social set-up or cultural sensitivity of the project area.
- Plans and activities are to be implemented in consultation with local public

Independent monitoring consultant will also be responsible for observing to how much extent CSR objectives has been meet throughout the project.

# 3. Roles and Responsibilities

Stakeholder Engagement will be on going throughout the entire project lifecycle and will be coordinated across project activities. The Community Relations team in support with EHS Coordinator of GAWPL and contractor is responsible for implementing the Environmental and Social Management and Monitoring Plan and will also lead the stakeholder engagement process which will have the following tasks:

- To serve as interface between GAWPL, contractors, sub-contractors and the local community
- Disclosure of project specific information for all components
- Establish a mechanism for grievances redressal to facilitate communities in rectifying their complaints
- Regular engagement with key informants and local leaders to ensure a transparent feedback process in to the project
- To plan, implement and evaluate community development programs.

# 4. Monitoring and Evaluation

Monitoring of engagement activities will be done at all levels by EHSS Officer appointed individually by GAWPL and the contractor. GAWPL will monitor the principles and commitments of the stakeholder engagement process and will need to report on the status of implementation of different aspects, such as information disclosure, grievance redressal, etc. They will be responsible for keeping record of compliance of all activities as stated in this plan.

The strategy can be evaluated on basis of extent to which following goals are achieved:

- The objectives of stakeholder engagement have been met
- Stakeholders are aware of the issues and understand them
- Stakeholder engagement has achieved expected outcomes successfully.

Along with the internal monitoring, there will be an independent third party monitoring system to analyse accuracy and compliance of activities with the stakeholder engagement plan and transparency of engagement activities.

## 4.1 Monitoring Mechanisms

Different mechanisms will be used for ensuring transparency in the implementation of stakeholder engagement plan.

- Quarterly meeting with the communities to analyse extent to which CSR objectives have been met;
- Development of a tracking sheet which will be a continuous document and include details of stakeholder engagement activities and when and how they have been held? Have their objectives being met?
- GAWPL will constitute a team for internal monitoring of all stakeholder engagement activities and ensure their robust and timely implementation.

## 4.2 Third Party Monitoring

To ensure an independent and unbiased monitoring process, Independent Monitoring Consultants (IMC) will be hired by the GAWPL management. These consultants will be responsible for monitoring and evaluation of project activities, implementation of Environmental and Social Management Plan (ESMP).

According to Section 5.2 of IEE update report by ERM, SUPARCO is mandated to undertake monitoring activities in the project area as third party, while IUCN and WWF-Pakistan are also interested in protection and conservation of ecology and nature and protection of species and habitat respectively in the project area with special interest in

protecting river ecology round the *Indus* **(Table 5.2: Identification and mapping of key stakeholders)**.

Separate consultant should be hired for monitoring of social issues and timely implementation of stakeholder engagement activities.

# 5. Tactical Plan

A strategic plan has been developed for GAWPL to carry on stakeholder engagement during the project. It comprises the objectives and activities set out to accomplish them, stage of project at which the activity will be conducted and its frequency, focused stakeholder, and distribution of responsibilities for monitoring and execution of activities. **(See Appendix A)**

# 6. Stakeholder Engagement Delivery

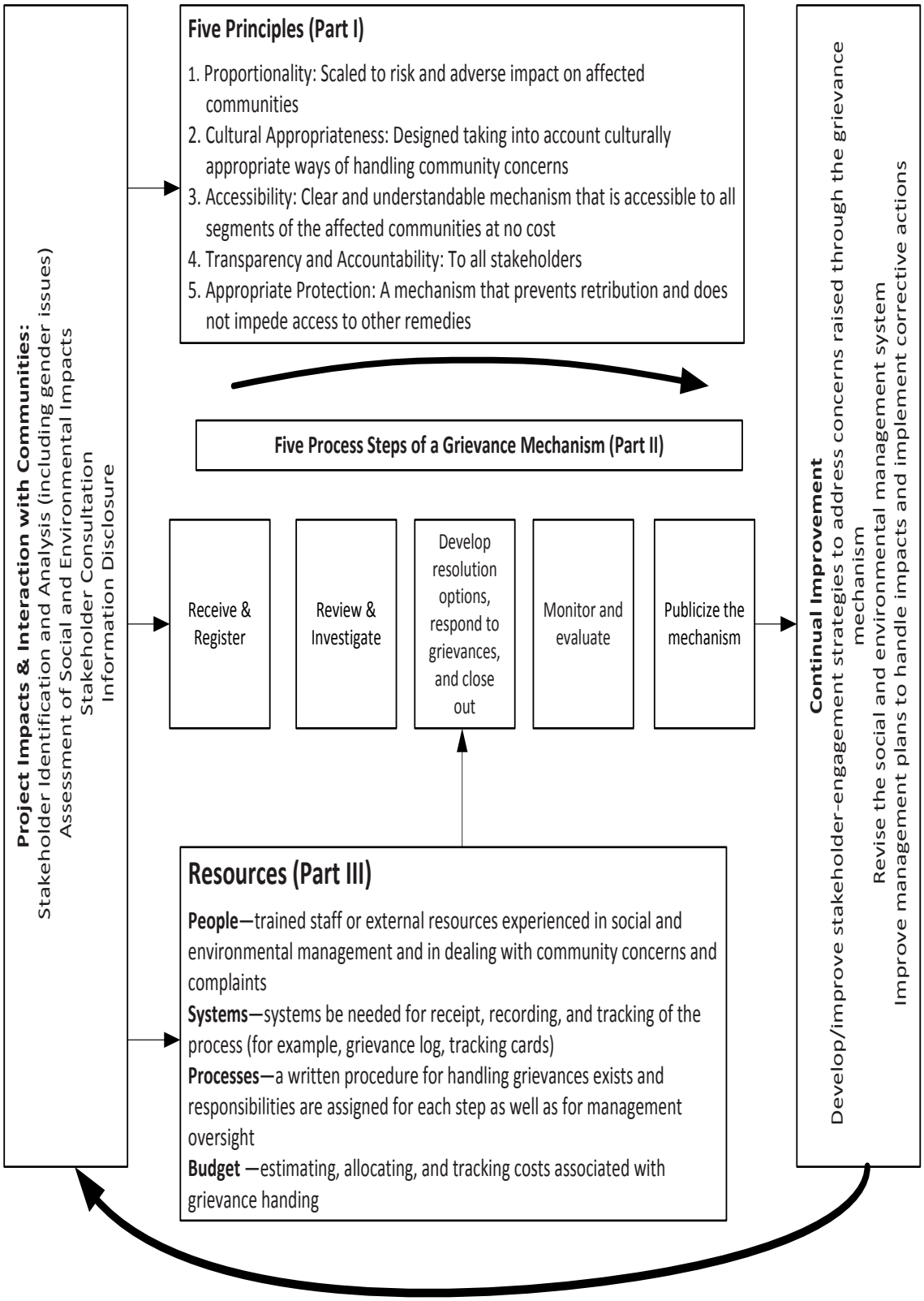
GAWPL will be responsible to monitor and evaluate day-to-day process for stakeholder engagement. For some activities, like establishments of basic or mobile health units, or vocational institutes as well, liaison will be required with administrative stakeholders (health department, educational department etc.) where leading role would be played by GAWPL. Also, for the issues of reclamation of land use rights, local government support would be required.

# 7. Grievance Redressal Mechanism

A mechanism to address affected communities' concerns and complaints- a grievance redressal mechanism is an important pillar of the stakeholder engagement process, since it creates opportunities for companies and communities to identify problems and discover solutions together. A grievance redressal mechanism is based on an integrated approach guided by five principles and five process steps, with adequate resources assigned to them. Grievance mechanisms will respond to project needs better if they are established early as a measure to anticipate rather than react to intensification of tensions with surrounding communities. Participation of affected communities early in the mechanism design process can help ensure greater trust and buy-in from the communities. Moreover, active participation from affected communities will also create a sense of shared ownership and responsibility for the outcomes.

A project-level grievance mechanism serves both as a risk mitigation approach and a barometer of success for other stakeholder engagement processes. It helps evaluate the performance of the social and environmental management system and strengthen project operations by informing the company about necessary improvements. Information about the nature and recurrence of grievances should become part of monitoring project impacts, on-going stakeholder consultation, and disclosure.

**Figure 5: Basic Design Elements of a Project-Level Grievance Mechanism**



## 7.1 Process steps for Grievance Redressal Mechanism

The jurisdiction of Grievance Redressal Mechanism involves all grievances that can arise and cause adverse impact due to any project activity. Grievance Redressal mechanism will be shared with the community appropriately to establish accessible and responsive means for stakeholders to raise concerns and grievances relating to project throughout its life. Acceptable mitigation measures will be concluded after discussion with target community. A grievance that requires redressal can be an issue of resettlements, problems related to safety and security of communities, religious, socio-economic, cultural concerns etc.

Handling grievances encompasses a step-by-step process as well as assigned responsibilities for their proper completion. Grievance mechanism undertakes the following steps:

- Publicizing grievance redressal mechanism
- Receiving and keeping record of grievances
- Review and investigate complaint (if it can be solved locally)
- Developing options for resolution and prepare a response
- Monitoring, reporting and evaluation of grievance mechanism

It is necessary to publicize the following information in the community:

- Type of complaints that can be received by the company from using the company grievance mechanism
- Who can raise complaints (affected communities)
- Where, when, and how community members can file complaints
- Who is responsible for receiving and responding to complaints, and any external parties that can take complaints from communities
- What sort of response complainants can expect from the company, including timing of response
- What other rights and protection are guaranteed.

GAWPL will assign at least two (2) male and one (1) female person to receive redressal request from the stakeholder, mainly local community. A separate system will also be established to address grievance issues of internal stakeholders, i.e., the workers by the EPC contractor where GAWPL will monitor the grievance redressal mechanism set by the contractor for resolving internal grievances. It should be ensured that all grievances are dealt in an efficient, transparent manner which would be fair and free of charge. They will receive, track record and direct the grievance for further actions in accordance

with defined; requirements if it fails to resolve internally. The process for dealing with complaints from workers will be different from those made by public.

Whenever the responsible personnel receives a grievance (in verbal or in written), it will be recorded and acknowledged within a week time. Response to it will be made within 20 working days. The interval may depend on the proximity of the village to the project site and the nature of the disturbance caused. If an immediate corrective action is taken and grievance is resolved locally, it will be communicated to the complainant, followed by closure of case. If the complaint cannot be resolved locally or any long-term corrective action is required, complainant will be informed of proposed corrective action or clarified why corrective action is not required. After implementing the corrective action with in the designated time, follow-up on the action is carried out and appellant will be informed about it. The officer will maintain a record of these grievances into the Social Complaint Register. It is mandatory to record following in entries in the grievance/complaint register:

- Date of receiving the complaint
- Person responsible for the complaint/ reason for grievance
- Information regarding prosed corrective action that is communicated to the appellant
- Date response sent to the appellant
- The date of closing the grievance

Closure of complaint between the company and complainant will be validated by the IMC.

The decision of the company on any issue should always be communicated to the complainant. These records will be used to investigate frequency and common reasons for grievances. Also mitigation measures can be adopted on basis of these accounts. The complaints will be taken as confidential and without prejudice. All decisions taken will be impartial.

Third party monitoring by Independent Monitoring Consultant (IMC) will be done to ensure transparency of the process and to ensure that all relevant complaints are resolved effectively and with transparency. The SCR will periodically (e. g, once a month) be reviewed in a high-level meeting by the designated team of IMC.

# 8. Supporting Documents

- IFC Handbook "Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets"
- IFC Good Practice Note on Addressing Grievances from Project affected Communities
- Stakeholder Engagement- A toolkit; Interreg IIIB , Northwest Europe
- Stakeholder Engagement Plan, Crucea Wind Farm, Romania (2012)
- Stakeholder Engagement Plan for Balikesir-1 Wind farm, Turkey

# Appendix A: Objectives and Expected Outcomes of Stakeholders' Engagement during Lifecycle of Project

| Activity | Methodology / Frequency | Focused Stakeholder | Expected Outcomes | Phase at which activity is carried out* | | | | Activity Indicator (Reduction of the expected impacts) | Responsibility | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | | Execution | Monitoring |
| **Objective:** Proper disclosure of information to all stakeholders, facilitate feedback | | | | | | | | | | |
| Addressing people (head of households and women representatives) government officials, institutional organizations, and NGOs, sharing project details to them + | • Meetings and correspondence with all stakeholders<br>• Dissemination through local newspapers, hand-outs etc.<br>Before execution of project | All including community, government officials, institutional stakeholders etc. | Sharing of project-related information in a convenient way, identification of challenges.<br>Mitigation measures can be discussed and adopted | √ | | | | Timely sharing of information will be helpful in reaching a consensus for sensitive issues before the start of construction phase. | GAWPL | Proponent EHSS supervisor & Contractor EHSS supervisor |

Note:

* **Project phases:** 1) Pre-construction stage 2) Construction stage 3) Operational stage 4) Post-operational stage

\+ (like relating to potential health & safety, loss of livelihood infrastructure, privacy of women, requiring relocation, environment, socio-economic profile, visual amenity of the locality etc.)
Colour coding for degree of influence of activity: Red-High influence; Blue: medium influence; Green: low influence

| Activity | Methodology / Frequency | Focused Stakeholder | Expected Outcomes | Phase at which activity is carried out* | | | | Activity Indicator (Reduction of the expected impacts) | Responsibility | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | | Execution | Monitoring |
| Inquiring concerns related to project from stakeholders for the probable potential impacts | • Meetings<br>• Site visits & Assessments<br>• Grievance Redressal Mechanism (GRM)<br>Before execution, then as needed | Community, respective administrative stakeholder | Expression of views and improved support from community. | √ | | | | Mitigation measures will minimize impacts so less grievance issues could occur. | GAWPL | Proponent & Contractor EHSS supervisor, IMC |
| **Objective:** Community development and mobilization | | | | | | | | | | |
| Involvement of community in understanding problems, alternatives, opportunities and decision-making, exploring issues and coming up with ideas | • Formal and informal consultation meetings and correspondence<br>• Workshops<br>• GRM<br>Bi-monthly | Local community within 500 m of project area | People will be able to suggest mitigative measures suitable to their culture and socio-economic status, Vulnerability of community can be reduced by improving resilience. | √ | √ | √ | √ | Improved community support in future meetings, induction of cohesion and pluralism, collaborative negotiation and meditation for impacts could be undertaken | GAWPL | Contractor EHSS supervisor |

| Activity | Methodology / Frequency | Focused Stakeholder | Expected Outcomes | Phase at which activity is carried out* 1 | 2 | 3 | 4 | Activity Indicator (Reduction of the expected impacts) | Responsibility: Execution | Monitoring |
|---|---|---|---|---|---|---|---|---|---|---|
| Hiring unskilled and semi-skilled labour from local community | • Assess capacities of people<br>• Hiring them according to their ability<br>On-going during construction stage | Community lying within project vicinity | Improved Socio-economic status, income levels raised.<br>People can find themselves able to look for more job options. | | √ | √ | | Alleviation in poverty and unemployment ratio, observed over a time. An approach to sustainable community development by decreasing livelihood constraints | GAWPL (community relations team) | GAWPL<br>Project management |
| **Objective:** Addressing to community needs in area under project | | | | | | | | | | |
| Allow the access for local community to natural resources in project area (where it is safe to access) | • Planning and execution<br>• Correspondence with public<br>On-going | | Improved community support to encourage local buy-in and ownership in projects, establishing More open communication channels, gain trust, work on breaking down historical barriers | | √ | √ | | Camps for labour away from site to ensure execution of activities. Better understanding and monitoring community perceptions by addressing local needs and wants. It will result in reduced grievance issues. Feeling of asset | GAWPL | Contractor EHSS supervisor |
| Commitment to ensure security and privacy of community not affected by project activities | | | | | √ | √ | √ | | GAWPL | Contractor EHSS supervisor |
| Establishment of proper communication | • Grievance Redressal | | | √ | √ | √ | √ | | GAWPL | GAWPL |

| Activity | Methodology / Frequency | Focused Stakeholder | Expected Outcomes | Phase at which activity is carried out* 1 | 2 | 3 | 4 | Activity Indicator (Reduction of the expected impacts) | Responsibility: Execution | Monitoring |
|---|---|---|---|---|---|---|---|---|---|---|
| mechanism with people to address concerns | Mechanism (GRM)<br>On-going during 2nd and 3rd phase of project | | | | | | | ownership increase. | | Project management |
| **Objective:** Ensuring safety and security of operations | | | | | | | | | | |
| Adequate working conditions and ensuring sustained engagement | • Training related Health & safety<br>• Site-visits, inspection and investigation<br>Bi-monthly | Contractor/ sub-contractor | All operations will be carried out in compliance with HSSE policy of proponent and fulfilling legal requirements | | √ | √ | | Reduced accidents, near-miss, incidents during construction/ operation stage indicate compliance of HSSE policy. | GAWPL | Proponent EHSS supervisor & Contractor EHSS supervisor, IMC |
| Safe establishments of labour and construction camps | • Site-visits, inspection and investigation<br>Quarterly | Contractor/ sub-contractor | Availability of basic facilities at camps will ensure healthy and safe work force | | | √ | | Availability of basic infrastructure facilities at camps like access to drinking water, sanitation, etc. | GAWPL | GAWPL<br>Project management / Contractor |
| **Objective:** Sustainability and Environmental conservation | | | | | | | | | | |

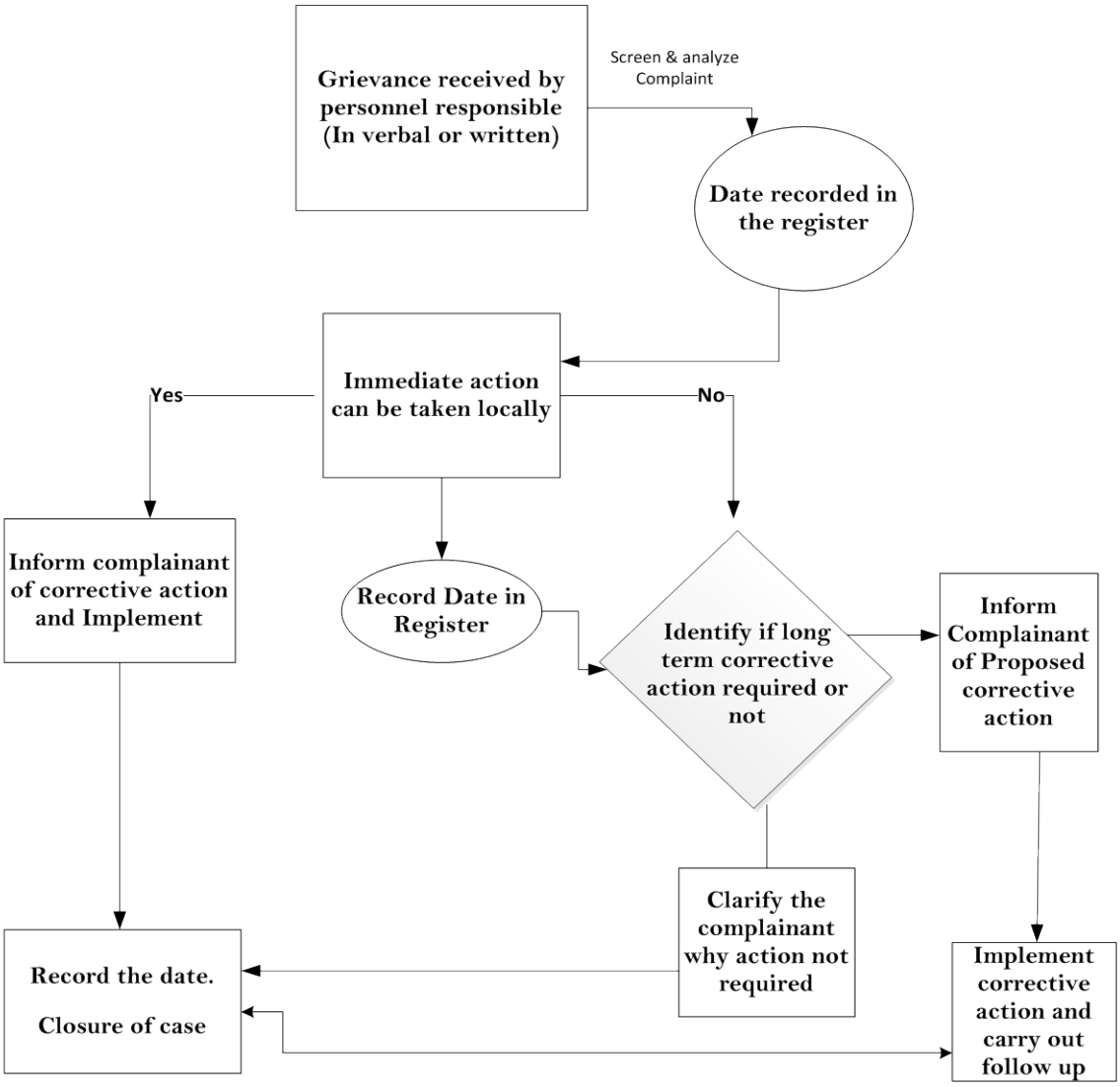
| Activity | Methodology / Frequency | Focused Stakeholder | Expected Outcomes | Phase at which activity is carried out* 1 | 2 | 3 | 4 | Activity Indicator (Reduction of the expected impacts) | Responsibility: Execution | Monitoring |
|---|---|---|---|---|---|---|---|---|---|---|
| Protection of flora and fauna from any sort of adverse impacts of the projects | • Site-visits<br>• Comparison with available data<br>Bi-Annually | WWF, IUCN, other relevant regulatory institutes | Protection of fragile ecosystem and reduced impacts on flora and fauna<br>Reduced impacts on land-use change,<br>Incident management procedure designed to deal with any adverse impacts | √ | √ | √ | √ | Reduced impacts on any bird migration path and mitigation of any potential adverse impact if found | GAWPL | GAWPL<br>Project management, Contractor,<br>IMC |
| Ensuring minimum land use change due to project and restoration of land to its original condition as soon as work is complete | • Site-visits<br>• Meeting with former land users (community)<br>• Inspection of land use<br>• Geospatial monitoring<br>As needed | Community lying within project area, SUPARCO, MET deptt. etc. | | | √ | √ | √ | Identification of sites of tangible/in-tangible cultural importance, monitoring of land cover change | GAWPL | |
| **Objective:** Activities focusing Corporate Social Responsibilities (CSR) policy | | | | | | | | | | |

| Activity | Methodology / Frequency | Focused Stakeholder | Expected Outcomes | Phase at which activity is carried out* | | | | Activity Indicator (Reduction of the expected impacts) | Responsibility | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | | Execution | Monitoring |
| Improvement of health infrastructure | • Establishment of available BHU/ dispensary/clinic<br>• Provision of maternal care facilities<br>• Veterinary care<br>On-going | NGOs, Village level CBOs, other institutional stakeholder, community | Availability of health facility<br>Illness ratio decrease and better health facilities | | √ | √ | √ | Provision of health facilities and maternal care will be indicated by reduced infant mortality and illness. Vet care will helpful to control illness in animals | GAWPL as its CSR policy | GAWPL<br>Project management / IMC |
| Educational facilities be improved | • Provision of salaries to teachers<br>• Encouragement of people towards education through informal sessions<br>On-going | NGOs, Village level CBOs, other institutional stakeholder, community | Illiteracy rate will be reduced over time | | √ | √ | √ | Increase in number of school going children, increased willingness to study further | GAWPL as its CSR policy | GAWPL<br>Project management / IMC |
| **Objective:** Addressing gender sensitivity | | | | | | | | | | |

| Activity | Methodology / Frequency | Focused Stakeholder | Expected Outcomes | Phase at which activity is carried out* | | | | Activity Indicator (Reduction of the expected impacts) | Responsibility | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | | Execution | Monitoring |
| Separate/or combined meetings with females of community (in accordance with cultural values), Involvement in understanding problems, alternatives, opportunities and decision-making, exploring issues and coming up with ideas and sharing project details to them | • Meetings<br>• Sharing information<br>• Questionnaires<br>• Expression of views/ apprehensions/ expectations from female participants of community<br>On-going | Community (female members) | Women perspectives of project, key challenges, expectations, concerns will be recognized, that will help in accordingly addressing mitigation measures. | √ | | | | Women will take the opportunity to express their views and concerns and take the opportunity to be the part of decision making. | GAWPL | Female Supervisor required |
| **Objective:** Consultation with other wind energy farm projects | | | | | | | | | | |
| Presentation of challenges and hindrances that can arise during set up of wind farm | • Group-meetings<br>Before construction | Other wind farm project operators | Consultations can be made regarding issues of mutual interest like construction of access roads | | √ | √ | | Adverse cumulative impacts on community can be avoided and mitigated. | GAWPL | GAWPL Project Management |

# Appendix B: Grievance Redressal Mechanism

**Figure 6: Flowchart of Grievance Redressal Mechanism**



**ATTACHMENT - A**

# CONSTRUCTION LABOUR MANAGEMENT PLAN

# Contents



# Figures

# 1. About the Document

The environmental and social baseline as presented in IEE update report of GAWPL wind power project has indicated certain sensitivities, such as the existing community settlements, degraded land resources and constraint of availability of water. In that context, the objective of this document is to present a tactical plan to assist contractor in managing adverse impacts during the construction phase where GAWPL will monitor the activities in accordance with the plan. Since the requirement for construction labour can rise up to 200 workers and 100 technical staff during the peak construction phase, therefore this document provides a strategical framework to protect every labour against the dangers of injury, sickness or death through safe and healthy working conditions, thereby assuring the conservation of valuable manpower resources and the prevention of loss or damage to lives and properties, consistent with following applicable standards:

- Requirements of the Sindh EPA in establishing labour camps;
- IFC Performance Standards (2012);
- IFC Guidelines on Worker Accommodation; and
- Applicable laws on labour and working conditions in Pakistan.

# 2. Objectives

This labour management plan has been formulated with the objectives to avoid or mitigate the adverse impacts of influx of labour and strain on local resources in the construction phase. This management plan will be recognized by all the workers and they will ensure that the work will be performed in accordance with the accepted safety practices and standards established by the employer, reporting unsafe conditions and practices to the supervisor whether they take place at workplace or camps (by making suggestions for correction or removal of accident hazards), and ensure to follow health and safety practices at all times.

# 3. Components of Labour Management

This section accounts to devise a robust labour managing plan with is composed of the following components.

- Resource Requirements
- Waste Management
- Labour Camp Facilities
- Monitoring and inspection of labour camps

# 4. Resource Requirements

According to IEE update report of the project, it is estimated that direct manpower required during the construction phase will be about 200 with an additional support staff of about 100 people including technical, administrative and security personnel will be present. This staff will be accommodated in camps established at suitable locations on site.

The construction campsite will cover an area of about 2.47 acres (10,000 $m^2$) and include vehicle parking and equipment staging areas. The camp would have living accommodation, mess and kitchen, prayer room, bathrooms and toilets, recreational facilities, fuel storage, water storage etc.

Adequate planning is the first and the most important element of effective resource provision to the campsite without putting a burden on natural resources. By anticipating and taking steps towards drawing a resource supply mechanism will prevent potential impacts on lives of local residents of the area

## 4.1. Water Supply

- **Average daily requirement of fresh water:** 40-60 $m^3$/day (for civil works) and 9-13 $m^3$/day (for usage at campsite)
- Sources of fresh water:
- Water for domestic and potable purposes will be sourced from one of the following sources
    - Kalri Baghar Feeder from the distributary at Jherruk through water tankers
    - Pumping station will be used to provide water to camps
    - Potable water from Nooriabad/ Jhimpir pumping stations
- **Groundwater:** No groundwater abstraction wells for construction requirements will be installed on the project site.
- **Water storage tank:** The water storage tank will be lined with an impervious liner to prevent seepage and loss of water.

### 4.1.1. Important Considerations

- Access to an adequate and convenient supply of potable water will always be available to workers. Average volume of water available per person per day depends on climate, weather conditions and accommodation standards.
- Water should not be wasted unnecessarily both at campsite as well as during civil works.
- Water storage areas should be proper and meet hygienic conditions to prevent dehydration, water poisoning and diseases resulting from lack of hygiene
- Drinking water must meet NEQS or WHO drinking water standards
- All tanks used for the storage of drinking water will be constructed properly and covered as to prevent water stored therein from becoming polluted or contaminated.

## 4.2. Food Supply:

- Food supplies will be transported to campsite from Karachi or Hyderabad.
- A catering company will be contracted or any other suitable arrangement will be done to supply the requirements for the campsite.
- Campsite would have a kitchen for cooking food and mess to serve as dining area.

### 4.2.1. Important Considerations:

- Kitchens will be provided with facilities to maintain adequate personal hygiene including a sufficient number of washbasins designated for cleaning hands with clean, running water and materials for hygienic drying.
- Dining areas must be adequately furnished and provided with tables, benches, individual drinking cups and plates.
- Wall surfaces adjacent to cooking areas will be made of fire-resistant materials
- All kitchen floors, ceiling and wall surfaces adjacent to or above food preparation and cooking areas will be built using durable, non-absorbent, easily cleanable, non-toxic materials.
- Adequate facilities for cleaning, disinfecting and storage of cooking utensils and equipment will be provided.
- Food waste and other refuse will be adequately deposited in sealable containers and removed from the kitchen frequently to avoid accumulation.
- Food provided to workers will be hygienic and of appropriate nutritional value, it would take into account worker's religious/cultural background.
- The 5 keys of World Health Organization (WHO) for safer food or an equivalent process will be implemented, which include:
    1. Keep clean
    2. Separate raw and cooked food
    3. Cook thoroughly
    4. Keep food at safer temperatures
    5. Use safe water and raw materials

**Figure 1: Five Keys of World Health Organization (WHO) for Food Safety**

## Keep clean

Wash your hands before handling food and often during food preparation.

Wash your hands after going to the toilet.

Wash and sanitise all surfaces and equipment used for food preparation.

Protect kitchen areas and food from insects, pests and other animals.

While most micro organisms do not cause disease, dangerous micro organisms are widely found in soil, water, animals and people. These micro organisms are carried on hands, wiping cloths and utensils, especially cutting boards and the slightest contact can transfer them to food and cause food borne diseases.

## Separate raw and cooked

Separate raw meat, poultry and seafood from other foods.

Use separate equipment and utensils such as knives and cutting boards for handling raw foods.

Store food in containers to avoid contact between raw and prepared foods.

Raw food, especially meat, poultry and seafood, and their juices, can contain dangerous micro organisms which may be transferred onto other foods during food preparation and storage.

## Cook thoroughly

Cook food thoroughly, especially meat, poultry, eggs and seafood.

Bring foods like soups and stews to boiling to make sure that they have reached 70°C. For meat and poultry, make sure that juices are clear, not pink. Ideally, use a thermometer.

Reheat cooked food thoroughly.

Proper cooking kills almost all dangerous micro organisms. Studies have shown that cooking food to a temperature of 70°C can help ensure it is safe for consumption. Foods that require special attention include minced meats, rolled roasts, large joints of meat and whole poultry.

## Keep food at safe temperatures

Do not leave cooked food at room temperature for more than 2 hours.

Refrigerate promptly all cooked and perishable food (preferably below 5°C).

Keep cooked food piping hot (more than 60°C) prior to serving.

Do not store food too long even in the refrigerator.

Do not thaw frozen food at room temperature.

Micro organisms can multiply very quickly if food is stored at room temperature. By holding at temperatures below 5°C or above 60°C, the growth of micro organisms is slowed down or stopped. Some dangerous micro organisms still grow below 5°C.

## Use safe water and raw materials

Use safe water or treat it to make it safe.

Select fresh and wholesome foods.

Choose foods processed for safety, such as pasteurised milk.

Wash fruits and vegetables, especially if eaten raw.

Do not use food beyond its expiry date.

Raw materials, including water and ice, may be contaminated with dangerous micro organisms and chemicals. Toxic chemicals may be formed in damaged and mouldy foods. Take care in selection of raw materials and implement simple measures such as washing.

*Source: World Health Organization, Food Safety*

www.who.int/foodsafety/publications/consumer/en/5keys_en.pdf

### 4.3. Fuel Supply

There is no dense vegetation in the project area other than shrubs and some scattered growth of flora that can serve as source of fuel wood without causing influx on natural resources in project area. In order to avoid this burden, contractors will make necessary arrangement for supply of LPG for kitchen, & diesel for vehicles, equipment & generators to the labour camps. In order to reduce pressure on locally available fuel wood on site, following recommendations are made:

- Contractor will undertake a purchase agreement with Government agencies to provide regular LPG for kitchen, & diesel for vehicles, equipment & generators from authorized depots at the Project site for distribution to the labour engaged for work at site.
- The onsite fuel requirement during construction is estimated to be about 1 million liters which shall be met by tanker trucks. An onsite storage tank of 12,000 liters (as per EPC contract, section 3.1.7) will be provided under safety and security conditions for fulfilling fuel requirement.
- The onsite delivery of fuel or lubricant will be at designated location that will have an impervious base, with a conduit around to contain spills in case an accidental spill occurs.

### 4.4. Power requirement

The camp would have its own power generation arrangements in the form of diesel generators. The expected maximum requirement of electricity for construction and the camp is estimated at 1000-1,500 KVA approx.

## 5. Waste Management

### 5.1. Solid Waste Management:

- Total domestic waste generation estimated from camps: Approximately 40-50 kg/day
- Waste collection frequency: Daily
- **Waste composition:** 70% of the domestic waste will be kitchen/food waste i.e., bio-degradable. It will be disposed to composting at nearby landfill. Remaining waste will include sludge from labour camps, wastewater septic tank and non-recyclable material. It will be collected and disposed of at a landfill site approved by the relevant authority. The contractor will be responsible for it.

#### 5.1.1. Important considerations:

- Waste generation and disposal procedures must comply with World Bank guidelines.
- Specific containers for rubbish collection will be provided.
- An adequate number of leak proof, non-absorbent, rust and corrosion-resistant rubbish containers will be provided. They will be provided with lids to prevent from insects and rodents.

- Locate rubbish containers away from each shelter on a wooden, metal, or concrete stand.
- Rubbish containers must be emptied at regular intervals (to be determined based on temperatures and volumes generated) to avoid unpleasant odors associated with decaying organic materials.
- Pest extermination, vector control and disinfection will be carried out throughout the living facilities in compliance with local requirements and/or good practice.

### 5.2. Sewage Generation:

- **Total estimated** sewage generation: Approximately 20-30 m3/day (by engaging 200 construction labour onsite)
- **Composition:** It is composed of domestic sewage and grey water from camp operations.
- **Sewage disposal:** The waste will be disposed of in septic tanks and soak pits provided.

#### 5.2.1. Important considerations:

- Wastewater treatment and effluent discharge must comply with local or World Bank effluent discharge standards
- No untreated domestic waste water or sewage will be discharged into any common drains around the site.
- Prevent contamination of any water body while disposal of liquid waste, to ensure hygiene and to avoid the spread of infections and diseases, the proliferation of mosquitoes, flies, rodents, and other pest vectors.

## 6. Camp Facilities

The proposed labour camps will be within 1 km from any existing settlements or rural communities. All camps will be provided with basic amenities and sanitation facilities to avoid pressure on local natural resources (water bodies, fire wood) and infrastructure (drinking water, health care etc.). The contractor will be overall responsible for the facilities and arrangements made available at the worker camps.

GAWPL will monitor that the contractor is ensuring good standards in living facilities in order to avoid any safety hazard and protect workers from diseases and/or illness. The location of the facilities is important to prevent exposure to wind, fire, flood and other natural hazards.

### 6.1. General living facilities

Workers' accommodation should be provided at a location which is unaffected by the environmental or operational impacts of the worksite (for example noise, emissions or dust) but it should not be that far workers do not have to spend undue amounts of time travelling from their accommodation to the worksite. The accommodation shall be constructed in such a manner as to provide protection against the moisture, wind and sand/dust, and shall be adequately screened against insects. The accommodation shall be maintained in a clean

condition. The presence of stagnant water is a factor of proliferation of potential disease vectors such as mosquitoes, flies and others, and must be avoided. Heating, air-conditioning and ventilation should be appropriate for the climatic conditions and provide workers with a comfortable and healthy environment to rest and spend their spare time.

### 6.1.1. Important considerations:

- The site for the camp facilities shall be appropriately aesthetically landscaped.
- A separate fence of sufficient structure shall be erected to protect the camp.
- Living facilities should be located within a reasonable distance from the worksite.
- The building site should be adequately drained to avoid the accumulation of stagnant water.
- Fire precautions will be taken, including safe distances between buildings, access for fire tenders, fire extinguishers, muster points and practices
- Electricity will be provided for 24 hours a day for lighting, refrigeration, ceiling fans, air-conditioning, where applicable. Where necessary back-up generators will be installed.

### 6.1.2. Room facilities

- Both natural and artificial lighting will be provided and maintained in living facilities. Window space will be at least 10% of the floor area.
- Adequate sleeping space will be provided to each worker and bunk beds are not allowed as a safety measure.
- The living facilities will be built with adequate materials kept in good repair and kept clean and free from rubbish and other refuse.
- Beds will be fitted with a mattress of at least 10 cm thick, two sheets, pillow and pillowcase. The bed-cover shall be washed at least once a week and mattresses and blankets aired outside once a week.
- Each room shall be fitted with a door and movable windows of reasonable dimensions. Windows shall, as far as possible, be fixed on opposite sides to provide through-ventilation.
- A secure lockable cupboard will be provided to each occupant for them to keep their clothes and belongings. Hanging of clothes on the wall should be avoided.
- Ceiling or self-standing fans shall be provided, unless air-conditioning is necessary.
- Separate storage for work boots and other personal protection equipment, as well as drying/airing areas may need to be provided depending on conditions.
- In collective rooms, which are minimized, in order to provide workers with some privacy, only a reasonable number of workers are allowed to share the same room. Standards range from 2 to 8 workers.
- All doors and windows should be lockable, and provided with mosquito screens where conditions warrant.

- There should be mobile partitions or curtains to ensure privacy.
- Every occupant will be provided with adequate furniture such as a table, a chair, a mirror and a bedside light.

### 6.2. Sanitary & Toilet facilities

Adequate sanitation is necessary to maintain a good standard of personal hygiene but also to prevent contamination and the spread of diseases which result from inadequate sanitary facilities. In labour camps, a sanitary squad shall be employed to operate the storage, collection and disposal of garbage, and for cleaning of roads, buildings, living quarters and sanitary facilities. The supervisor will be responsible to supervise camp hygiene, and to carry out regular inspections of the camps and work sites to ensure that sanitary facilities are maintained.

#### 6.2.1. Important considerations

- The drainage from and through the camp will not endanger any domestic or public waters supply.
- All sites shall be graded, ditched, and rendered free from depressions in which stagnant water may become a nuisance.
- Sanitary facilities should be located within the same buildings.
- Where both males and females are residing at the camps or worksites separate shower and sanitary facilities with sufficient privacy shall be provided. At least one in three closets should be provided with a sanitary disposal unit.
- Sufficient lights and ventilation shall be provided.
- All toilet and washing facilities shall be cleaned at least daily and be in working order.
- The floors, walls and ceilings and fittings in toilet and washing facilities shall be of a finish that can be cleaned easily.
- All toilet and washing facilities shall have window openings to the outside air, or be provided with ventilation systems.
- The window surface area shall be not less than 10% of the floor area.
- Showers, hand basins and toilets shall be provided with a supply of soap and water.
- The floor of shower cubicles shall be fitted with wooden or plastic slats to give adequate drainage and to prevent fungus infections of the feet. The slats shall be washed and air-dried daily.
- Shower cubicles shall be provided with doors or curtains.
- All wastewater including floor-washing water shall be connected to a disposal drain. No wastewater shall be allowed to discharge on outside ground or beneath portable cabins.
- Floors shall slope towards an integrated floor drain.
- Toilets shall be located within reasonable distance from the living quarters but not closer than 30 meters to any sleeping room, dining room, lunch area or kitchen.

- The minimum numbers of toilets and washing facilities will meet local regulations.

### 6.3. Laundry facility:

In order to ensure good personal hygiene, laundry facilities for workers should be provided to wash both work and non-work related clothes. If this is not possible, the alternative is for the employer to provide a free laundry service.

#### 6.3.1. Important considerations

- Adequate facilities for washing and drying clothes to be provided.
- Provision of sinks or tubs with hot and cold water, cleaning soap and drying lines to providing washing machines and dryers.
- When work clothes are used in contact with dangerous substance (for example, application of pesticide), special laundry facilities (washing machines) should be provided.

### 6.4. Medical facility

In order to maintain a worker's health and provide adequate responses in case of emergency situations, clinic and medical facilities will be required at the labour camps. The level of medical facilities provided in workers' accommodation will be dependent on the number of workers living on site. However, first aid and stand-by ambulance must always be available on site.

Providing adequate first aid training and facilities can save lives and prevent minor injuries becoming major ones. A clinic will be established at campsite which is able to provide medical facility to the workers. In case of serious injury workers who require special care and medication will be transported to Civil Hospital, Thatta by the ambulance. In case of any extensive medical emergency occurs that involve multiple casualties; emergency response plan will be activated and followed accordingly.

#### 6.4.1. Important considerations:

- A number of first aid kits adequate to the number of residents are available.
- First aid kits should be adequately stocked. Where possible a 24/7 first aid service is to be made available.
- An adequate number of staff/workers are trained to provide first aid.
- Clinic should be well stocked of medical supplies and availability of doctors/paramedics should be ensured 24/7 by the contractor.

### 6.5. Security:

Contractor is responsible to ensure safety and security of the workers their property on the accommodation site. Therefore, a security plan will be required with appropriate measures to protect workers against theft and attacks. Security services will be contracted to recruit staff whose main responsibility is to provide security to safeguard workers and property.

### 6.5.1. Important considerations:

- A security plan including clear measures to protect workers against theft and attack is implemented.
- Clear policies on use of force will be carefully designed and implemented.
- Previous records of appointed security staff will be checked carefully.
- Security staff will have a clear mandate and instruction about their duties and responsibilities, in particular their duties not to harass, intimidate, discipline or discriminate against workers.
- Security staff should possesses adequate training in dealing with domestic violence and the use of force.
- Security staff will adopt appropriate conduct towards workers and communities.
- Workers and members of the surrounding communities have specific means to raise concerns about security arrangement and staff.

## 7. Monitoring of Labour Camps

Labour camps will be inspected on fortnightly basis. The inspection will focus on the following:

- General observations on cleanliness and sanitation
- Drinking water availability with respect to source, cleanliness of storage tanks and quality to be consumed
- Provision of sanitation facilities to water availability in toilets their cleanliness and drainage
- Provision garbage segregation and disposal facilities
- Review of any health & safety incidents as well as grievance register that should be maintained by the security personnel.

## 8. Code of Conduct

Contractor will develop a “Code of Conduct” for the workers engaged in construction and operations phase that will take into account:

- Predominantly rural community in the vicinity
- Occupational health & safety aspects
- Restrictions on activities – Dos and Don’ts and labour camps regulations
- Zero tolerance of illegal activities by construction personnel including
- Unlicensed prostitution
- Illegal sale or purchase of alcohol; sale, purchase or consumption of drugs
- Illegal gambling or fighting which will be shared with all contractors for induction of their employees/supervisors/workers

- Social interactions between migrant labour and the host community will be closely monitored by the project. The community will be consulted at regular intervals and any complaints or concerns with respect to labour should be addressed without delay.
- Routine medical check-ups of workers, health and safety training and sensitization programs to raise awareness about STDs, and HIV amongst the laborers.
- Catalyzing local economy by maximized procurement of goods and supplies catering to the needs of labour camp from local market.

## 9. Supporting Documents

- IFC guidelines on Worker's Accommodation

**ATTACHMENT - B**

# EMERGENCY PREPAREDNESS AND RESPONSE PLAN

# Contents

# Tables



# Figures

# 1. Key Contact List in case of Emergency

## 1.1. Emergency Contacts

| | |
|---|---|
| Ambulance | |
| Fire | |
| Rescue | |
| Jhimpir Police Station | |

## 1.2. Environmental Emergencies

| | |
|---|---|
| Monsoon contingency, Thatta Taluka | 0298-550515 |

## 1.3. Local Hospitals with Emergency Services

| | |
|---|---|
| Civil Hospital, Thatta | 0298-920165<br>0298-620166 |
| Ambulance | |

## 1.4. Municipal and Regulatory Contacts

| | |
|---|---|
| DCO Thatta | 0298-770359 |
| Jhimpir Police Station | |
| Sindh Environmental Protection Agency (SEPA) | |

## 1.5. Utilities

| | |
|---|---|
| Hyderabad Electric Supply Company (HESCO) | |
| National Transmission Dispatch Centre (NTDC) | |

## 1.6. Project Manager

| | |
|---|---|
| Contractor | |

## 2. Scope

The goal of this emergency response plan is to protect the lives and health of all employees of Metro Power Company Limited, contractors, villagers living in close vicinity of the project, all associated personnel and also visitors of the project area. The Emergency Response Plan is an important element of OH&S programs and it is designed with the aim to protect and minimize damage to company property in the event of an emergency.

Emergency response plan helps to discover unrecognized hazardous conditions that would aggravate an emergency situation besides providing guidance during an emergency. The lack of an emergency plan could lead to severe losses such as multiple casualties. Since emergencies can occur, preplanning is necessary. An emergency situation refers to urgent need for rapid decisions and manages time and circumstances in an effective manner. If not managed and in absence of emergency preparedness and response mechanism, shortage of time, absence of trained personnel, and lack of resources can create a chaos and stress resulting in poor judgments and severe losses.

## 3. Objectives

An emergency plan specifies procedures for handling abrupt or unexpected state of affairs. The approach behind establishing emergency response plan is to be prepared to:

- Prevent fatalities and injuries.
- Reduce losses to physical infrastructures; buildings, stock, and equipment.
- Protect the surroundings and the community.
- Accelerate the continuation of normal operations.

In order of highest to lowest priority, objectives of this plan are:

- Evacuation of all employees and visitors from the emergency area;□
- Contact local emergency service organizations;
- Assemble the Emergency Response Team (ERT) for implementation of the response plan;
- Contact pertinent regulatory agencies;
- Conduct search-and-rescue operations, turnoff utilities, control any hazardous chemical spills or releases;
- Prevent further property damage through protective measures or by removing falling debris;
- Perform cleanup and salvage as needed;
- Conduct post-incident critique and evaluation;
- File any applicable reports with regulatory agencies and make a personal record of the emergency for preventing future calamities.

# 4. Classification of Hazards

Broadly for the purpose of convenience, we will classify hazards as technological hazards (may also be referred to as man-made hazards).

## 4.1. Technological hazards

Technological hazards that can likely result in any sort of minor to major emergency in the project area includes:

- Fire
- Explosion
- Spills of flammable liquids (lubricating oils etc.)
- Accidental release of toxic substances

Areas where flammables or explosives are used or stored should be considered as the most likely place for a technological hazard emergency to occur.

## 4.2. Natural hazards

Natural hazards would include:

- Earthquakes.
- Severe storms (e.g., wind storms)
- Severe extremes in temperature (cold or hot).
- Diseases like influenza etc.

Natural hazards, such as floods or severe storms, often provide prior warning. The plan should take advantage of such warnings, for example, removal of sensitive equipment to protected locations, providing alternate sources of power, provision of water, extra equipment, and relocation of personnel with special skills. Phased states of alert allow such measures to be initiated in an orderly manner.

# 5. Specific Tower Siting of GAWPL Wind Power Project

**Table 1: Micro siting of GAWPL Wind Turbines**

| Turbine | Latitude | Longitude | Turbine | Latitude | Longitude |
|---|---|---|---|---|---|
| MP-1 | 25.183482 | 67.928933 | GW-11 | | |
| MP-2 | 25.182119 | 67.932667 | GW -12 | | |
| MP-3 | 25.180865 | 67.936607 | GW -13 | | |
| MP-4 | 25.180892 | 67.940467 | GW -14 | | |
| MP-5 | 25.180924 | 67.944952 | GW -15 | | |
| MP-6 | 25.178469 | 67.944973 | GW -16 | | |
| MP-7 | 25.178521 | 67.952306 | GW -17 | | |
| MP-8 | 25.176056 | 67.952327 | GW -18 | | |
| MP-9 | 25.173752 | 67.947088 | GW -19 | | |
| MP-10 | 25.171805 | 67.953921 | GW -20 | | |

## 5.1. Emergency Assembly Points

The Emergency Assembly Points are the places where site employees will gather during an emergency or after a disaster to take roll call, organize rescue and first aid, and support teams.

### 5.1.1. On-Site Supervisor

Once all individuals present at site at the time of emergency gather at the Assembly Point, on-site supervisor will take a headcount and immediately report to management.

### 5.1.2. Emergency Routes and Equipment

Maps of Assembly Points, emergency exit routes, fire extinguisher points, first aid kits, and eye wash stations should be made available at the site by the contractor.

# 6. Components of Emergency Response Mechanisms

## 6.1. Call for Local Emergency

When calling local emergency dispatcher, remain calm, speak slowly and clearly.

Following information is required to be included in conversation:

- State the facility address or turbine coordinates;
- State the type of emergency (fire, medical, etc.);
- Stay on the phone until the responding agency relieves you, (answer all questions); and
- Advise the dispatcher if you need to evacuate the turbine and temporarily clear the area around the turbine.

## 6.2. Incident Reporting

The first step after an emergency occurs is informing respective agencies to get external help if required. Following departments will be informed relative to the emergency that occurs.

- Fire departments.
- Mobile rescue squads
- Ambulance services
- Police departments
- Telephone companies
- Hospitals
- Utility companies

The provided information will include:

- Company name & contact no.
- Location & time of incident
- Incident type
- Cause of incident (agent involved)
- Provide map and necessary communication equipments, inform about actions done by ERT if exist

## 6.3. Sector Boundaries and Control Points

The emergency is categorized by magnitude, speed of onset, duration and area of extent. Based on these characteristics, the place of incident will be marked into three zones:

### 6.3.1. Hot zone

It is the area where incident has occurred. Depending on incident, it requires all Personal Protective Equipments (PPE) and also breathing apparatus sometimes. Only specialized and trained personnel will be authorized to enter this zone after an emergency occurs. Decontamination would be required upon leaving this zone.

### 6.3.2. Warm zone

It is the zone around the hot zone and it would require condition based PPEs.

### 6.3.3. Cold zone

It is the non-hazardous zone (safe zone) outside the warm zone. All the control points, equipments, backup personnel will be present in this zone. Emergency supplies are also kept within this area.

***Emergency Response Supplies:***

Emergency response supplies include: first aid, CPR/AED kits, fire extinguishers, eye wash stations, tower rescue devises, spill cleanup kits, etc. These kits, or parts of these kits, will be kept in each turbine and in service vehicles. Contractor EHSS officer will be responsible for conducting monthly inspections of these supplies.

The control points will include assembly and reporting area, command and control center and first aid post.

### 6.3.4. Assembly & Reporting Area

It is the area outside the warm zone where all personnel will be required to gather and report in case of an emergency strikes. This zone is ideally out of the footprints of the point of incidence lying in project area. Head count will take place in this area and number of reporting people will be compared with attendance record of that day.

### 6.3.5. Command & Control Centre

A temporary command and control center will be set up at the site of incidence, in the cold zone. Incident command system is activated and incident commander will control the activities till the specialized rescue teams reach the site. Command and control center will also be responsible for sharing of information to all concerned agencies and relatives of affected people.

The incident commander will then be responsible to hand-over the activities to the respective in-charge officer after briefing him about when, where and how the incident took place, cause of incident, work done till then, expected number of casualties, potential hazards and their locations, available resources.

### 6.3.6. First Aid Post

First aid post will be established for providing first aid assistance to the affected people. 2-3 personnel of the contractor should be experienced and trained first aiders. Sufficient quantities of first aid boxes should be present on each site – so that initial treatment may be provided till the ambulance arrives. A separate team of 4-6 persons should be trained

regarding casualty handling procedures. First aid post must be equipped. Ambulances will carry casualties to hospitals from first aid post.

### 6.4. Shutdown Procedures

In case of any emergency, shutdown alarms will be sounded and work will be ultimately stopped. Designated personnel for emergency response will provide further instructions. No worker will be allowed to commence works unless area is declared safe and directed by emergency response teams.

### 6.5. Evacuation Procedures

The EHS officer on the site determines that evacuation is necessary; the evacuation alarm will be sounded, with instructions issued over the public address system. Emergency response team will be responsible for guiding the people and facilitating evacuation procedure.

In the case of severe weather events; such as lightning, storms, earthquakes, etc. employees should exit the turbine construction area, and/or if in a location other than a turbine, move to an interior, windowless room on the main or lower floor as quickly as possible.

If a person is on a turbine and evacuation is not possible, notify the site office, remote trip the main switchgear and take a position in the bottom of the tower. If in a location other than a turbine and time does not allow for a swift movement, cover should be taken away from glass and under protective items such as sturdy desks. Hallways and enclosed stairwells are also acceptable shelter areas.

Once individuals have reached the On-site Emergency Shelter Location(s), they should assume a seated position on the floor with their heads down and their hands over their heads or place themselves under a desk. If they are wearing heavy clothing or have access to heavy clothing, they should use these items to cover their upper bodies and heads. Once the disaster has stabilized, exit from the building and gather at the designated Assembly Point. Do not leave the assembly point unless it is unsafe to stay. Wait for further instruction or “All Clear” (clearance to re-enter)

### 6.6. Fire Fighting & Rescue

Every person working on site should have basic training of firefighting. Fire alarms and smoke detectors must be placed in working areas such as offices. Everyone should know where the fire extinguishers are placed, type of fire extinguisher to be used according to class of fire, and principle of using fire extinguisher.

No employee shall fight a fire that is

- Beyond the incipient stage (able to be put out with a fire extinguisher);
- Enter if the building is on fire to conduct search and rescue; or

- Provide advanced medical care and treatment. These situations must be left to emergency services professionals, who have the necessary training, equipment and experience.

# 7. Emergency Response Mechanisms in Different Scenarios

## 7.1. Site/Turbine Incidents

In the case of a site (injury, environmental) or turbine incident (fire, over-speed, or debris separation), during an emergency, the top priorities are to:

- Ensure human health and safety;
- Preserve the environment;
- Minimize or prevent property and equipment damage; and
- Secure the area/scene, including establishing a temporary clearance area if appropriate.

### 7.1.1. Emergency Management

Emergency management establishes safety practices in response to risks and hazards associated with injury to persons or damage; loss of property. Emergency response team will ensure safe practices while dealing with emergencies. The emergency scene will be preserved to the best ability while rescue takes place.

Prior to the start of this project arrangements should be made with to create, implement, and maintain pre emergency response planning. Workers which are designed as emergency responders must be well-trained and they should be aware about the on-site available facilities.

This emergency response plan coves a number of events that may occur at the Project site by natural causes, equipment failure or by human mistake. The following is a list of potential event:

- Minor Injuries
- Major Injuries
- Project Evacuation
- Trauma/Orthostatic (may be experienced by workers using fall arrest systems)
- Intolerance
- Fire or Explosion

Each work crew will have a trained first aid attendant

***Minor Injuries***

If a minor medical incident occurs (Small cuts, abrasions, etc.) personnel should:

- Perform first aid, as necessary; and

- Consult the accident/injury reporting procedure to report the incident to the Site Supervisor and Health and Safety Manager.

***Major Injuries***

If a medical emergency exists, including the need for hospitalization or emergency services, personnel should call the ambulance and ask designated first aider to provide first aid meanwhile. The Site supervisor/EHS officer of the contractor will take control of the situation.

***Emergency alerts and response***

- A horn/whistle/alarm system will be made available on the site to alert all workers that another worker is in danger.
- For this project, three long blasts (or any appropriate signaling as decided by contractor and communicated to all workers/ staff on site) shall indicate that worker(s) is in danger. There will be an alarm system located at the site office and a vehicle/equipment horn would also be provided.
- Enough workers will be appointed to guide emergency vehicles from the public road to the Assembly Point.
- Unauthorized persons will not be allowed to access areas where there is a risk of potential hazard.
- Once the worker has been removed from danger using emergency equipment available, the worker will be brought to the first aid post from where he could be taken to hospital if needed.
- The accident site will be secured as much as possible without interfering with rescue and safety of other workers.
- The Site Supervisor and Health and Safety Manager must be notified of the accident as soon as possible.
- The Site Supervisor will make all necessary telephone calls and other arrangements as required. If applicable, they will coordinate with the local police and Senior Management who will notify next-of-kin of any worker injured during an emergency.

## 7.2. Turbine Incidents

### 7.2.1. Establishing a Temporary Clearance Area

In case of a wind turbine incident (i.e., fire, runaway etc.) that requires establishing a temporary clearance area, all workers will be required to clear an area with a minimum safe radius from the base of the turbine.

### 7.2.2. Fire

In case of fire in or near a turbine:

- Emergency-stop button is pushed if it is physically safe to do so. It should not delay workers' exit from the turbine, the turbine is disconnected from the main high-voltage circuit breaker if possible.

- Personnel outside the turbine should not approach the turbine to push the emergency-stop button.
- Personnel trapped while working should immediately exit the turbine, fire-fighting equipment is used to ensure a safe escape route from the wind turbine.
- Establish a temporary clearance area and move upwind outside the clearance area, or seek shelter, if appropriate.
- Notify the site office who can contact local emergency responders if assistance is required to extinguish the fire.
- Allow the tower to 'Burn-out'
- If possible wet down the surrounding area to limit the possibility of the fire spreading to surrounding vegetation.

# 8. Other Emergencies

## 8.1. Bomb Threat

Although there is quite less chance of such type of emergency to occur in the GAWPL Project area, but considering the threats, reconnaissance mechanism for such type of emergency is required.

- Keep caller on the line and record call (if allowed by your local laws), if possible
- Notify the site office and evacuate the area
- Call local law enforcement or emergency dispatch, if appropriate.
- Notify the customer, if appropriate.

### 8.2. Disturbance by local Community

- The site supervisor should take in-charge of the situation
- Supervisor should be courteous and do not provoke a person or crowd.
- Notify the site office and evacuate the area, if appropriate.
- Local law enforcement or emergency dispatch are to be called, if appropriate and required.
- Notify the customer.

## 9. Environmental Policy

In case of spill (release of oils/hazardous materials to the environment):

- Stop the spill
- Remove all ignition sources
- Contain the spill
- Notify the site office/site supervisor
- Clear area, if appropriate
- Initiate cleanup procedures

The primary responsibility for secure and environment friendly operations lies with the Contractor who will assist in carrying out periodic environmental audits. He is responsible for ensuring that:

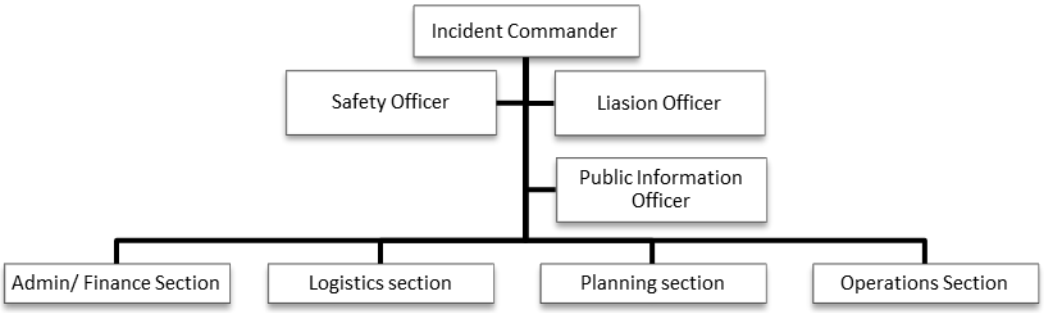
- A high standard of housekeeping is maintained and, where possible, take steps to reduce odor, noise, dust, atmospheric pollution and other impact thereby avoiding complaints and arising out of operations in the work place
- In planning the operations on the jobsite the social and environmental consequences are considered
- The site is kept in a clean and tidy manner and maintaining a high standard of appearance at the site
- All records of environmental monitoring are maintained and available for inspection in accordance with current legislation
- The workforce is regularly informed of the environmental conditions at the site and is trained to operate the equipment with proper regard for the environment and is involved in any proposed changes
- Any complaints regarding work operation are dealt with fairly and promptly; and that details of the investigation and the action taken are recorded and reported back to the complainant
- There is continual improvement in environmental performance

# 10. Responsibilities

## 10.1. Incident command system

Incident command system is established within designated emergency response team members of the staff to facilitate emergency procedures in liaison with other administrative departments. Incident command system will be activated just as the emergency is announced; emergency response officer will take the position of incident commander and control all the procedure until the rescue teams reach at the point of incident.

**Figure 1: Components of Incident Command System**




Incident commander will collaborate with the safety officer, liaison officer to carry on response effectively. To keep people informed, he also collaborates with public information officer. He will not only work in cooperation with administration, logistics, planning and operation section but will also responsible of complete and correct briefing to rescue teams about the incident details and the response works being done.

### 10.1.1. Facility Management

Other duties being done by emergency response officer in peace-time include:

- Evaluate the number and types of hazards expected based on past experience and general knowledge to plan and develop Emergency Response Plan specifics;
- Provide training to all employees for their roles in all emergency plans;
- Conduct drills to practice response to emergency situations;
- Conduct an annual drill to practice confined-space rescue;
- All other activities necessary to the development and implementation of an effective Emergency Response Plan;
- Make emergency response team assignments.

***Maintenance Manager***

- Maintain sufficient inventory of emergency response equipment;
- Ensure maintenance and inspection of emergency response equipment;
- Help train emergency response team members.

### 10.2. Training

Contractor will train all employees on the procedures contained in this plan. New employees will be trained upon hiring, and re-trained any time the employees responsibilities under the plan change or whenever the plan changes.

The contractor will provide copies of all emergency response plans to be kept in employee handbooks and operation manuals, and will post copies on employee bulletin boards.

The contractor also will designate and train a sufficient number of employees to assist in the safe and orderly evacuation of employees and visitors. These employees will be trained and re-trained as needed.

Training will cover:

- Emergency reporting;
- Evacuation routes;
- Alarm systems;
- Specific assigned duties

Periodic drills will be held to ensure that all employees know the appropriate action to take in case of an emergency. The company will provide additional training and frequent drills for employees with specific emergency-response duties; and invite local emergency service units to participate in training whenever possible.

## 11. Risk Mitigation Measures

Various risk mitigation measures (as suggested in 2013 IEE by ERM) for the project site includes:

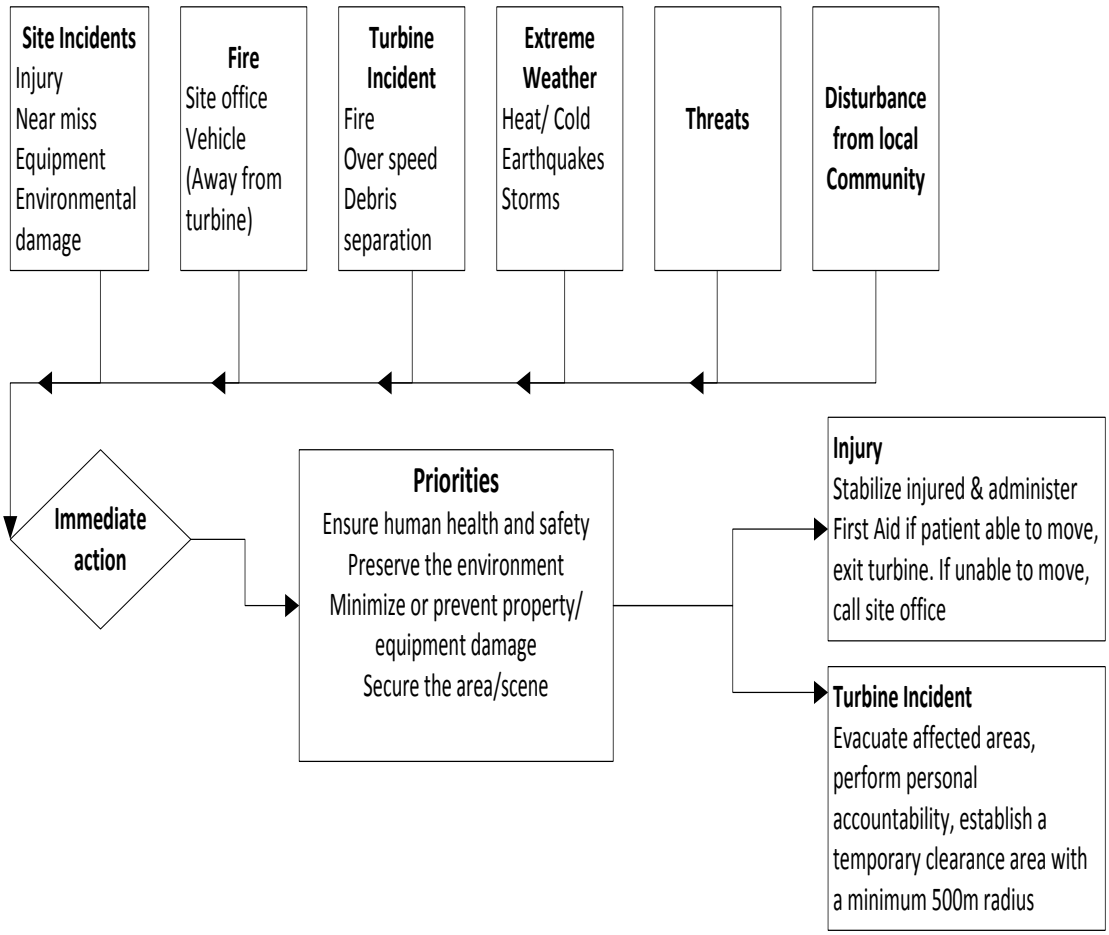
- Detailed risk assessment study shall be carried on finalization of design and operating parameters for various components.
- The Safety Management Systems (SMS) shall be introduced and followed.
- All the personal at GAWPL project site shall be made aware about the hazardous substances stored and risk associated with them.
- Safe work practices shall be developed to provide for the control of hazards during operation and maintenance.
- In the material storage area, hazardous material will be stored based on their compatibility characteristics.
- Near miss and accident reporting system shall be followed and corrective measures shall be taken to avoid/minimize near miss incidents.
- Safety measures shall be displayed at strategic locations.
- Safety audits shall be conducted regularly.
- Electrical earthing pits shall be checked regularly.

- Water sprinkler system shall be provided in flammable gas storage area and it shall be checked regularly.
- Firefighting system shall be tested periodically for proper functioning.
- All hydrants, monitors and valves shall visually inspect each month.
- Smoke and heat detectors shall be provided and these shall be tested and calibrated as per schedule.
- Adequate earthing and bonding shall be provided to tanks and machineries and structures, electrical motors and other facilities.
- Flameproof electrical fitting shall be provided for flammable gas and liquids handling areas, HSD/FO storage areas. Flashback arrestors should be installed.
- All safety devices must be in good condition and functional.
- Every worker should be familiar of basic first aid and firefighting.
- Every one present at the site should know about evacuation paths and the location of first aid box, fire extinguishers, fire blanket etc.
- Semi-Annual drills will be practiced and documented so employees become better prepared for real emergencies and so that any deficiencies in the plan can be identified and corrected.
- During the construction phase of the project, the project area will be monitored by security when work crews are not on site

## 12. Supporting Documents

i. Emergency Response Plan, HAF Wind Energy Project, Vineland Power Inc.
ii. Guidelines for Company Emergency Response Plan, Singapore Civil Defense Force
iii. Preliminary Fire Protection & Emergency Response Plan, Draft Environmental Impact Assessment, Jericho Rise Wind Farm LLC. New York.

**Figure 2: Quick Reference Emergency Response Plan**



**ATTACHMENT - C**

# HEALTH AND SAFETY MANAGEMENT PLAN

# Contents

# Tables



# Figures

# 1. Scope and Objectives

Good safety management depends on risk assessments and controls designed to reduce exposure to danger related to health and safety. Risk control is based on the management maxim. Risk assessment involves predicting, estimating, observing and reviewing. This document delivers a framework to be followed by all contractors for management of health and safety procedures for the GAWPL Wind Power Project. This Health & Safety Management Plan Framework covers:

- Occupational Health & Safety
- Community Health & Safety
- Traffic Safety & Control

The purpose of this document is:

- Provide a comprehensive health & safety management plan for the project
- Identification of potential hazards and risks being faced either by community or workers due to occupational exposure
- Identification of consequences and impacts related to hazards
- Control strategies for hazards, i.e. elimination, substitution, isolation, safeguards (tool or equipment modification, instructing workers in safest ways of doing work, using personal protective equipments)

# 2. Occupational Health & Safety

Occupational health and safety deal with anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers. It takes into account the possible impact on the surrounding communities and the general environment. This occupational health and safety framework defines potential hazards, their consequences and impacts and significant measures and strategies designed to prevent, control, reduce or eliminate occupational hazards and risks.

Contractor will be responsible for obligate implementation of this OH & S plan and ensure all process to be carried out in accordance of this framework. Control measures for the potential hazards should be adopted promptly and all staff employed both during construction and operation stage should be well-trained in context of potential hazards, their nature and specific control strategies for them.

Occupational health and safety management plan would address all types of potential hazards that can be encountered either during construction or operation phase. They will include biological, chemical, physical, ergonomic hazards.

## 2.1. Hazard Identification and Vulnerability Assessment

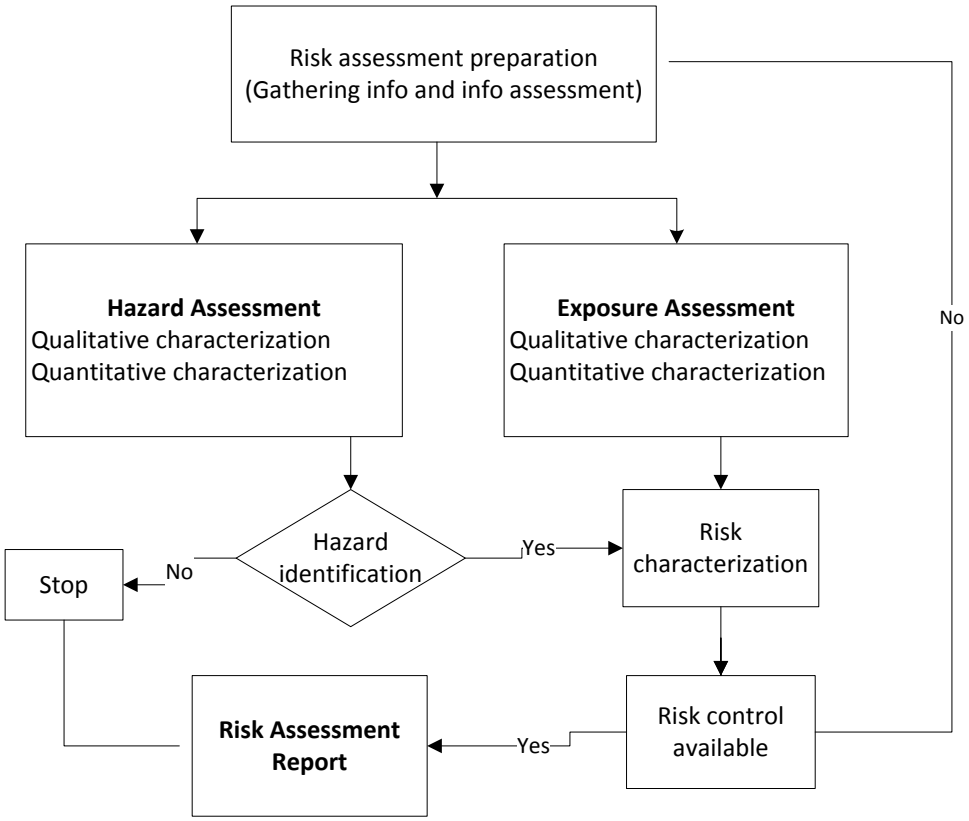
Hazard identification and assessment of vulnerability caused by the hazard are very crucial for developing a health and safety management plan. They can help in identifying possible

hazard sources and the impacts caused as a consequence of their occurrence at the wind farm and associated area because;

**Impact= hazard x vulnerability**

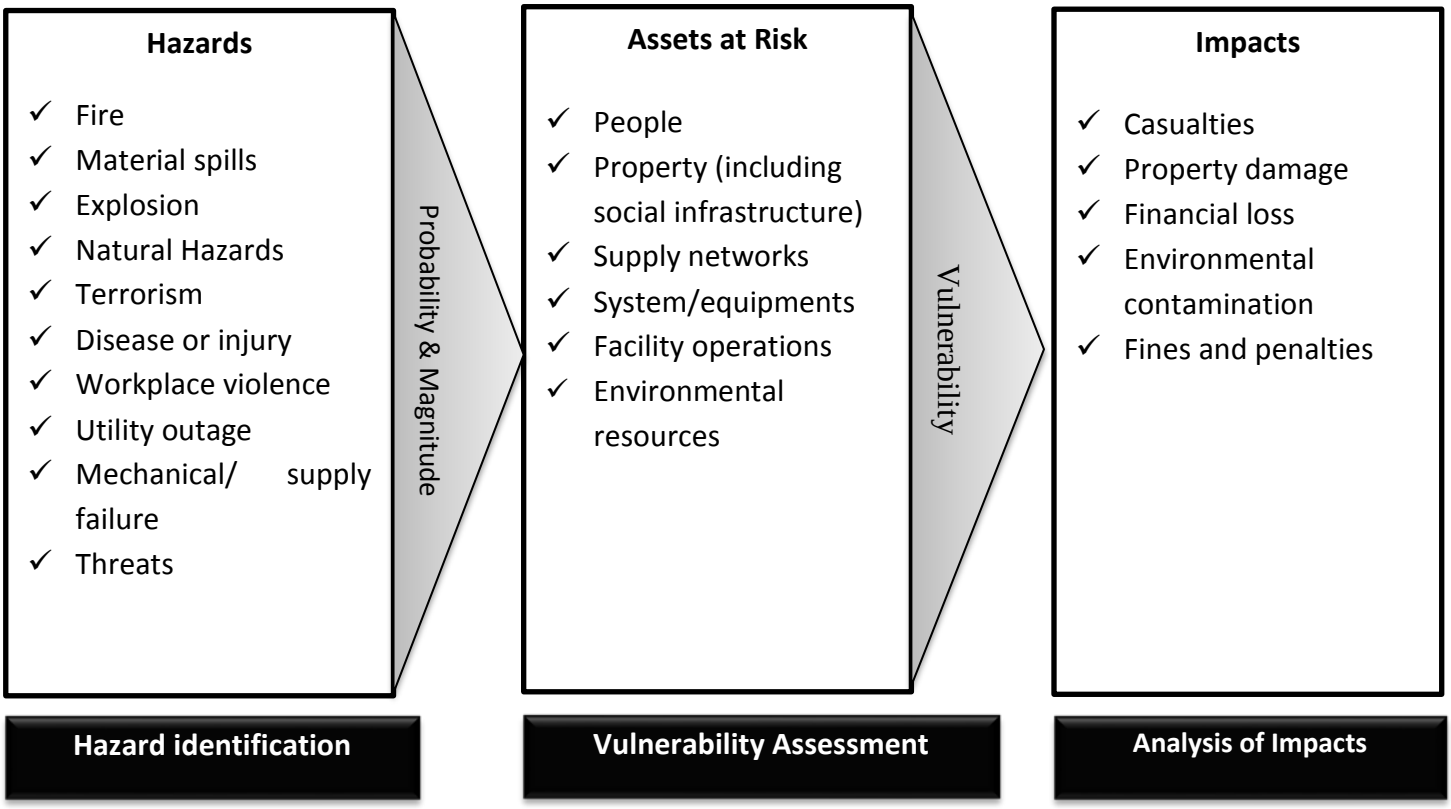
Risk assessment involves qualitative and quantitative characterization of both hazards and exposure and their characteristic impact on health and environment is assessed. The risks from exposure are characterized and analyzed for suitable control measures. Same procedure is followed if hazards are recognized. The whole mechanism is presented in form of report.

**Figure 1: Risk Assessment Procedure**




Risk analysis is overall term for risk science and includes four components risk assessment (evaluation), communication, perception and its management (characterization). Basically analysis of hazard and vulnerability and risk assessment are procedures for identifying hazards, risks and their potential impacts on community, agencies, organizations and services. This information is essential for sustainable development, emergency preparedness and response as well as for recovery. Proper management of risk leads to the benefits towards the community in terms of reduction to hazard, vulnerability and increased resilience, hence hazard identification can ultimately lead to analysis of impacts in the wind farm.

**Figure 2: Identification of Main Hazards on a Wind Farm, their Vulnerability Assessment and Analysis of Impacts**




These hazards can be classified into chemical, physical, biological, ergonomical and psychological hazards. Following are the main hazards of project site with their severity assessment and sources of exposure to the hazard.

### 2.1.1. Chemical Hazards

All places where chemical hazards are likely to occur i.e., proper marking of places where products, oil, greases, glues, cleaners, detergents, etc., are placed which can cause ill health if their potentially harmful properties are ignored and excessive exposures occur.

***Identified Hazards:***

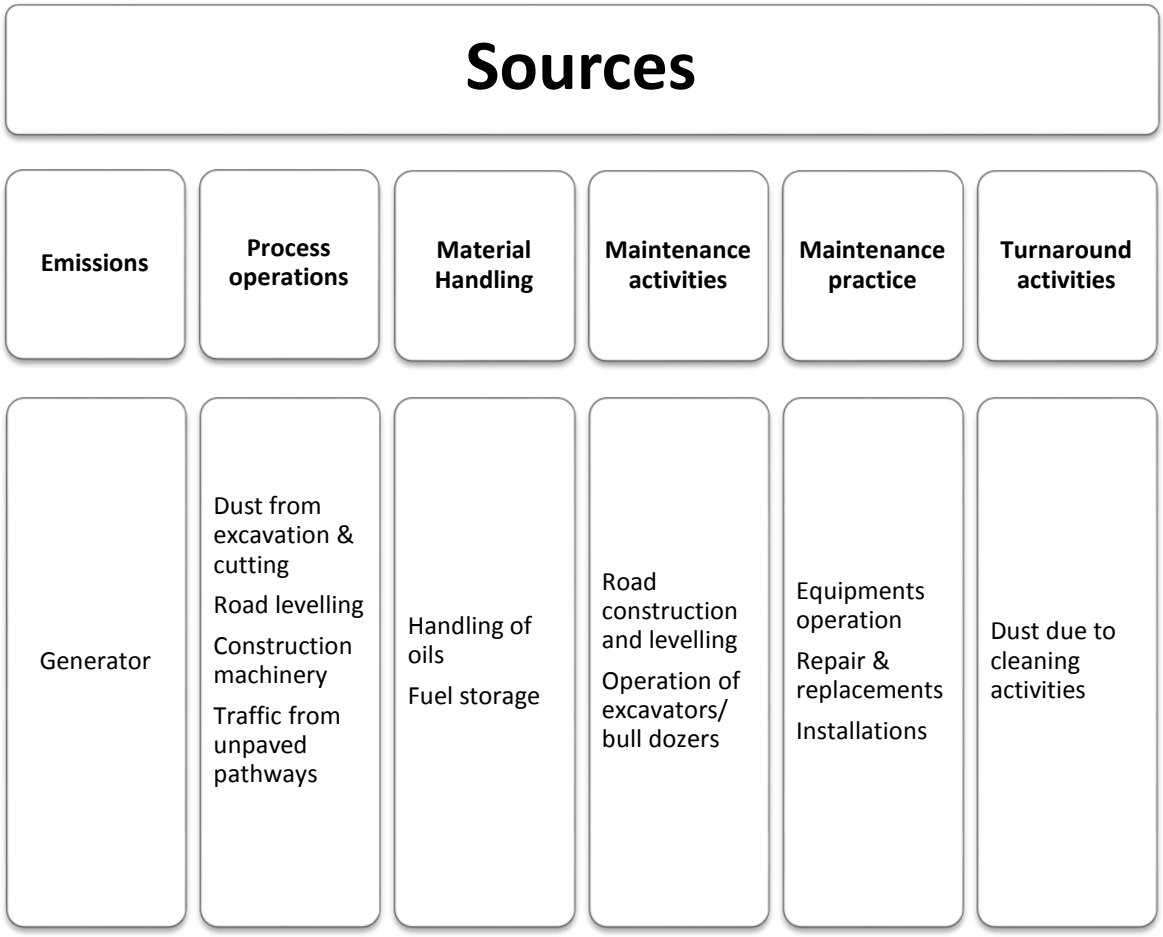
All hazardous chemicals involved in the construction, including building material, proprietary chemical products, fumes, dusts and gases emitted as a result of cutting and welding and sanding/grinding.

***Severity Assessment:***

Severity of chemical hazards can be made on following guidelines:

- By using material safety data sheets MSDS
- National or international regulations
- Occupational health exposure standards
- Labeling information
- Potential route of entry to the body
- Additional information such as odor threshold

**Figure 3: Sources of Exposure for Chemical Hazards**




### 2.1.2. Physical Hazards

These arise from the transfer of energy to the employee from the source. Physical hazards include noise, heat & cold, pressure, ionizing radiation, non-ionizing radiation and vibrations.

***Identified Hazards:***

Identified physical hazards for project area includes noise, vibration and climatic stress.

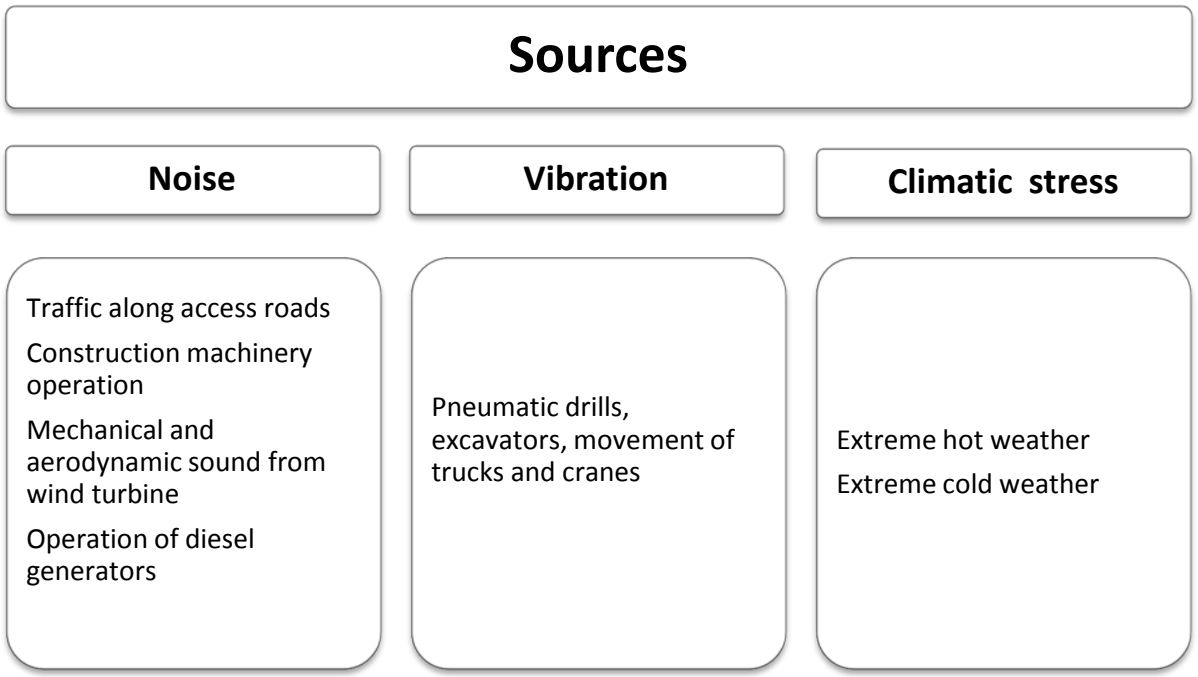
***Severity Assessment***

Severity of physical hazards can be made on basis of following criteria:

- **Class A**= Irreversible (but not fatal) health impact (Due to noise, vibration like hearing impairment or loss)
- **Class B**= Potential lethal or disabling injury/ illness (Due to climatic stress like heat wave in hot weather)

The physical hazards may be ranked to the severity of the ill health effect caused.

**Figure 4: Sources of Exposure for Physical Hazards**



### 2.1.3. Biological hazards

These are the other life forms that may affect our health. Most of the identified bio-hazardous agents belong to the following groups;

- Microorganism and their toxins (viruses, bacteria, fungi, and their products): Infections, or allergic reactions.
- Arthropods (insects, parasites, etc.): Bites or stings resulting in skin inflammation, systemic intoxications, transmission of infectious agents or allergic reactions.
- Allergens and toxins from some plants and animals: Dermatitis from skin contact or asthma as a result of inhalation.

***Identified hazards:***

Biological hazards can exist at site where life forms can exist either naturally, as part of the process or inadvertently. Biological hazards can be found in sewage drains from construction camps, contaminated food supplies, excavation sites, inadequate storage practices, contaminated water and improper domestic water storage, poor hygiene and sanitation. A High risk of Malaria and Legionnaires' disease is present.

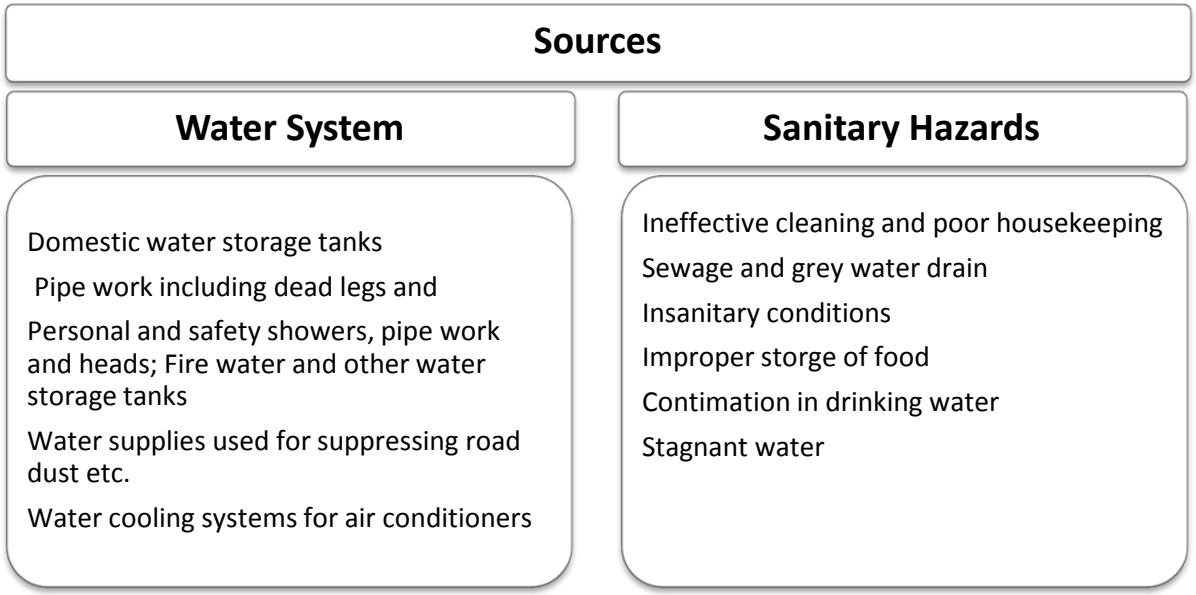
***Severity Assessment:***

Severity assessment of biological hazards can be done on basis of following four groups

**Table 1: Severity Assessment for Biological Hazards**

| | Likeliness to cause human disease | Hazard to workers | Likeliness to spread in community | Availability of effective treatment | Example |
|---|---|---|---|---|---|
| Group 1 | No | No | No | Not applicable | *Lactobacillus sp.* |
| Group 2 | Yes | Yes | No | Yes | *Streptococcus sp.* |
| Group 3 | Yes | Yes, high risk | Yes, high risk | Yes | *Mycobacterium sp.* |
| Group 4 | Yes | Yes, high risk | Yes, high risk | No | *HIV* |

**Figure 5: Sources of Exposure for Biological Hazards**




### 2.1.4. Ergonomic hazards

Ergonomic hazards are the result of human activity on the body which may be physical exertion, manual handling, repetitive movements, and static postures or physiological such as shift work and stress.

***Identified Hazards***

Some of the areas which can cause ill health due to ergonomics include:

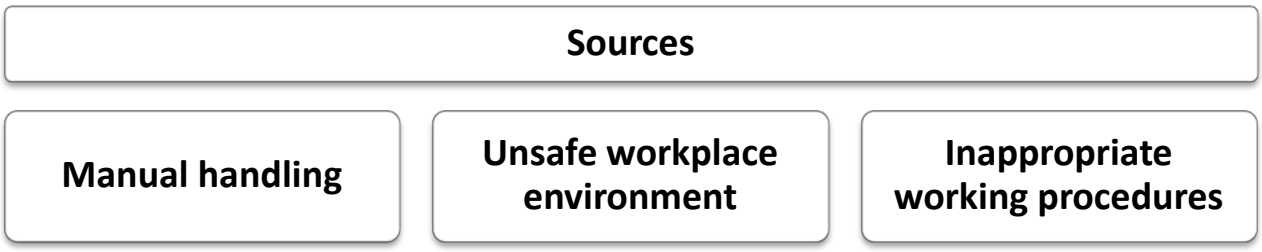
- Perform job activities with many repetitions or in a static posture
- Work in activities with pressure on tissues, nerves or blood levels.
- Where there is an exposure to vibration
- Exposure to extreme heat or cold
- Prolonged working at height

***Severity Assessment:***

Severity assessment for ergonomic hazard can be done by dividing impacts into two classes.

- **Class A**: Reversible health impact with temporary impairment (Impact due to lifting in improper way or for long duration, repetition of postures, working on tools that require force, vibration)
- **Class B:** Irreversible (but not fatal) health impact (Due to application of muscular force for long duration, pulling/pushing activities and lifting heavy tools, twisting action, fixed or constrained postures)

**Figure 6: Source of Exposure for Ergonomic Hazards**




### 2.1.5. Organizational Hazards

Organizational hazards are the hazards or stressors that cause stress (short-term effects) or strain (long term effects) in working environment. They are generally associated with workplace issues like workload, lack of control and/or respect etc.

At the project site potential hazards of this class can include excessive workload, workplace violence, intensity and/or pace of work, absence of social support, harassment etc.

Contractor needs to assure that all the relevant and appropriate good working practices will be followed. Regular long working hours and shift work can promote fatigue which can lead to reduced mental function and vigilance. As a result there will be an increased likelihood of accidents and ill health. Most construction activities carry a safety risk and this shall not be aggravated by serious fatigue because of excessive overtime. In order to get maximum efficiency with optimized human efforts work cycles should be in accordance with local legislations.

## 2.2. Control Strategies

These are the documented procedures established to control intolerable risks (include routine activities and maintenance). The hierarchy for using control procedures is as follows:

- Elimination, Substitution & Reduction through Design & Process Change
- Engineering Controls
- Administrative (procedural) Control
- Personal Protective Equipment

Control strategies for each type of hazard are discussed in this section.

### 2.2.1. Control Mechanisms for Chemical Hazards

- Control fugitive dust generation by restricting the vehicle speed to 15km/hr. or less on unpaved roads.
- Labeling of area where chemically hazardous substances are kept (use of Material Safety Data Sheet (MSDS) where necessary)
- Training of workers and awaring them about the use of materials
- Supervisor will ensure use of PPEs by all workers to avoid contact with any hazardous substance,

- Mitigation measures will be adopted to reduce spreading of dust.

### 2.2.2. Control Mechanisms for Physical Hazards

- Use of ear plugs/ear muffs to avoid adverse impacts of noise
- Avoid prolonged exposure to noise
- Stop work if climatic condition exceeds bearable limits (i.e., extreme summers or winters)
- Contractor EHS and site manager should ensure that no tower installation or maintenance work will be commenced during poor weather conditions and especially where there is a risk of lightning strikes.

### 2.2.3. Control Mechanisms for Biological hazards

- Ensure safe and hygienic conditions
- Pre-placement medical examination of workers should be conducted by contractor to assure their medical fitness
- Pest control service should be provided at worksite and workers' camps by the contractor. The contractor will be responsible to employ a specialist sub contactor for this purpose.
- Be aware of areas where risks of biological hazards like arthropod-borne-vectors are present.
- Proper disinfection of objects and sterilization if possible to avoid danger of microorganisms
- Training and awareness of employees to make them conscious of biological hazards
- Certain activities should be conducted for employees and local people to reduce risk of illness; like hand-washing, knowledge about communicable diseases, skin diseases and common health problems.

### 2.2.4. Control Mechanisms for Ergonomic Hazards

- Ensure safe working conditions with proper posture
- Avoid working with improper equipments and unsafe working conditions
- Minimum fitness standard for workers should be made and supervisor should observe its compliance by all workers.
- There may be a requirement to monitor and report specific illnesses, if required by the specific health management plan.
- Testing the structures for integrity prior to undertaking work at height.
- Implementation of a fall protection program
- Ensure all the personnel involved in working at the heights are trained on working at height
- Installation of fixtures on tower components to facilitate the use of fall protection systems
- All the laborers working at height shall be provided with an adequate work-positioning system
- When operating power tools at height, workers should use a second (backup) safety strap

- Signs and other obstructions should be removed from poles or structures prior to undertaking work
- An approved tool bag should be used for raising or lowering tools or materials to workers on elevated structures

### 2.2.5. Control Mechanisms for Organizational Hazards

- Contractor shall follow local legislation and ILO/UN recommendations on maximum working hours of the employees and assess all the risks associated with the extended working hours and shift cycles.
- Health monitoring systems will be in place. A medical file shall be kept for each employee including details of the pre-employment fitness to work assessment, details of any subsequent first aid treatments or clinic visits, and details of any medical surveillance that may be undertaken.
- Occupational illness and first aid treatment cases and frequency will be monitored.
- Number of individuals' undergoing medical surveillance
- Number of health audits
- Access to suitably equipped and staffed hospitals will be provided to employees.
- All employees will be trained regarding first aid and should know the emergency response procedures.
- Contractor will arrange for regular drills to practice and learn from the various emergency scenarios.

# 3. Community Health & Safety

Assurance of health and safety of community is also one of the major responsibilities of contractor. This section addresses major hazards and control measures to reduce its impacts on the community. Possible sources of impacts to community health and safety during the construction phase are:

- Changes in environmental quality due to construction activities;
- Increased prevalence of disease
- Heavy traffic movement

## 3.1. Change in Environmental Quality

### 3.1.1. Identified Hazards

- Increased pollution levels from emissions to air
- Contamination of surface water or ground water
- High noise levels during the construction phases
- Increase in dust and noise during the construction period can lead to health impacts associated with eye irritation
- General disturbance to daily activities
- Contamination of surface water and groundwater due to the discharge of domestic waste effluent from sanitary facilities for construction workers

### 3.1.2. Control Strategies

- Cordoning off the construction site from free public access to avoid exposure of local community to H&S risks
- Follow the mitigation measures suggested for transporting equipments and materials
- Do not leave heavy equipments, vehicles and other such hazardous machinery unattended allowing free access to public.
- Post information boards about public safety hazards in the work area (in the local language) and emergency contact information.
- Follow relevant safety regulations for all practices
- Record all incidents and accidents involving community stakeholders

## 3.2. Increased Prevalence of Disease

### 3.2.1. Identified hazards

- Impacts to public health of the community due to the influx of workers
- Increase in prevalence of diseases and pressures on existing health infrastructure

- Possibility of increase in sexually transmitted diseases such as HIV/AIDS
- Sensitivity regarding vector-borne diseases for settlements closer to campsites for the construction phase labour, particularly due to lack of hygienic conditions

### 3.2.2. Control Strategies

- Contractor will keep track record of outside labour and assure about their good health by pre-placement medical examination
- Labour will be housed in camps, with good living conditions and access to amenities. Outside labour living in the local community will be discouraged
- Health and safety training of the labour, raising awareness about STDs, and HIV, and maintaining behavior standards while moving in the community will be a priority
- Water-logging or collection of water in and around the project site will be prevented to avoid malaria and other diseases.

Risk to community health & safety due to heavy traffic movement is dealt in next section, i.e., traffic and road safety management.

# 4. Traffic and Road Safety Management

This section of health and safety management provides the framework for traffic and road safety and it will cover the following aspects.

- Management of access and approach roads
- Training of vehicle operators
- Vehicle management and maintenance

## 4.1. Management of Access and Approach Roads

### 4.1.1. Access Road Description

The GAWPL project site can be assessed from the Karachi - Hyderabad Super Highway M-9 at 55 km to Hyderabad. The plan is to construct the access roads to the site from M9 Super Highway and it will be 12 km in length and 6m in width. Internal access road will also be constructed for carrying WTG equipments in the construction phase. The movement will however reduce in operation phase.

### 4.1.2. Measures for Access Roads Management

- Integrity testing of access roads management to ensure that proposed roads can bear the load of trucks, specialized trailers and heavy vehicles.
- Monitoring of traffic loads throughout the day to minimize chances of road accidents.
- Compliance of vehicle speed limits with width, height, load of the vehicle
- Monitoring of access roads will be done and contractor will ensure their good condition.
- Appropriate measures need to be put in place to keep access roads free from mud, dust and debris.

## 4.2. Training of Vehicle Operators

Training of vehicle operators by contractors is mandatory requirement with respect to health and safety of community, workers as well as vehicle operators. Unauthorized passengers in project related vehicles will be strictly prohibited. GAWPL will monitor that all its contractors in the construction and operations phase are consistently trained specifically on health and safety requirements. Specific trainings and evaluation will be conducted to examine vehicle operator's qualifications, skills etc.

Project-specific rules, safety limits, protocols and documentation to be maintained by the operator hence, he should have adequate knowledge, briefing and training about these aspects.

The operator evaluation will include the following:

- Good physical and mental health
- Awareness of traffic impacts and mitigation measures

- National and local legal requirements for driving/vehicle operations
- Adequate knowledge of safe driving practices.
- Awareness to operating procedure of vehicle and its specification.

## 4.3. Vehicle Management and Maintenance

In order to ensure minimal impacts due to traffic on community and the workers, contractor will ensure to fulfill all regulatory requirements in respect of vehicle maintenance, noise and emission standards:

### 4.3.1. Daily Record Register for Vehicle

Daily record register for each vehicle should be developed. It would include vehicle registration number, specification and operating procedures at the start. Daily record maintained will include date and time of operation, condition of vehicle at start of operation, route and purpose of travel, fuel use, time of closure of work, condition of vehicle at end of operation, accident occurred (if any) and its details. Contractor will be responsible for ensuring that all the entries are up to date and accurate.

### 4.3.2. Database Maintenance:

Maintenance of an up to date database of all vehicles and construction equipment, the database will include details about all the vehicles being used at project site, their registration details and specifications, periodical maintenance schedule, vehicular emission testing record, noise testing record etc.

### 4.3.3. Specific measures:

- Transportation routes to be selected so as to minimize nuisance to local residents from noise and emissions
- Avoidance of passage through and near settlements during night time hours
- Maintenance of vehicles to reduce nuisance as result of emission or noise
- Observed and reported oil and fuel leaks should be addressed within 24 hours. Each Contractor personnel will report to vehicle maintenance team and the driver concerned about any oil and fuel spillage and leakage for immediate rectification.
- All heavy vehicles like JCE, cranes, battery operated trolleys etc. to be provided with reversing siren
- Contractor should ensure a laydown area within their site to avoid parking on any community roads.

## 4.4. Recommended Measures to ensure Community Health and Safety

Traffic safety in the local communities will be a matter of high priority for GAWPL and their contractors. Following recommended measures must be followed by contractors during construction and operation phase of the wind power project in relevance to the activities being carried out in that stage:

- Contractors will ensure communities are advised in advance of project progress and near term activities where transport issues have the potential to impact local communities. Special attention will be given
- All possible care should be taken to reduce accident rates and minimize the overall transport fuel consumption is minimized
- Record all the incidents and accidents which involve construction vehicles, equipments and transport vehicles
- Plan traffic movement through: dense semi-urban areas; narrow roads; near sensitive receptors and congested market stretches during off-peak hours in consultation with local community.
- Vehicles should have light reflective strips pasted along the edges and corners of the vehicle
- Flash lights should be present on all WTGs and important areas to prevent any kind of accident especially in night. Red reflectors with beacon lights should be present on vehicle and switched on during night if vehicle is parked in an open area or road side.
- Ground staff will guide the drivers for safe negotiation while driving along horizontal and vertical curves in the plain and hill road segments.
- Worn out, loosened or corroded/broken parts should be rectified before moving the vehicles.
- Areas of heavy traffic during construction areas should be marked and cordoned off to reduce any accident being faced by local community.
- Where there is the potential for cumulative impacts from congestion and related impacts from construction traffic to settlements near or en route to the project component locations, transport movement will be carefully considered in order to minimize disturbance impacts.

## 5. Supporting Documents

i. Occupational Safety & Health Standards (as amended, 1989), Department of Labour and Employment, Philippines
ii. NIOSH/ OSHA/ USCG/ EPA Occupational Safety and Health Guidelines Manual for Hazardous Waste site Activities