

Using Wind to Supply Water as a Renewable Energy



Under the supervision of

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Second semester

1443هـ - 2022م

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Table of Contents

1.1.1 Develop a Vision statement _____	6
1.1.2 Mission Statement _____	6
1.1.3 Develop and identify the objectives in a SMART model _____	6
1.1.4 Develop and identify the performance measurements indicators, Lead and Lag. ____	7
1.1.5 Develop and prepare the project charter model _____	8
1.2.1 Develop an organizational structure for the teams and units of the project _____	11
1.2.2 Identify the practical and scientific bases, adopted in developing the structure ____	12
1.2.3 Identify the project's office model, most appropriate to manage the project, in addition to mentioning the reason. _____	15
2.1.1 Design a check compliance model before delivering the project outputs _____	16
2.1.2 Develop checklist model for the stages of the project (Start-Plan-Achieve-Close) _	17
2.2.1 Develop a stakeholder register and form groups for them _____	18
2.2.3 Stakeholder Register Logical Diagram _____	21
2.3.1 Identify the culture of the organization _____	22
2.3.2 Organizational Values' Proposal _____	22
3.1.1 Specify 3 personal behaviors of the student that can influence the project _____	23
3.1.2 Study such behaviors, identify their reasons, and how they can be eliminated ____	23
3.1.3 SWOT Analysis _____	24
3.2.1 Personal Integrity and reliability (3 contradiction behaviors): _____	25
3.2.2 Behavior Analysis _____	25
3.3.2 Identify the personal communication and the effective communication _____	26

3.3.3 Identify the shapes, models, and channels of personal communication.	30
3.3.4 The Project Communication Matrix	31
3.3.5 Wrong Scenarios of Communication	32
3.3.6 Stakeholder Analysis	33
4.1.1 Describe and identify the leadership model, which is preferred for project leadership.	34
4.1.2 Specify the reasons for which such model is preferred	35
4.1.3 Provide 5 proposals for the motivation methods that are compatible with the nature of the project	36
4.2.1 Design RACI model for 3 Administrative measures of the project	36
4.3.1 Identify the conflict and crisis	37
4.3.2 Conflict event in the project	37
4.3.3 Project Conflict Management Strategies:	38
4.3.4 Root Cause Analysis	40
5.1.1 Distribute the human resources to the functions	41
5.1.2 Analyze the influence of conducting the crashing and fast-track process	42
5.2.1 Develop general rules for the negotiation process	42
5.2.2 Negotiation Plans	43

Tables

<i>Table 1:Project charter</i>	<i>11</i>
<i>Table 2: Costs and Benefits Comparison</i>	<i>14</i>

<i>Table 3: Stakeholder Register</i>	<i>20</i>
<i>Table 4: personal behaviors</i>	<i>23</i>
<i>Table 5: REGISTER of the stakeholder.....</i>	<i>Error! Bookmark not defined.</i>
<i>Table 6: Identify personal communication.....</i>	<i>30</i>
<i>Table 7: Project Communication Matrix.....</i>	<i>31</i>
<i>Table 8: Stakeholder Analysis</i>	<i>33</i>
<i>Table 9: RACI model</i>	<i>36</i>
<i>Table 10: Conflict schedule.....</i>	<i>37</i>
<i>Table 11: RACI MATRIX.....</i>	<i>41</i>

Figures

<i>Figure 1: Organizational Structure</i>	<i>11</i>
<i>Figure 2: Water from Air</i>	<i>12</i>
<i>Figure 3:AWG</i>	<i>13</i>
<i>Figure 4: Compliance Model</i>	<i>16</i>
<i>Figure 5: Stakeholder Register Logical Diagram</i>	<i>21</i>
<i>Figure 6:SWOT Analysis.....</i>	<i>24</i>
<i>Figure 8: Democratic leadership style.....</i>	<i>35</i>
<i>Figure 9: Root cause analysis.....</i>	<i>40</i>

1.1.1 Develop a Vision statement

To be the leading project in the Middle East and North Africa in utilizing renewable and clean energy.

1.1.2 Mission Statement

Establishing one of the finest wind power plants to provide renewable energy and extract water from the atmosphere to serve government and commercial facilities by using environmentally safe tools.

1.1.3 Develop and identify the objectives in a SMART model

Covering the pedestrian corridor in Jeddah Corniche and its affiliated facilities by using rotating energy to operate the generator by building a high tower 20 meters high above the large blades and directing them in the direction of the wind, which forms a rotating movement that results in power generation.

It was agreed with external companies to purchase the blades, install them on towers or poles, and deliver them by the end of June

There are 83 countries around the world that use wind energy to enhance their electricity networks. Denmark is one of the world's largest users of wind energy, as it generates more than a third of its electricity needs.

The wind power industry is growing rapidly as the world quadrupled from 2000 to 2006. If this growth momentum continues, wind power will be able to meet a third of global energy demand by 2050.

The numbers of wind turbines and humidity will start in the month of August.

1.1.4 Develop and identify the performance measurements indicators, Lead and Lag.

Performance indicators for the project of using wind and humidity to provide renewable energy and extract the water to serve government and commercial facilities.

- 1) Reducing energy costs by 30% to 45% for facilities and places to be covered.
- 2) Providing water resources for non-human consumption (irrigation, hygiene, etc..) at a rate of 50% for the first year, and the percentage increases gradually at the beginning of the second year to 75%.
- 3) Achieving a service satisfaction rate of at least 80% for service beneficiaries.
- 4) Quick response and installation of new requests, so that the service is fully implemented within 10 working days.
- 5) The breakdown rate should not exceed 5% of peak times, and a maintenance contract with the supplier should be included, and a commitment to provide an alternative solution, in the event of a breakdown that requires a long maintenance time. In the case of periodic maintenance, it will be scheduled during non-working hours. (Friday morning, for example).
- 6) Obtaining an ISO certificate.
- 7) Contracting with a supplier, who is committed to providing equipment and machinery, conforming to the specifications, and the required quality, on time, and at competitive prices, according to the allocated budget.

1.1.5 Develop and prepare the project charter model

1. General Project Information				
Project Name:		Using Wind to Supply Water as a Renewable Energy		
Executive Sponsors:		Public Investment Fund (PIF)		
Impact of project:		To provide water as a renewable energy from the wind.		
2. Project Team				
	Name	Departm ent	Telephone	E-mail
Project Manager:	Mohammad Alosaimi	PMO	966565999410	Alosaimemohamad@gmail.com
Team Members:	Tariq Elqahtani	PMO	966548997848	PS-expert-2012@hotmail.com
	Faris Alshibani	PMO	966555123999	Faris.alshabani1@gmail.com
	Murad Alshahrani	PMO	966565887430	murad988@hotmail.com
	Raed Almutairi	PMO	966555878329	reid1122@hotmail.com
	Abdullah Aletr	PMO	966555448990	alaterabdullah@gmail.com
	Asma alghamdi	PMO	966503214993	aasgh63@gmail.com
	Yousef Alotaibe	PMO	966566879234	Yadalotaibi@gmail.com
	Yasser Hab alreeh	PMO	966567333900	yasserhab@gmail.com
	Mohammad Almohanna	PMO	966543949390	m.a.almohanna@gmail.com

3. Stakeholders (e.g., those with a significant interest in or who will be significantly affected by this project)

1. Ministry of Municipal Rural Affairs and Housing
2. NEOM
3. National Water Company
4. Zakat Tax and Customs Authority
5. Ministry of Commerce
6. Ministry of Industry and Mineral Resources
7. Ministry of Environment Water and Agriculture
8. Ministry of Human Resources and Social Development
9. Saudi Authority for Intellectual Property
10. General Directorate of Civil Defense
11. Marketing and Commercial Companies
12. Non Profit Organizations
- 13.

4. Project Scope Statement

Project Purpose / Business Justification

Describe the business need this project addresses

To provide water as a renewable energy from the wind.

Objectives (in business terms) <i>Describe the measurable outcomes of the project, e.g., reduce cost or increase quality</i>	
To provide water as a renewable energy from the wind to various needs.	
Deliverables <i>List the high-level “products” to be created (e.g., improved process, employee manual)</i>	
A source income of water to be provided to various needs.	
Project Milestones <i>Propose start and end dates for Project Phases (e.g., Inception, Planning, Construction, Delivery) and other major milestones</i>	
01/06/2022 – 2030.	
Major Known Risks (including significant Assumptions) <i>Identify obstacles that may cause the project to fail.</i>	
Risk	Risk Rating (Hi, Med, Lo)
Miscommunication	Med
Constraints <i>List any conditions that may limit the project team’s options with respect to resources, personnel, or schedule (e.g., predetermined budget or project end date, limit on number of staff that may be assigned to the project).</i>	
Limit of number of staff that may be assigned to the project.	
5. Communication Strategy <i>(specify how the project manager will communicate to the Executive Sponsor, Project Team members and Stakeholders, e.g., frequency of status reports, frequency of Project Team meetings, etc.)</i>	

The project manager will communicate with the stakeholders and report to the executive sponsor.
The Project team will hold a weekly remote status report meetings, in addition to a monthly personal meeting.

6. Sign-off

	Name	Signature	Date: 20/06/2022
Executive Sponsor	PIF	<i>pif</i>	20/06/2022
Project Manager	Mohammad Alosaimi	<i>Alosimemohammad</i>	20/06/2022

7. Notes

TABLE 1:PROJECT CHARTER

1.2.1 Develop an organizational structure for the teams and units of the project

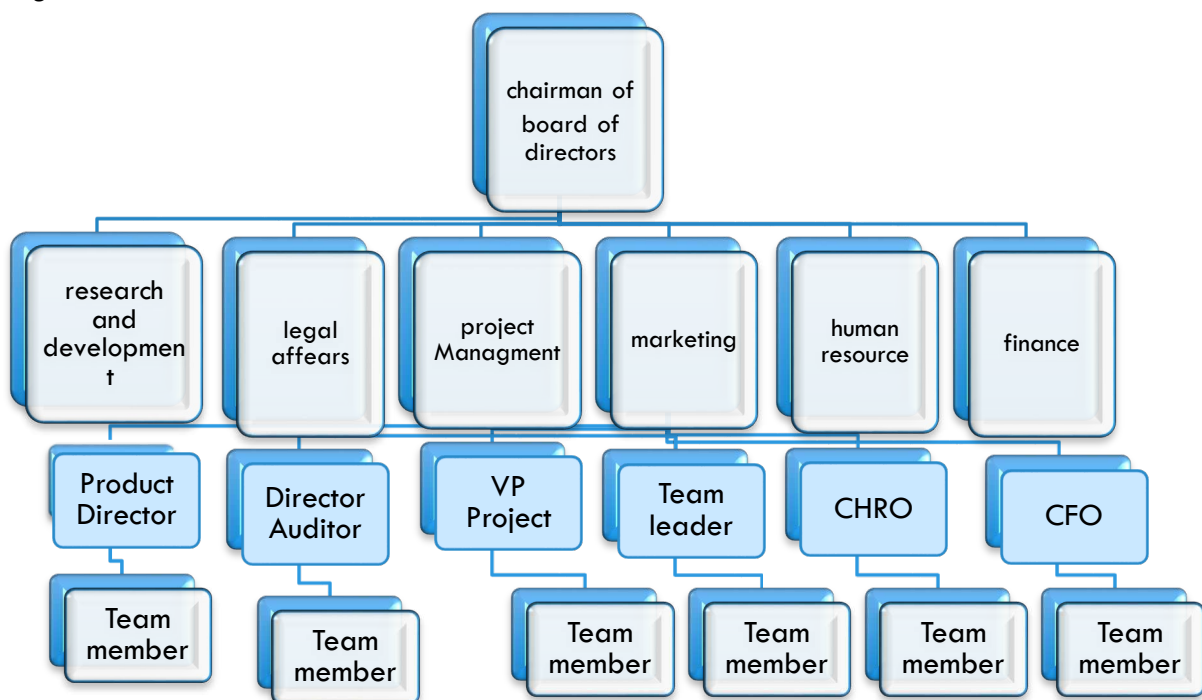


Figure 1: Organizational Structure

1.2.2 Identify the practical and scientific bases, adopted in developing the structure

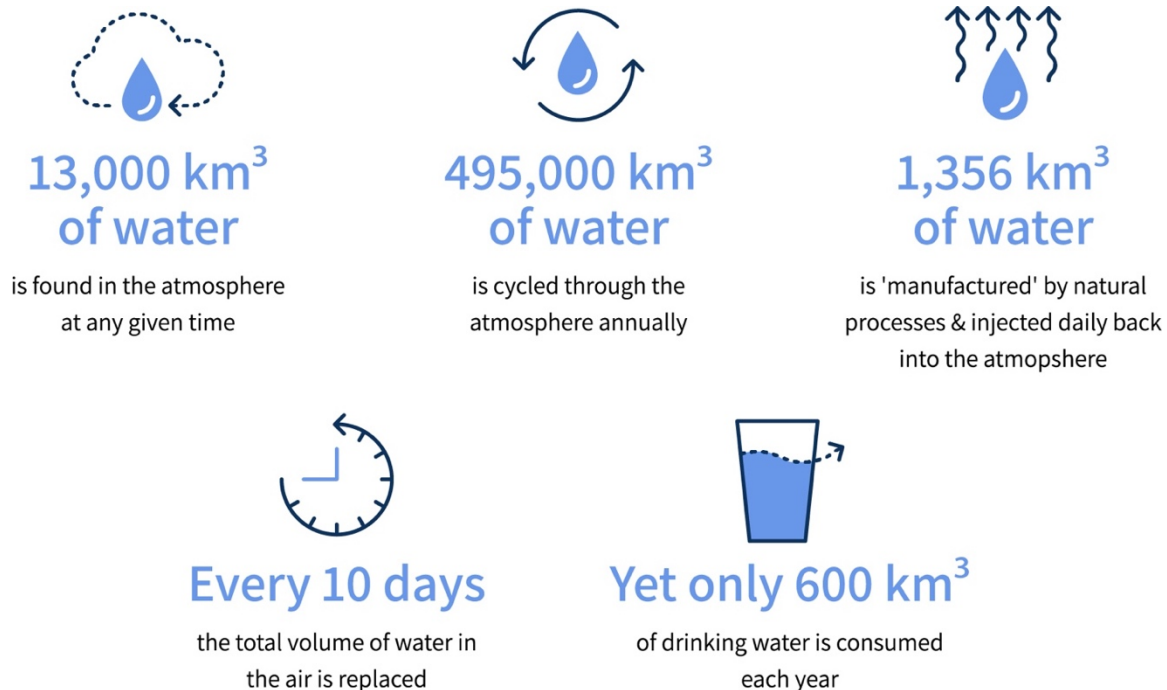


Figure 2: Water from Air

The air around us provides us with a fully renewable, practically unlimited resource that's available to us to harvest – without compromising sustainability.

AWG: The Most Important Sustainable Water Source for the Future

Among the most exciting solutions to the water scarcity problem to emerge is the field of Atmospheric Water Generation (AWG), more popularly known as “Water-from-Air” technologies.

In terms of sustainability, the challenge posed to AWG is to collect the water in large enough quantities, with as little energy as possible, and make it fresh, clean, and accessible enough to supply communities in times of water stress.

AWG technologies are truly groundbreaking. They manage to capture moisture from the air, filter out any dirt and extract the water from the air's humidity (they are most efficient when humidity levels are above 35%).

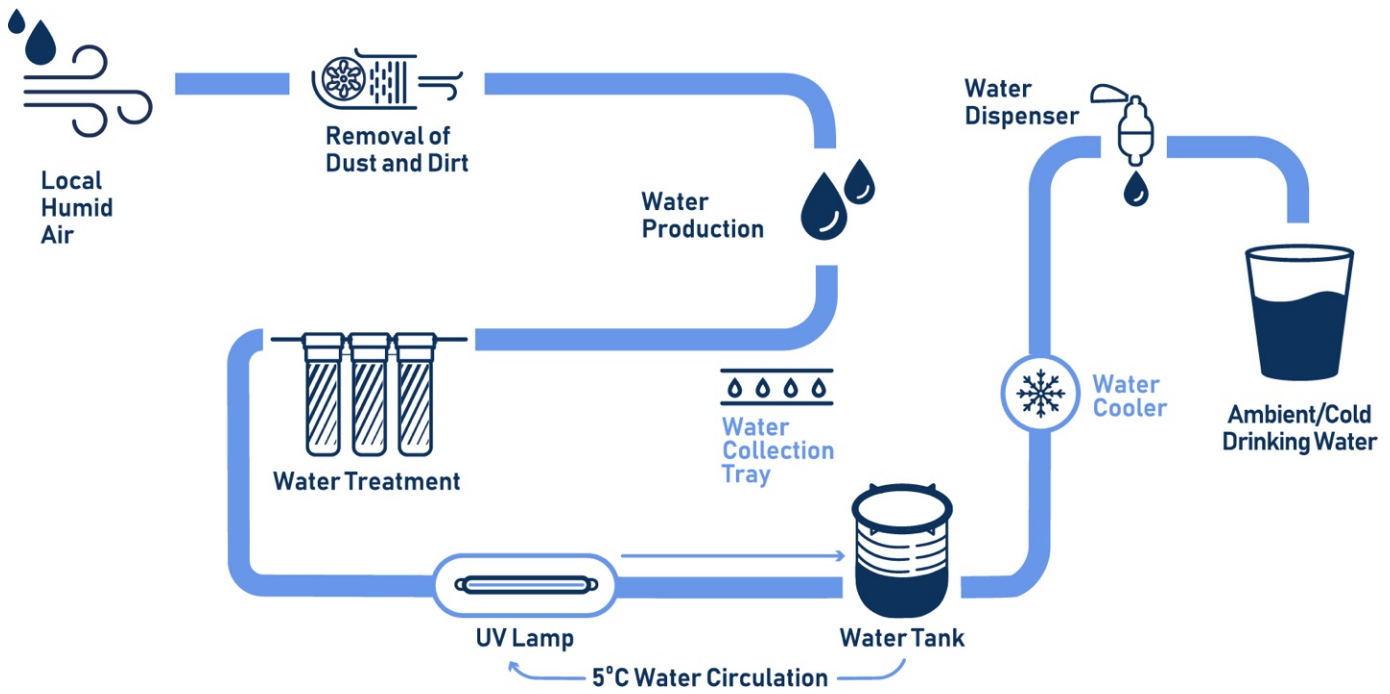


Figure 3:AWG

Water source options	Cost	Volume	Environment footprint	Delivery	Comments
 Desalination of seawater	High	Unlimited	High energy + CO2	Via existing structure	Suitable only for western world and coastal areas
 Treated contaminated water	Medium	Low	Extreme pollution	Local	Not a long-term option because more polluted water will increase
 Recycled wastewater	Medium	Low	High pollution	Local	Not a long-term option. Water quality is poor.
 Reduce agro / industry water usage (currently >90%)	Extreme	High	High	Via existing structure	Requires massive investment and corporate / government collaboration
 New technology	Low / Medium	Unlimited	Low	Point of need	AWG is the most prominent and well developed new technology!

Table 2: Costs and Benefits Comparison

AWG Systems Working for You

Producing water from air is a process that requires energy. Depending on the need's location and duration, AWG systems will draw on the most efficient available energy source. Increasingly, most systems soon will operate on a renewable source, such as solar, wind or hydro-energy.

A large AWG unit stationed in an emergency zone following a natural disaster may be powered by a generator, but a permanent unit in a remote location would rely on a renewable source, which is also the most environmentally friendly option.

Many locales are ideal for larger AWG installs, such as university and school campuses, army bases, combat units and defense forces, large factories, municipal parks, resorts, emergency response teams, villages in rural areas, RV and private vehicles, marine vessels etc.

Growing Recognition of AWG's Promise technology has the greatest potential of all current methods for reducing drinking water stress in all countries, both developing and developed, currently and in the immediate future.

1.2.3 Identify the project's office model, most appropriate to manage the project, in addition to mentioning the reason.

Directive PMO is the perfect method for this project. This type goes beyond control and actually "takes over" the projects by providing the project management experience and resources to manage the project. As organizations undertake projects, professional project managers from the PMO are assigned to the projects. This injects a great deal of professionalism into the projects, and, since each of the project managers originates and reports back to the directive PMO, it guarantees a high level of consistency of practice across all projects. If there is the task of using the winds power to provide energy and transform to pure water from the atmosphere.

The reason:

This task is effective in our project because we will need repetitive check up on the

This issue needs continuous follow-up to ensure the safety of the devices that convert air into water. It also needs laborers who make rounds at reasonable intervals to ensure that the board is not damaged, and all this needs to use this method that ensures the continuity of the project and also in the event of early detection and maintenance of problems early it prolongs its life and increases the desired benefit from it.

2.1.1 Design a check compliance model before delivering the project outputs

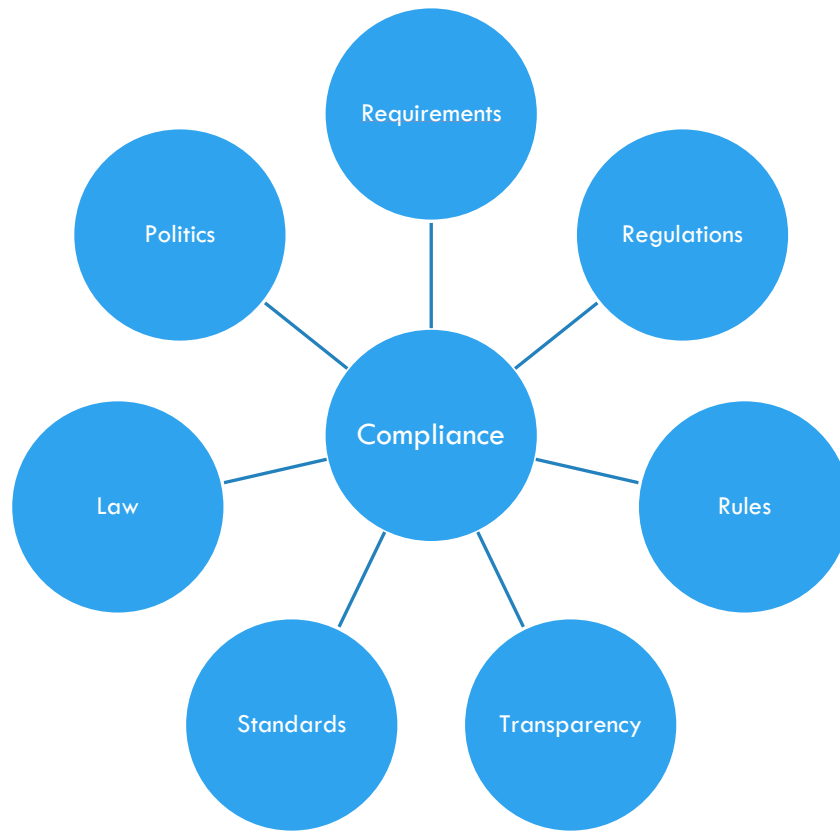


Figure 4: Compliance Model

2.1.2 Develop checklist model for the stages of the project (Start-Plan-Achieve-Close)

Project start

At this stage the project is defined at a broad level and this stage begins with a working case, through which we will discuss whether the project is feasible and whether it should be implemented or not. It should include business needs, stakeholders and business case

Project planning

Through which the focus will be on developing a roadmap that everyone follows and works on in its full technical and administrative terms. This stage begins with defining the objectives, defining the scope of the project and the method of project management, determining the cost, quality, available resources and a realistic timetable, and establishing a performance measure for the project.

Project completion

This is all about measuring the progress and performance of the project and ensuring that everything that happens is aligned with the project management plan. We have already mentioned in project planning. Create a project performance measure. All capabilities identified in the project plan will be used to work on project completion. The project manager will use Key Performance Indicators (KPIs).) to determine if the project is on the right track, and the Project Management Manager will select two to five of these KPIs to measure project performance

Project closing phase

This stage is called the completed project stage, the work of the contractors assigned to work on the project is finished, once the project is complete the executives have to perform some tasks, they will need to create a punch list of things that were not accomplished during the project and work with team members to complete it, perform the final project budget
Preparing the final project report

2.2.1 Develop a stakeholder register and form groups for them

#	Role	Classification of stakeholders	Stakeholder Analysis	Main goal	contribute	The best way to manage	contact information	The best way to communicate
1	Ministry of Commerce	External	implementation	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	9200000667 CS@mc.gov.sa	Email, phone
2	Ministry of Industry and Mineral Resources	External	implementation	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	19900 Cs@mim.gov.sa	Email, phone
3	Ministry of Environment, Water and Agriculture	External	implementation	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	939 Cs@www.mewa.gov.sa	Email, phone
4	Saudi Authority for Intellectual Property	External	implementation	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	920021421 saip@saip.gov.sa	Email, phone
5	Ministry of Municipal and Rural Affairs and Housing	External	Satisfaction	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	114456999 cs@momra.gov.sa	Email, phone
6	General Directorate of Civil Defense	External	Satisfaction	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	114925033 988@988.gov.sa	Email, phone
7	Zakat, Tax and Customs Authority	External	Satisfaction	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	114208417 zatca.gov.sa	Email, phone
8	Ministry of Human Resources and Social Development	External	Satisfaction	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	112668999 info@hrs.gov.sa	Email, phone

#	Role	Classification of stakeholders	Stakeholder Analysis	Main goal	contribute	The best way to manage	contact information	The best way to communicate
9	Audiovisual Media Authority	External	implementation	Obtaining legislation and regulations	Follow up on regulations and legislation	Obtaining legislation and regulations	8001189999 contact.us@gcam.gov.sa	Email, phone
10	Social Development Bank Entrepreneurship Program	External	implementation	Obtaining legislation and regulations	Obtaining funding to implement the project	Obtaining legislation and regulations	011*****	Email, phone
11	private sector	External	implementation	Financial support for project operations	Obtaining funding to implement the project	Obtaining legislation and regulations	011*****	Email, phone
12	Advertising and marketing companies	External	Satisfaction	Financial support for project operations	Attracting companies as clients	Communication through marketing and sales	011*****	Email, phone
13	non-profit organizations	External	Satisfaction	Target companies as customers	Attracting companies as clients	Communication through marketing and sales	011*****	Email, phone
14	Suppliers	External	implementation	Target companies as customers	Attracting to build ongoing partnerships			Email, phone
15	The media	External	implementation	Creating a lasting partnership relationship with the suppliers	Attracting companies as clients	Communication through marketing and sales	011*****	Email, phone
16	General Manager of the company	Internal	implementation		Giving executive decisions		@abc.com	Email, phone
17	Chairman of Board of Directors	Internal	implementation Satisfaction	Follow up published project issues & target them as clients-15	Follow up on the implementation of the decisions of the Board of Directors		@abc.com	Email, phone
18	Project manager	Internal	implementation	Ensure that the project proceeds according to the planned time, cost, scope and quality	Follow up on the implementation of the Daily follow-up of project implementation	Daily follow up of project implementation	@abc.com	Email, phone

#	Role	Classification of stakeholders	Stakeholder Analysis	Main goal	contribute	The best way to manage	contact information	The best way to communicate
19	Project workers	Internal	implementation	Ensuring the efficiency of employees, training, qualification and motivation	Contribute to the implementation of the project according to the planned time, cost, scope and quality	Repetitive reports & decision making to ensure the progress of work	@abc.com	Email, phone
20	Chief Financial Officer	Internal	implementation	Financial administration	Managing the company's financial resources	Follow up with financial activities	@abc.com	Email, phone
21	Legal Department Manager	Internal	implementation	legal administration	Contribute to the implementation of the project according to the planned time, cost, scope and quality	Follow up with legal activities	@abc.com	Email, phone
22	Technical department manager	Internal	implementation	Automate the work and management of the company's website	Ensure compliance with internal and external regulations and legislations	Follow up on legal activities Implementation of the technical requirements of the company's departments	@abc.com	Email, phone
23	customers	Internal	implementation	Creating a lasting partnership relationship with clients	Managing the company's technical resources Attracting to build ongoing partnerships	Communication through marketing and sales	011*****	Email, phone
24	financiers	Internal	implementation	Financial support for project operations	Obtaining funding to implement the project	Follow up on financing operations	011*****	Email, phone

Table 3: Stakeholder Register

2.2.3 Stakeholder Register Logical Diagram

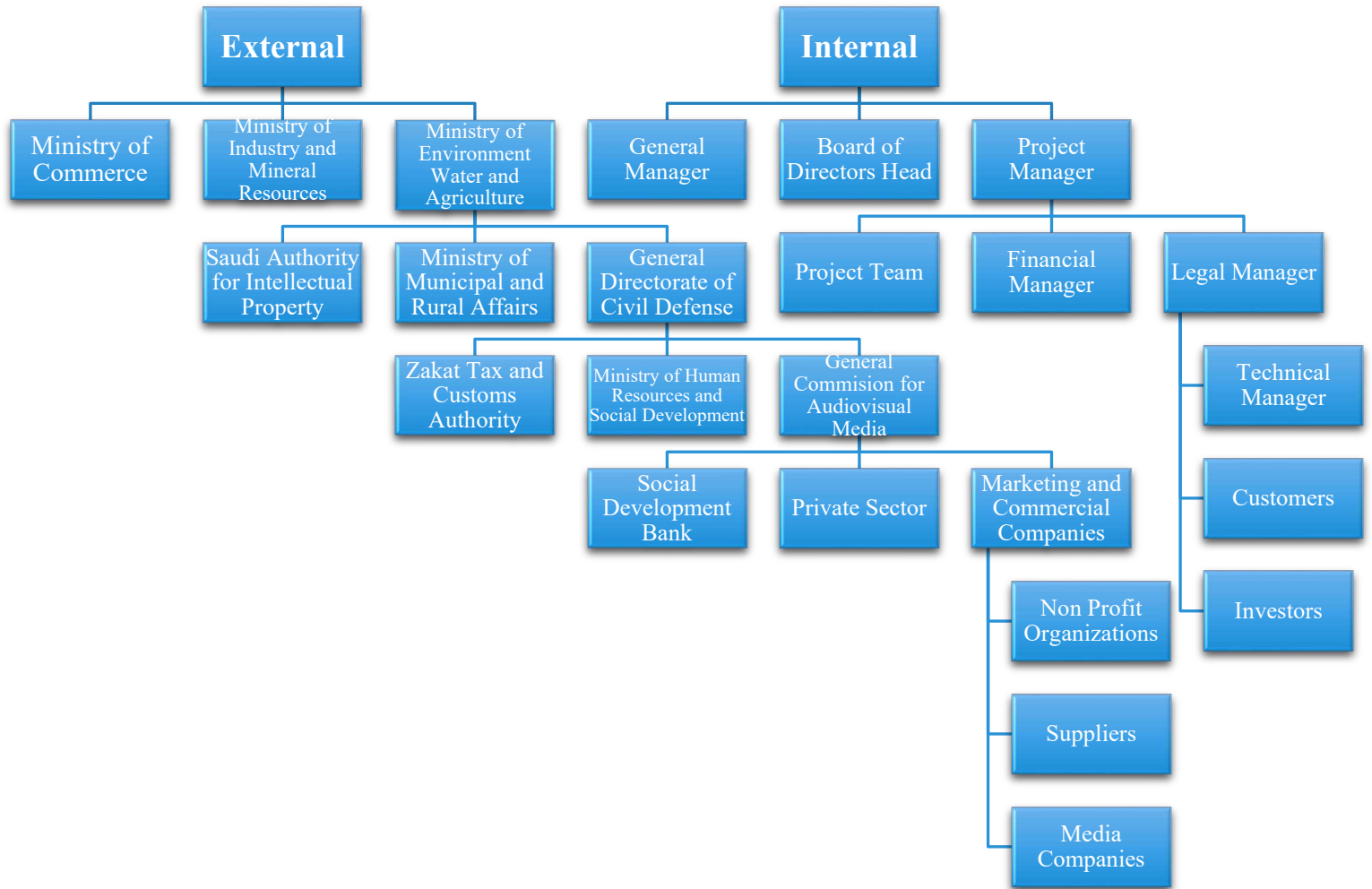


Figure 5: Stakeholder Register Logical Diagram

2.3.1 Identify the culture of the organization

- a) Responding to change and stimulating the complex with a source of energy that is free of pollution and environmentally friendly.
- b) Define authority and responsibilities for team members and increase competition for high results.
- c) The existence of a work environment conducive to creativity and its members are characterized by a love of risk in making decisions and facing challenges.
- d) The team members work through the project to create a healthy environment through renewable energy.

2.3.2 Organizational Values' Proposal

- 1. Innovation
- 2. Provides new solutions for current and future difficulties
- 3. Sustainability
- 4. Continuous improvements compatible with new challenges.
- 5. Motivation
- 6. Encourage pioneers to look for new possibilities.
- 7. Responsibility
- 8. Everybody acts as a leader
- 9. Teamwork

3.1.1 Specify 3 personal behaviors of the student that can influence the project

Behavior	Type of influence	Degree of influence
Delay in completing assignments assigned to the student	procedural	High
Failure of the student to attend meetings at the pre-agreed time	Technical	Intermediate
Handing over to the student tasks with different specifications than required, due to lack of coordination, which causes modification, or re-implementation of tasks	Technical	High

TABLE 4: PERSONAL BEHAVIORS

3.1.2 Study such behaviors, identify their reasons, and how they can be eliminated

Academic success is the right choice in this life, and it is the dream and goal that every student seeks for a better future, but unfortunately some students have great academic abilities, but they fail because of the bad habits they do, such as wasting time without interest and not arranging interests.

It can be eliminated by confronting the student himself by arranging his priorities and allocating certain times to do the tasks, in addition to writing a paper and attaching it to a visible place to always remind him of his goal and increase his desire and enthusiasm to achieve this goal.

3.1.3 SWOT Analysis

Strength points

- 1- Not high total starting cost
- 2- Long lifespan
- 3- Start production immediately
- 4- Serve the environment and society
- 5- Supports the Kingdom's Vision 2030

chances

- There is no similar commercial project that can be realized in an expanded regional way
- 6- It is possible to enter into partnerships with billboard companies to develop their current billboards to produce energy and water
 - 7- It is possible to adopt from the project from government sectors and major companies



FIGURE 6: SWOT ANALYSIS

Weakness points

- 1- It needs regular maintenance
- 2- It is difficult to accurately predict production due to the relationship with the weather condition
- 3- It takes a long time to supply
- 4- Lack of reliability in certain climatic conditions
- 5- Difficulty storing energy and water

Threats

- 1- There is a high demand for wind generators globally, and therefore the supply period may increase
- 2- Water and air filters may become clogged due to dust.
- 3- Some parts may be damaged if regular maintenance is neglected
- 4- Few local experiences in the production of energy and water from wind

3.2.1 Personal Integrity and reliability (3 contradiction behaviors):

- Providing false information to the client
- Taking Credits for others' Hard Work
- Making personal deals by renting project assets.

3.2.2 Behavior Analysis

- Finance Influence:

Financial consequences result in different forms when above activities prevail in a task-force team. The company may save some costs in the beginning by deceiving clients but eventually it will compensate all clients losses and damages. Project assets could be consumed faster and cost the company extra money.

- Social Influence:

Such behaviors may affect project environment severely if they are not detected early. Motives to find solutions and achieve projects' goals will be dropped sharply. In order to maintain strong and productive team, leaders should remove success obstacles that face team members.

- Technical Influence:

Technical and development team is a valuable asset in our project, thus we must keep it clear of any negative attitudes. Providing misleading information certainly affect company's trust and reliability. Moreover, false information could damage residence, environmental health and energy durability.

3.3.2 Identify the personal communication and the effective communication

Personal contact

Face to face personal contact is an important source of a large number of information and knowledge in public life, whether in personal relationships, departments, work centers and various institutions, and therefore it is not surprising if it is considered the oldest type of communication in terms of historical context, whether at the level of society or individuals. ; The success of any other type of communication is based mainly on the efficiency of the personal communication that preceded it, in addition to the fact that most formal social relations depend on it.

Definition of personal contact:

Many scholars differed about the definition of the concept of personal communication and did not agree on a single concept; Among these definitions are the following:

- Merton defines personal communication as: "A communication that includes a direct confrontation between the communicator and the recipient that leads to a change in the behavior and trends of the future" (Al-Abd, 1998 AD, p. 83).
- As for Peter Hartley (1993 AD), for his part, he sees that personal contact is: "a meeting that includes a communicative sharing between two people face to face" (p. 5).
- As for Odeh (1980 AD), personal communication is defined as: "The process of exchanging information and ideas that takes place between people without intermediate factors or channels, and in this process, one of the two persons represents the role of the sender, while the other represents the receiver" (p. 111).

Personal Communication Objectives:

Walid (1991 AD) believes that personal communication aims to achieve the following (pp. 9-12):

- a. Obtaining the correct and honest information that enables the right decisions to be taken.
- b. Obtaining new and additional information not previously seen.
- c. Correcting wrong information, concepts or ideas in the future.
- d. Strengthening the attitude of the receiver about the message.
- e. Learn new skills that increase personal experiences.

Entertaining individuals and easing the burdens of life for them.

Importance of personal contact:

Katz and Lazars Feld (1964 AD) see that interpersonal communication is important, which is evident in the following (pp. 4-9):

- 1- It is not easy for the individual to withdraw from the conversation with the other party, and therefore the effect of communication is strong and effective.
- 2- Having more flexibility in discussion and presenting views
- 3- It is easy to estimate the reaction directly, and thus the possibility of changing the method of confrontation
- 4- Achieving the goals of personal communication depends on the exemplary behavior of the sender towards the receiver
- 5- Giving a greater opportunity for understanding and reaching real results.

Characteristics of personal contact:

- 1- Flexibility: It is reflected in the fact that the feedback in personal communication processes is great, in order to achieve harmony between the sender and the receiver and leave the sender an opportunity to modify his message (Sami, 1962 AD, pp. 276-277).
- 2- Spontaneity: personal communication takes place spontaneously and is not regulated by rules, traditions or authority (Schramm, 1961, pp405-406)
- 3- His ability to change attitudes and behavior: The decision-making process often requires fundamental changes in the attitudes and beliefs of the two parties to the communication, requiring a change of behavior in proportion to the current situation (Awda, 1980, pp. 88-89).
- 4- Achieving the principle of public participation: personal contact plays a direct role in achieving public participation through conferences, seminars and meetings, where there is a great opportunity for serious and purposeful discussion (Brom, 1982, p109).

Definition of Effective Communication:

- Hijab (2007) defines that communication that leads to creating a kind of response towards certain goals so that these goals can be achieved in the best way and at the lowest cost (p. 13)
- As for Faraj (2009), effective communication is the process of sending a message in a way that makes the meaning understood by the recipient match to a large extent the meaning intended by the sender (p. 169).

Traits of effective communication:

Fatima (2004 AD) believes that in order for communication to be effective, it must meet some specifications to ensure the effective exchange and dissemination of information. Among these specifications are the following (p. 14):

- 1- Effective communication must be fast in transmitting information so that it arrives at the right time so that it can be used in the most efficient manner.
- 2- Effective communication must be accurate and clear in the transfer of information so that it reaches complete without changing the content of the message.
- 3- The flow of information with ease and ease, according to clear and understandable procedures.
- 4- Availability and ease of obtaining information increases the efficiency of effective communication.
- 5- The means of communication should be easy to use for all communication parties so that the communication does not lose its value.
- 6- Using the appropriate means of communication, as there are messages whose subject matter requires confidentiality.
- 7- Using words and phrases that fit the culture of the future so that they are not misunderstood.
- 8- Choosing the appropriate message and medium in order to increase the chance of persuasion and thus the communication will be effective.

3.3.3 Identify the shapes, models, and channels of personal communication.

stockholder	Role of stockholder	The view of the outcome of the project	Expectation of the outcome of the project
Ministry of Commerce	external	Has no expectation	neutral
Ministry of Human Resource	external	Has no expectation	supporter
Social development bank	external	Project success	corroborative
Executive Director	internal	Project success	supporter
Chairman of Board of directors	internal	Project success	supporter
Project Manager	internal	Project success	supporter
Project Workers	internal	Project success	supporter
Financial Management	internal	Project success	supporter
The Legal Administration	internal	apprehensive	supporter
Technical Department	internal	apprehensive	supporter
customers	internal	apprehensive	supporter
financers	internal	apprehensive	supporter
suppliers	internal	Project success	supporter

Table 5: Identify personal communication

3.3.4 The Project Communication Matrix

It is a model of the software development work of a project. In this model, the work is represented by a matrix of activities

Communication type	Audience	Timing	Distribution	Contributors	Deliverable	Budget	Date
General information	Project team	weekly	Face to face	Project team	Email copy	230000	1- JAN- 22
Quality assurance	Project management office	monthly	Conference call	Project manager	Quality assurance log	20000	9- JAN- 22
Risk management	Project management office	monthly	Conference call	Project manager	Risk management log	170000	14- JAN- 22
Financial results	executive	monthly	Face-to-face internet	Project team	-	5000	19- JAN- 22
Status update	Project team	monthly	Face-to-face email	Project team	Financial report	26000	24- JAN- 22
Performance review	Project management office	quarterly	Face to face	Project team	Status update	14000	29- JAN- 22
Social responsibility	Project team	quarterly	In person	Project team	Performance review	4400	13- JAN- 22
Status report	Project team	Face-to-face	Face to face internet	Project team	quality	450000	17- JAN- 22

Table 6: Project Communication Matrix

3.3.5 Wrong Scenarios of Communication

First Scenario: Tariq Sent a text to Ahmed via WhatsApp, and Ahmed saw the message and decided that he will respond later. Meanwhile, Tariq saw the double blue ticks indicating that Ahmed saw the message and thus thought that Ahmed acknowledged the message. But in reality, Ahmed was busy dealing with other tasks at the moment, and as he was engaged in them, he forgot to reply on Tariq's message, and as he had already saw it before (double blue ticks) he thought that he did not have a message notification on WhatsApp. Thus, made a miscommunication incident.

Second Scenario: Ahmed is a supervisor who is in charge of one of two teams working at his department. The original method of communication between these two teams is a handover and an oral handover between both Supervisors at the end of their shifts. After the Covid-19 Pandemic took place, both teams had to work separately each day without any physical contact. Ahmed, who was accustomed to the oral method of communication between him and the other teams Supervisor, was lazy to write everything down in the Handover, in which he would later then call the other Supervisor for the oral handover, forgot to do so. Thus, made a miscommunication incident.

Third Scenario: Ahmed ordered one of his subordinates to convey an important complex message to a senior member of the team later on. With the subordinate being confused of the technical terms used in the conveyed message as he is a new team member with a little experience on the job. Ahmed thought that the new team member could convey the whole message accurately to the other senior member later on simply because Ahmed was complacent, as he is far more experienced on the job. He thought that the technical terms were trivial simply because he has far more experience and did not think that it could be difficult for a rookie member. Thus, made a miscommunication incident.

3.3.6 Stakeholder Analysis

Stakeholders		Project Relationship			Level of Commitment C = Current Level R = Required Level				
Name	Level of Impact (High, Medium, Low)	Level of Influence (High, Medium, Low)	Content Expert (Y/N)	Decision Authority (Y/N)	No Commitment	Let It Happen	Help It Happen	Make It Happen	Strategies for Moving Commitment
1- Ministry of Commerce	Med	Med	No	No	C	R			
2- Ministry of Industry and Mineral Resources	Med	Med	No	No	C	R			
3- Ministry of Environment Water and Agriculture	Med	Med	No	No			C	R	
4- Saudi Authority for Intellectual Property	Med	Med	No	No	C	R			
5- Ministry of Municipal and Rural Affairs	Med	Med	No	No				C/R	
6- NEOM	Med	Med	No	No	C	R			
7- Zakat Tax and Customs Authority	Med	Med	No	No	C	R			
8- Ministry of Human Resources and Social Development	Med	Med	No	No	C	R			
9- General Commission for Audiovisual Media	Med	Med	No	No	C	R			
10- Social Development Bank	Med	Med	No	No	C	R			
11- Private Sector	Med	Med	No	No	C	R			
12- Marketing and Commercial Companies	Med	Med	No	No	C	R			
13- Non Profit Organizations	Med	Med	No	No	C	R			

Table 7: Stakeholder Analysis

4.1.1 Describe and identify the leadership model, which is preferred for project leadership.

The manager's ability to influence subordinates to act with enthusiasm and confidence to complete assigned work.

Driving Types:

1- Dictatorship leadership: The leader has absolute power, to coerce and guide individuals.

2- An autocratic leader: It is the uniqueness of the decision-making process and the development of policies and plans without the participation of subordinates, and is characterized by extreme firmness and a precise definition of the duties granted to each individual, and the dictatorial leader differs in that he is active and effective.

3- Democratic leader: It is characterized by the style of employees' participation in the decision-making process, planning and policy development.

4- Personal leadership:

Direct communication between the leader and individuals.

5-Parental leadership:

The direct relationship between the leader and the individuals and the extent of the leader's concern for the comfort and well-being of his subordinate individuals. This type of development and the group's independence and self-reliance are taken into account.

6- Informal leadership: They are within the informal social organization groups without being associated with a formal function in the organizational structure.

In our project, democratic leadership is followed.

4.1.2 Specify the reasons for which such model is preferred

Impact of leadership on project:

Leader role is one of the most challenging jobs in any organization, because it requires broad understanding of the various areas that must be coordinated and requires strong interpersonal skills.

Democratic Leadership Style

In this leadership style, subordinates are involved in making decisions as it is centered on subordinates' contributions. The democratic leader holds final responsibility, but he or she is known to delegate authority to other people, who determine work projects. His style of authority depends on the group being counseled and their feelings being esteemed. Riles on the skills and knowledge of team members, group makes decisions collectively.

Pros: Higher quality work, allow follower to say any decision, Create a well collaborative work place.

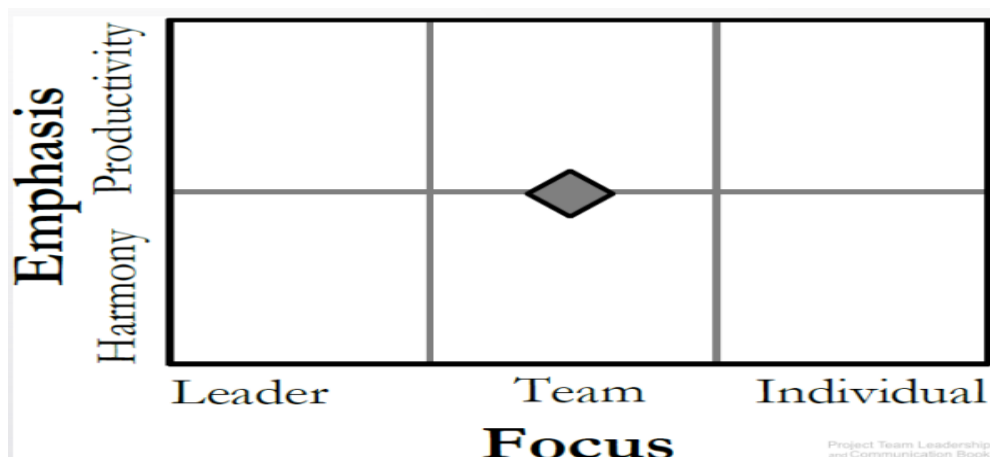


FIGURE 8: DEMOCRATIC LEADERSHIP STYLE

4.1.3 Provide 5 proposals for the motivation methods that are compatible with the nature of the project

1. Expanding access to clean energy for off-grid, remote, coastal or island communities.
2. This innovation will help strengthen the cities of the future. And it will become a powerful incentive for many countries to build smarter cities
3. This innovation will help reduce carbon emissions in the UK to zero and make it an incentive for the global health community to push for its application to the largest scale
4. It is possible to generate energy from people's steps as well as through body heat, and perhaps this will become an incentive for people to exercise and its reflection on alternative energy.
5. It will create new job opportunities in renewable energy industries.
6. Reduce carbon emissions and air pollution from energy production.
7. Increased affordability, as many types of renewable energy are cost-competitive with traditional energy sources.

4.2.1 Design RACI model for 3 Administrative measures of the project

Task	Project Manager	Quality	Sales	Legal Affairs	Marketing	Technical Team	Human Resource	Finance
Service Contracts	A		I	R		C		C
Marketing Plans	A		I		R	C		
KPI Measures	A	R				C	I	

TABLE 8: RACI MODEL

4.3.1 Identify the conflict and crisis

Conflict is "a situation of competition in which the parties are aware of the incompatibility of potential future positions and in which each party wishes to occupy a position which is incompatible with the wishes of the other." Conflict is viewed as a cycle: "As with any social process, there are causes; also, there is a core process, which has results or effects. These effects feedback to effect the causes." To understand conflict further, the situation must include elements of interdependence, emotions, perceptions, and behaviors. For example, conflict occurs between parties whose tasks are interdependent, who are angry with each other, who perceive the other party as being at fault, and whose actions cause a problem. The crisis is the process by which an organization deals with a disruptive and unexpected event that threatens to harm the organization or its stakeholder.

4.3.2 Conflict event in the project

#	Description	Conflicts
1	scheduling	A scheduling conflict can lead to a significant delay in the course of project management. We do not mean here meetings or events, but the deadlines for various tasks.
2	scarcity of resources	Scarcity of resources is something that can cause damage to the team as well as the project and the company's reputation and that makes a double effort to search for new resources quickly.
3	Roles and Responsibilities	Scarcity of resources is something that can cause damage to the team as well as the project and the company's reputation and that makes a double effort to search for new resources quickly.

TABLE 9: CONFLICT SCHEDULE

4.3.3 Project Conflict Management Strategies:

Identifying and addressing conflicts is at the core of the conflict management process in any organization. The PMBOK Guide recommends five techniques for resolving project conflicts, which are as follows:

First: Withdrawing Technique:

Also called the avoiding technique; The withdrawal technique is used by the project manager in certain cases, by avoiding conflict and letting the problem resolve itself with time. Among these cases in which it is preferable to use it are as follows:

- When the issue is not important or there is no opportunity to solve it due to the intransigence of the other party in the conflict.
- There are other more important issues and the project manager does not have enough time to deal with this epilepsy.
- Lack of available information about the conflict, and therefore it is better to withdraw to gather sufficient information and then return to solve it.

Second: Smoothing technique:

Also called accommodating, this technique distinguishes that the project manager deals with the interests of others rather than his own; So it can be used in special cases such as:

- When the other party's solutions are more effective.
- When the problem needs a temporary solution only.
- When the problem is not significant for the project.
- When the continuation of the conflict is harmful to the project.

Third: Forcing technique:

This technique is also called competition; It is used when the project manager wants to achieve the objectives of the project, regardless of the point of view of the other parties to the project, and therefore imposes his point of view forcibly; This technique is used in the following cases:

When the decisions of the other parties are important.

- When a contested position requires consensus.
- When the relationship between the parties is long-term.
- When the level of trust between the parties is high.

Fourth: The Collaborating Technique:

Known as the win-win technique for all parties to the conflict, it is used when the project manager wants to find a solution to the conflict that takes into account multiple aspects, including meeting the demands of the parties to the conflict through negotiation; This technique is used in the following cases:

- When the decisions of the other parties are important.
- When a contested position requires consensus.
- When the relationship between the parties is long-term.
- When the level of trust between the parties is high.

Fifth: Compromising Technique:

It is used when the project manager takes suggestions from the parties and presents a compromise that satisfies all parties and is at the expense of their giving up some of their interests; this technique is used in the following cases:

- When a situation needs a temporary solution about complex issues.
- Reaching an appropriate solution to the important issues.
- When both parties have equally important goals.
- When the level of trust between the parties is low.

4.3.4 Root Cause Analysis

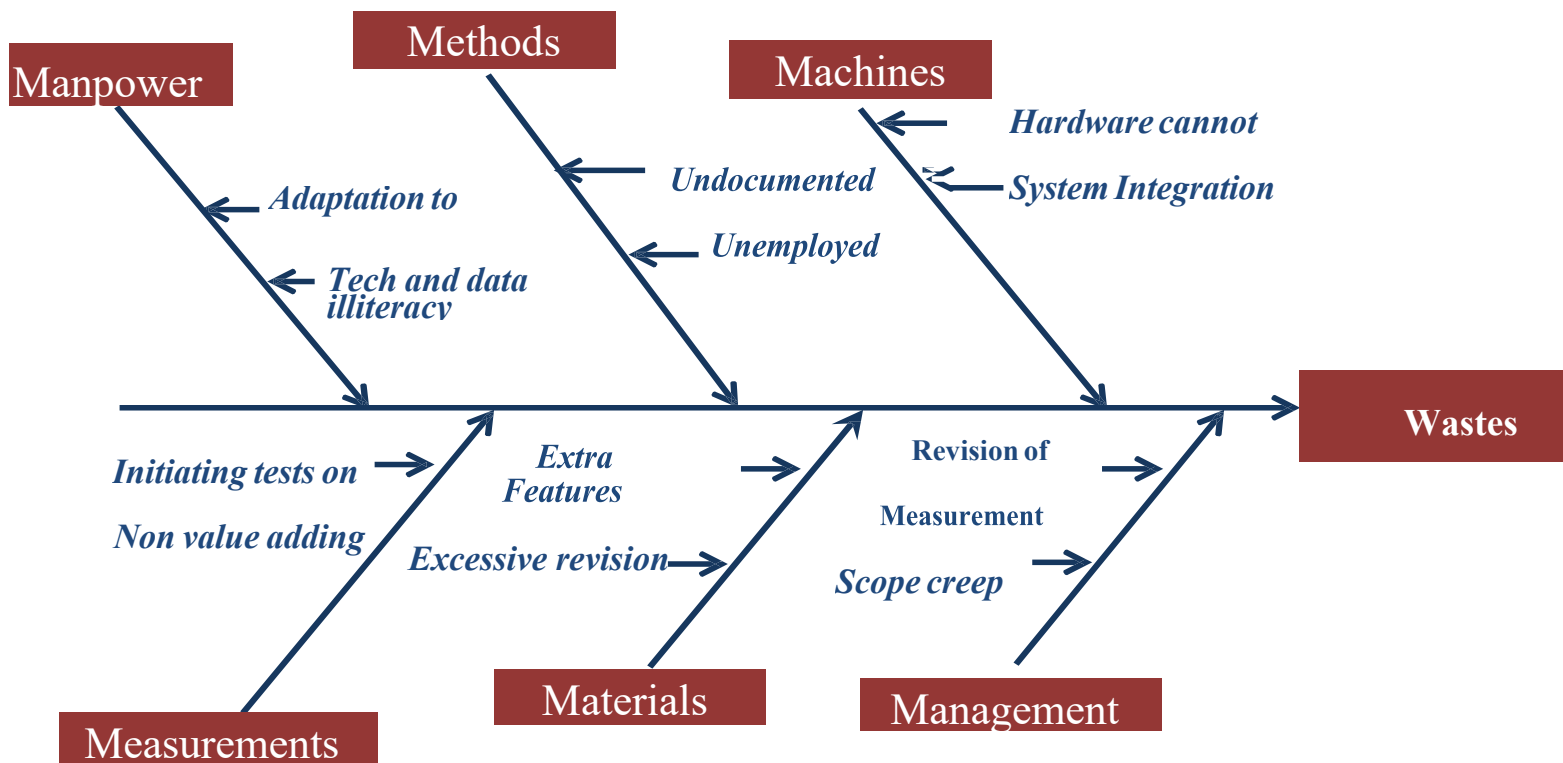


FIGURE 9: ROOT CAUSE ANALYSIS

5.1.1 Distribute the human resources to the functions

The company consider the Chainman of board of directors accountable for the major company decisions including Go/No Go for projects, Company long term vision & assign company executives.

The research & development department are responsible for short term vision and long-term vision based on marketing, finance and project management input, the vision shall be presented to Chainman of board of directors for his approval.

Human resource shall be informed of the final decisions & strategies to tack it in consideration during the hiring process.

	RACI Matrix							
Project Task	chairman of board of directors	Head of research and development	Head of legal affairs	Head of project Management	Head of marketing	Head of human resource	Head of finance	Head of procurement
vision	A	R	C	C	C	I	I	I
Phase 1 : Research								
Econometric model	I	C	C	I	I	I	A	C
Strategic formwork	A	I	C	C	I	C	I	I
Risk factors	I	A	C	C	C	C	C	C
Phase 2 : Structure								
Product Specs	I	A	I	C	C	I	I	R
Design wireframe	I	A		R	C	I	C	I
User journey	C	I	C	C	R	I	I	I
User Experience testing	A	I	I	C	R	I	I	C
	RACI Matrix							
Project Task	chairman of board of directors	Head of research and development	Head of legal affairs	Head of project Management	Head of marketing	Head of human resource	Head of finance	Head of procurement
Delivery roadmap	A	C	C	R	I	I	I	I
Project execution	A	R	C	R	I	I	I	R
Development backlog	A	C	C	R	C	I	I	I
Project man power	A	I	I	C	I	R	I	I

TABLE 10: RACI MATRIX

5.1.2 Analyze the influence of conducting the crashing and fast-track process

The reality of project management is that sometimes you will need to compress the project schedule and deliver the project's product, service, or result sooner than originally planned. Schedules are constantly subject to change; in most cases, schedules get longer as opposed to getting shorter, which can negatively affect the original schedule because the project team will not be able to complete it in the time available.

- Fast tracking involves the performance of activities in parallel, whereas crashing involves the addition of resources to a project.
- In fast tracking, there is increased risk, whereas in crashing, there is increased cost.

5.2.1 Develop general rules for the negotiation process

1. Gather all required information and alternatives which give you more power.
2. Know other side goals to achieve a win-win situation as much as possible
3. Be patient because if other party noticed that in rush, they will have advantage over you.
4. Focus on required rather than desires. Value of things are not always equal for both parties.
5. Accept the fact that everything in negotiable avoid words such as impossible or never unless it is seriously off the table.
6. Understand your relationship with the other party if it is only once or continuous if so,
7. you need to keep them supportive in the future.

5.2.2 Negotiation Plans

1st Negotiation Plan:

The negotiation team will research everything that they can about the other side and negotiation position before walking into negotiations. They will communicate to discover the strength of the other side's position, and to try to detect how badly the salesperson needs to close the sale. The team will also avoid disclosing any information that indicates a weak position. Furthermore, the team will use the bogey tactic and try to generate a demand that is not actually important to them, so that they can later give it up, and make the other side feel that they won.

2nd Negotiation Plan:

The negotiation team will try to maintain a friendly composure at all times, and try to view negotiations with a sense of humor. Avoiding negative emotions such as anger, conceit and mistrust. In addition to applying abundance mentality, and looking at the situation as a win-win. Thinking of the other side's perspective and try to find offers that benefit both.

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