

Photovoltaic Power Station Construction project in Riyadh, Saudi Arabia



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Third semester

AH - 2021 AD ١٤٤٢

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1. Strategy

1.1 Mission and vision

In order to develop the mission and vision of the project it is important to understand to the mission and vision of the hypothetical company (or the project owner). This is followed by development of project mission vision and mission should be aligned to the mission and vision of the company. Therefore, vision and mission of the hypothetical company are as stated below.

1.1.2 Vision and mission of the company (hypothetical project owner)

Mission

The mission of the company is to supply to affordable high quality clean electrical power to our customers.

Vision

To be a world class company providing affordable renewable energy in the whole Saudi Arabia so as to make a major contribution towards reduction of greenhouse gas emissions into the environment. This will ensure that our customers, our communities, and the at nation at large is provided with clean, abundant, low-cost, distributed, and renewable energy.

1.1.3 Mission and vision of the Photovoltaic Power Station Construction project

The mission and vision of the proposed project of construction of a photovoltaic power station are therefore, stated as follows. These mission and vision align to the mission and vision and of the company.

Mission

To ensure that every project tasks and sub tasks are completed within the stipulated budget, schedule and the required quality. This will ensure that project overruns such as cost and time overruns are prevented.

Vision

To deliver a high-quality 20 MW photovoltaic power station in Riyadh which will be able to provide the customers with high quality affordable renewable source of energy.

1.2 Project Objectives

- i. To complete project tasks on time (within the scheduled duration), to quality and within the budget.
- ii. To identify project activities that fall within the critical path during the project planning stage.
- iii. To ensure that all the tasks that fall within the critical path are completed on time, within the budget and to required quality. Any disruption to such activities may have significant effect on the entire project.
- iv. To have a full project team assembled within the first two weeks of the project planning. Such a team will entail engineers, architects, technicians, financial officers, and others.
- v. To ensure that qualified and experienced suppliers are identified and selected within the first week of planning.
- vi. To ensure that project materials are delivered only when they are needed without any delay, and in such a manner that there will be no delay whatsoever.

1.3 Performance measurement indicators

In order to ensure that the project remains track, the following will be the project performance indicators.

- i. **Project task completion:** Completion of project tasks within the scheduled period, budget and to the required quality. Successful project task will be one that meets these criteria. In case, any of one of these criteria is not meet by a project task, then the project task will be considered not successful. As such, appropriate corrective measures will be undertaken to ensure that downstream project activities are not affected.
- ii. **Project milestone:** A number of milestones will be developed, and these milestones will be geared towards completion of the project. Achieving a project milestone will indicate that the project on tract in times of time management. Failure to achieve a milestone indicates the existence of a problem which must identified and rectified before it is late.

1.4 Project charter model

Construction of Photovoltaic Power Station in Riyadh, Saudi Arabia-Project Charter

Project Manager Name: YYYYYYY

Late revision data: 12/10/2021

Project purpose statement: The purpose of this project is to construct a 20 MW on behalf of the Saudi Arabia's Ministry of Energy to supply renewable source of power for the residents of Riyadh, Saudi Arabia.

Project Scope

Deliverables:

- i. Land preparation and site preparation.
- ii. Procurement and installation of an array of solar panels, power storage and related equipment capable of generating 20MW of electrical power for the residents of Riyadh, Saudi Arabia.
- iii. Testing of the installed power plant to ensure that it performs as it should.

Out of Scope

- i. Procurement and installation of transmission lines and associated equipment capable of transmitting 20 MW from the power plant to the national grid for onward transmission to the clients.
- ii. Maintenance of the installed power plant.

Resources: To be confirmed later.

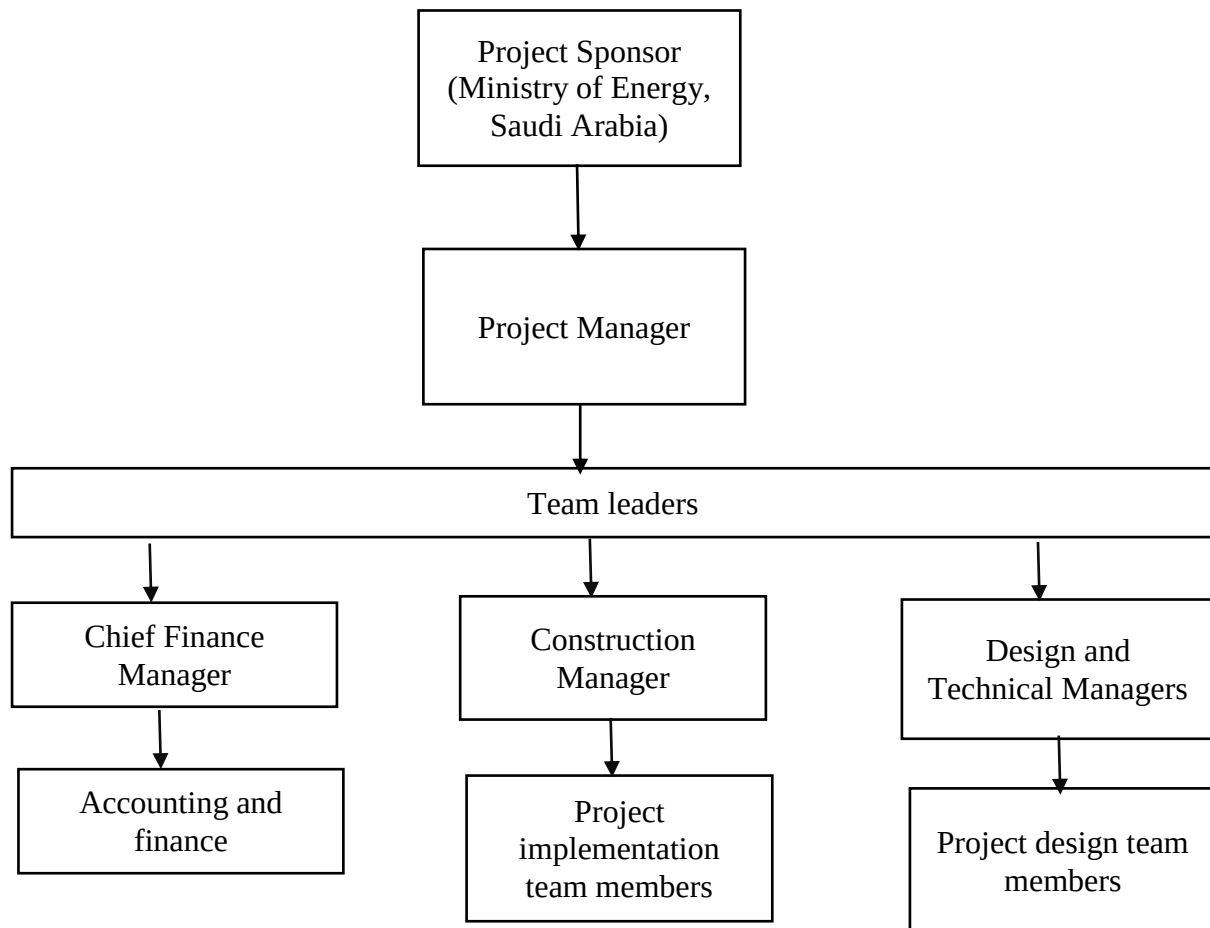
Stakeholders:

- i. **Project sponsor:** Ministry of Energy, Saudi Arabia.
- ii. **Client:** Residents of Riyadh, Saudi Arabia.
- iii. **Ministry of Environment:** Interested party
- iv. **Landowners:** Those whose land will be acquired for the construction of the power plant and associated facilities.

(Hermarij, 2013)

2. Governance, structure and process

2.1 Organizational structure for the teams and units of the project



2.2 Practical and scientific base for developing the organization structure

This organization is made based decentralised organisation structure where decisions regarding can be made at by various team leaders. This involves departmentation of the project activities into specialised groups, and each group will responsible for what they qualified.

2.3 The selected projects office model

The selected project management office model is **Directive PMO** (Directive project management office model). This was selected because it gives powers and authority to a

knowledgeable and experienced project manager to take full control of the project. This ensures that great deal of professionalism is injected into the project. It also ensures that high level of consistency is maintained throughout the project.

3. Compliance and regulation

3.1 Check compliance model

Project activities will be checked for compliance in accordance with the following criteria

- i. Quality with respect to sponsor and client's specification.
- ii. Health and safety regulation.
- iii. Environmental risk
- iv. Social responsibility
- v. Process risk
- vi. Security and privacy
- vii. Anti-corruption

3.2 Check List model for the three stages of the project

Planning

Project planning Check list			
S/No.	Task	Date	Status
1.	Detailed design		Open
2.	WBS prepared		Open
3.	Budgeting		Open
4.	Securing of project finance		Open
4.	Project kick-off meeting		Open
5.	Procurement and contracting		Open

6.	Securing of land and necessary approvals		Open
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Project Execution

Project implementation Check list			
S/No.	Task	Date	Status
1.	Site preparation		Open
2.	Equipment mobilization		Open
3.	Delivery of raw materials		Open
4.	Foundation works		Open
5.	Installation of solar power plant and associated facilities		Open
6.	Testing		Open

Project Closure

Project closure Check list			
S/No.	Task	Date	Status
1.	Testing		Open
2.	Site cleaning		Open
3.	Disposal of waste		Open
4.	Handover		Open

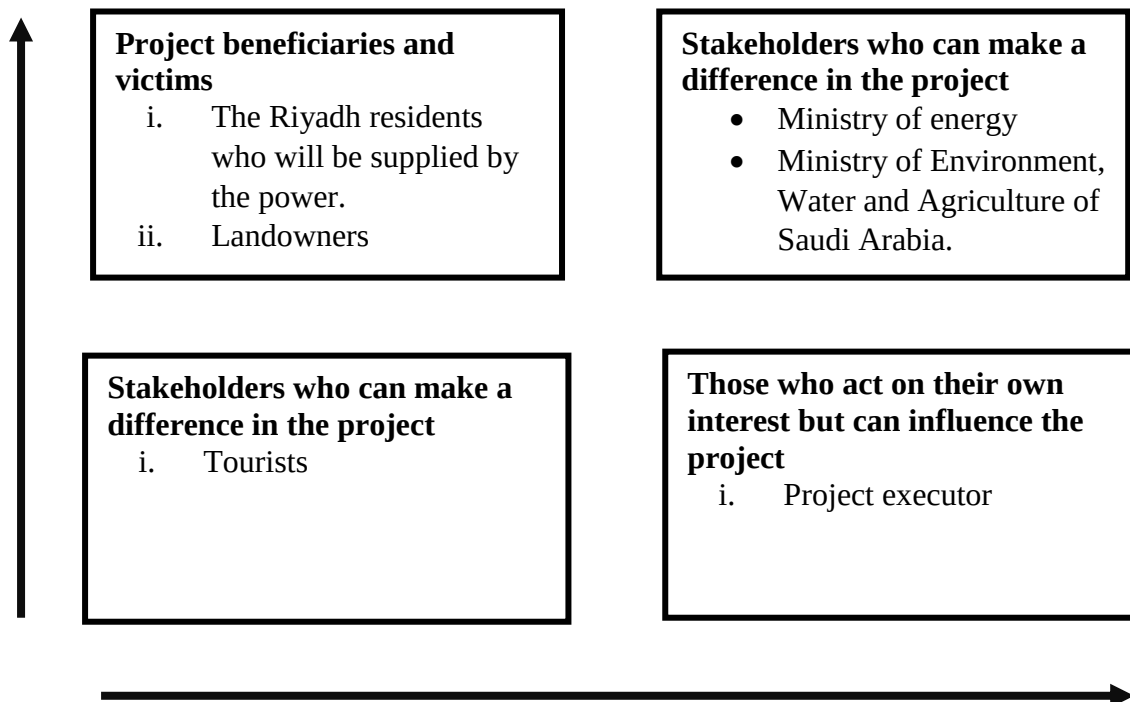
4. Power and interest

4.1 Stakeholder register and group

Stakeholder Register						
Project Name: Construction of photovoltaic power station in Riyadh, Saudi Arabia						
Project Date:						
Stakeholder Name	Type of stakeholder	Role	Impact	Interest and influence	Addresses	Remarks
Those who can influence the project (very important and have high influence)						
Ministry of Energy, Saudi Arabia	Project client	Project sponsor	Positive	High interest and high influence	Riyadh, Saudi Arabia	Very important stakeholder
Ministry of Environment, Water and Agriculture of Saudi Arabia	Environment protector	Ensures environmental protection during project implementation	Positive and negative	High interest, and high interest	Riyadh, Saudi Arabia	Very important stakeholder
Those are irresponsible and act on their interest						
Fantom Construction Company	Project contractor	Undertakes the project	Positive	High interest and high	Riyadh, Saudi Arabia	Very important stakeholder

				influenc e		r
Victims and beneficiaries						
Land owners		Need to be compensated	Negativ e	High interest, low influenc e	Riyadh, Saudi Arabia	Very important stakeholde r
Residents of Riyadh Saudi Arabia	Project clients	Consumers of the electricity	Positive	High interest, low influenc e	Riyadh, Saudi Arabia	Very important stakeholde r

4.2 Logical diagrams



5. Organization culture and values

5.1 Organization culture

Hard work and employees' satisfaction. This where the focus will be given to employees (team project team members) as they are ones ensuring that the projects are delivered on time, within budget and to the required quality. A satisfied employee is happy and works towards attaining his or her organizational goals. This includes well remuneration of the employees, offering holidays and gifts for job well done, among others aspects of employee appreciation.

5.2 Values that can be adopted

- i. **Quality:** This ensures that the organization is committed to delivering high quality services. This enhances the satisfaction of the project clients and owners.
- ii. **Honesty and Transparency:** This ensures that problems are not hidden but revealed which helps in identification of solutions problems to projects the company has faced in undertaking projects and how to avoid recurrence of such problems in future projects. This improves the success rate of projects being undertaken by the company.
- iii. **Continuous improvement:** This cultivates the culture of hard work on the employees and wanting to always improve from the current situation. This ensures that next projects are performed better than previous projects. This in the end ensures that quality is always improved, and project completion rate is increased significantly.

6. Self-reflection and self- management

6.1 Personal behaviours that can affect project

- i. **Lack of communication skills:** An individual who lacks communication skills can be a problem. One of the major success factors for projects is communication. Therefore, an individual who is not open and does not communicate about problems they face

when conducting their tasks may help the organisation achieve its objectives as problems cannot be easily identified and corrected on time.

- ii. Self-centeredness: An individual that does not embrace team work is threat to completion of the project activities according to scope, schedule, budget and quality. Embracing team work is often important, and the team members need to work together towards achieving a common goal.
- iii. Being jack of all trades: This is not good as it compromises of quality. One is good at everything, and no one can be good at everything. An individual that believes to know everything is always associated with low quality deliverables. Specialization is the key to producing high quality projects within the stipulated period of time. Therefore, individuals qualified and experienced in their fields should be involved project activities associated with their fields.

6.2 Self (personal) SWOT Assessment

- i. Strengths
 - a. Team work
 - b. Good communication skills.
 - c. Knowledgeable in project management areas
 - d. Socialization
- ii. Weakness
 - a. Short tempered.
- iii. Opportunities
 - a. Ready to expand communication by learning other languages
 - b. Ready to know more about project management.
- iv. Threat
 - a. Economic meltdown which may reduce the number of projects

- b. Technology. Evolution of technology may render some of us jobless.

7. Personal integrity and reliability

7.1 Behaviours that contradict moral integrity

- i. **Dishonesty:** Not being honest, not keeping promises kills trust amongst those involved. Lack of trust results into non-commitment of project team members to project activities. Consequently, low quality product may be produced, or team may not be committed to project schedule and budget.
- ii. **Disrespect:** Mutual respect amongst the team members is extremely important in completion of project activities as it enhances mutual relationship and understanding amongst the members of the team. Lack of respect causes quarrels, disagreements and chaos amongst team members, and affecting the chance of completing the project according to scope, on time, within budget and to the required quality.
- iii. **Unfair treatment of people and team members:** Unfair treatment of project team members kills their morale and ability to deliver the tasks assigned to them. This consequently influences the delivery of the project.

8. Personal communication

8.1 Register of stakeholders

Stakeholder Register						
Project Name: Construction of photovoltaic power station in Riyadh, Saudi Arabia						
Project Date:						
Stakeholder Name	Type of stakeholder	Role	Impact	Interest or /influence	Addresses	Remarks
Ministry of Energy, Saudi Arabia	Project client	Project sponsor	Positive	High interest	Riyadh, Saudi Arabia	Very important stakeholder
Fantom Construction Company	Project contractor	Undertakes the project	Positive	High interest	Riyadh, Saudi Arabia	Very important stakeholder
Ministry of Environment, Water and Agriculture of Saudi Arabia	Environment protector	Ensures environmental protection during project implementation	Positive and negative	High interest	Riyadh, Saudi Arabia	Very important stakeholder
Land owners		Need to be compensated	Negative	High interest	Riyadh, Saudi Arabia	Very important

					Arabia	stakeholder
Residents of Riyadh Saudi Arabia	Project clients	Consumers of the electricity	Positive	High interest	Riyadh, Saudi Arabia	Very important stakeholder

8.2 Stakeholder assessment matrix

	Stakeholder Name	Contact person	Impact	influence	Stakeholder role	Remarks
 Rising importance	Ministry of Energy, Saudi Arabia	Ministry energy representative	High	High	Sponsors the project	Very important stakeholder
	Land owners	Contact person selected by the landowners	High	High	Give consent on their land to be used for the project	Very important stakeholder
	Ministry of Environment, Water and Agriculture of Saudi Arabia	Ministry of Environment representative	Moderate	High	Assess the environmental impact of the project	Very important stakeholder

	Fantom Construction Company	Project manager	Moderate	Moderate	Executes the project	Very important stakeholder
	Residents of Riyadh Saudi Arabia	Local community leaders	Moderate	Low	Will be supplied with the electricity once the project is complete	Very important stakeholder

9. Communication matrix and channel

9.1 Personal and effective communication

Interpersonal communication amongst the project team leaders is extremely important in the completion of the project activities. It enables the project team members exchange information, feelings and ideas amongst themselves which can be done via verbal methods or non-verbal methods. It involves face-to-face exchange of information, facial expression, gestures and body language, and form a voice. The level of interpersonal communication is measured in terms of how effective an individual is transferring information to others (Hermarij, 2013).

9.2 Channels or modes of interpersonal communication

In the proposed project, the modes or channel of communication amongst team members will be:

- i. Face-to-face exchange of information.

- ii. Giving instructions through voice
- iii. Gestures
- iv. Telephone calls
- v. Internal meetings
- vi. Performance review
- vii. Via social media platforms such as WhatsApp.

Some of the importance of effective communication in the project are:

- i. Enhancing problem solving. Effective interpersonal communication is extremely important as it will allow project team members discuss problem, suggest solutions and weigh the pros and cons of the alternatives before deciding on final solution to the problem. For instance, through brainstorming solutions to certain problems facing the project may be found .
- ii. Enhancing trust and transparency (Bartoška et al., 2012).

9.3 Communication matrix

Communication	Purpose	Medium	Frequency	Audience
Project commencement	Project introduction and review of the objectives and goals of the project	Face-to-face Or Virtual	Once	Project manager, Project team members, Project sponsor, Other shareholders

Project team meetings	Review of the status of various project activities	Face to face and virtual	Weekly	Project manager, project team leaders
Technical design meetings	Review of technical and design problems encountered as the project implementation progresses	Face to face	As needed or when situation arises	Project technical team
Project status meetings	Updating the leadership, client and stakeholders on the progress	Face to face or virtual	Monthly	Project sponsor, Project client, project manager, and other stakeholders interested in the project
Detailed project status report	Detailed report concerning the status of the project including the costs, milestones achieved, progress and problems encountered	Email and virtual meetings	Monthly	Project sponsor, and project manager

9.4 Three wrong scenarios of communication

- i. Interrupting others while communicating or giving their opinions or ideas regarding a problem.
- ii. Failing to listen
- iii. Blame game and unnecessary arguments.

10. Leadership

10.1 Preferred Leadership model

Affiliative leadership model

The preferred leadership model for this project is affiliative leadership model. This is a type of leadership style which puts people firsts and builds harmony and creates emotional relationship amongst project team members. Here team members come first, creates empathy, builds relationship and effective communication. This means that the leadership style enhances team building and effective communication which are ingredients to successful completion of the project. The leadership style also heals differences amongst the team members which is essential in conflict resolution and problem solving (Vukomanović et al., 2016).

10.2 Motivation proposals for this project

- i. Respectful, honest and supportive leadership
- ii. Offering rewards to best performing team members
- iii. Being transparent
- iv. Recognizing achievements
- v. Giving team members room to grow.

11. RACI model

RACI model for 3 administrative measures

	Ministry of Energy (Project Sponsor)	Project Manager	Ministry of Environment
Provide project funding	R	A	I
Executing construction	A	R/A	C
Defining performance requirements	C	R	C

(Bartoška et al., 2012)

12. Conflict and crisis

12.1 Examples of conflicts and crises

- Conflict amongst project team members (horizontal). Also, conflict among the employees
- Stakeholder conflict. Especially when interests of a stakeholder are not taken care of.
- Management and employees' conflict.

12.1 Expected scenarios of the conflict events in the project.

- Difference in the interest of the different project stakeholders
- Change in project scope
- Misunderstanding as result of miscommunication or poor communication.

12.2 Optimal strategies for deal with these conflicts

- i. Stakeholder involvement from the onset of the project. This will ensure that interest of each and every shareholder is taken care of from the planning to execution stage of the project.
- ii. Involving the customer and the sponsor from the beginning and ensuring that their all needs are captured in the design. This prevents the change of project scope at later stage.
- iii. Active listening. This helps in avoiding problems associated with miscommunication.
- iv. Mutual respect for individual viewpoints. Also prevents miscommunication and misunderstanding.
- v. Focus on solution. Prevents prolonged conflict situation as conflicts will solved quicker.

12.3 Root course analysis

Root course analysis will involve the following:

- i. **Assign resources.** This will involve assigning resources and people to situations as they arise during project execution so as to come up with a solution.
- ii. **Problem identification:** This will involve assessing the situation so as to identify the problem and its associated impact. It involves identifying what happened, where and when it happened, and who was involved or affected. A clear document with the result will be produced.
- iii. **This involves evaluation to so as to identify the root cause.** Tools such as a scatter diagram, Failure Modes and Effects Analysis (FMEA), a Pareto chart and/or a fishbone diagram maybe involved.
- iv. **Identifying and implementing corrective actions.** Once the cause of the problem is identified, appropriate solution is identified and implemented.

- v. **Verifying results.** Once solutions are implemented, measures will be taken to confirm whether or not the root cause issue is fixed. Documentation on finding and solutions will be kept for future reference (Eberle et al., 2011).

13. Resourcefulness

13.1 Distributing human resource and project functions

- i. Project manager: Responsible for all project activities
- ii. Chief finance manager: Responsible for finance related activities in the project, and heads a team of financial officers, accountants, economics and procurement department. Their role also includes project budgeting.
- iii. Construction manager: Responsible for all project implementation (construction of activities). All the contractors, and team leaders for various construction department report to him or her.
- iv. Technical team: Responsible for design of project products, reworks and other activities as assigned by the project manager
- v. Health and safety officer: Responsible for the safety and health of all project participants.

13.2 Crash and fast tracking on the schedule time table

Fast tracking: Fast tracking generally involves undertaking project activities that were initially scheduled to be performed sequentially in parallel with aim of compressing the schedule. This means that these activities are carried out simultaneously instead of being undertaken after each other (one another) (Hermarij, 2013).

Fast tracking process does not increase project cost. However, it may increase risks associated with the project such as increasing the risk of reworking which may result into increase project time and cost.

Crashing: Crashing involves addition of resources to project activities so as to compress schedule. It involves addition of resources to only activities that will result into reduction of project schedule (Hermarij, 2013). This means that it is applied on activities that fall within the critical path.

14. Negotiations

14.1 General rules for negotiation

- i. The general rule of negotiation is maintaining initial stance and persuading the other party to change or modify their original stance.
- ii. Always being ethical and respectful by both the parties.
- iii. Being assertive.

14.2 Negotiation plans

- i. **Distributive negotiation:** This will be important cases involving single issue. It is win-lose situation especially when negating with the suppliers to ensures the lowest price possible for the project raw materials and services (Indeed, 2021). The plan will be as follows:
 - a. Being persistent
 - b. Making an offer first
 - c. Not communicating minimum favourable outcome.
- ii. **Integrative negotiation.** This is a win-win situation, and it will involve incidences with team members and external stakeholders such environmentalist. This will ensure that the project progress while conserving environment, or team leaders getting their desired payments while the progress within budget and time, and without

compromising quality of the products (Indeed, 2021). The plan for this type of negotiation will be as follows:

- a. Taking a principled approach
- b. Openly discussing needs and interests
- c. The use of bargaining to solve problems

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