Emergency Plan

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Emergency Plan

Introduction to organization

The organization in this project is the Federal Transport Authority. It is a Ministry of Energy and Infrastructure joining Sheikh Zayed Housing Program and Federal Land and Maritime Transport execute a strategic plan focusing, completely, to assemble, create and improve the competitor of UAE in the sections of mining, energy, and water resources as well as sea and land transportation, utilities, roads, buildings, constructions, and housing along with investment resilience and enhancing the technology, partnerships, and advanced sciences, and adopting innovative solutions throughout the world for improving the quality of social life (UAE Ministry of Energy and Infrastructure, 2022).

Purpose of the Plan

Water is one of the most scarce natural resources. As humans, even living on the land need as much water as aquatic life. Water is necessary for our survival and is needed for almost everything; from drinking to washing, and bathing, but using a lot of water is why it is so scarce as a resource.

The main aim of the plan is to use the hazard fog to increase the availability of water. Due to high fog in winters in UAE, it has become one of the most hazardous for the people of UAE. It causes many accidents and is not only hazardous for drivers but also for mariners and aviators. The plan includes using a machine that captured fog and turn it into water. Using this plan is as hitting two birds with one stone. We would reduce the Hazards of the fog and also increase water availability (Sultan, et al., 2017).

Step 1: Form a collaborative planning team

i) Identify team

Members	**Purpose of interaction**
Ministry of Industry and Advanced Technology	To lower the cost of our project and make it possible to reach the industry
Gulf News	Providing the knowledge regarding the plan to the public
Khaleej newspaper	Providing the knowledge regarding the plan to the public
Social service department	Providing funds when needed
The cultural and scientific association	Implying the project in the society

The data is collected through (the UAE Ministry of Energy and Infrastructure, 2022)

ii) Top Management's Intent & requirement for plan

Members	**Requirement for Plan**
Ministry of Industry and Advanced Technology	After our plan is finalized we will provide it to the ministry of Industry and Advanced technology and with their knowledge regarding the industry and technology they will be able to make this plan penetrate the market and industry
Gulf News	The Gulf news will help to share the news to the people through their channel
Khaleej newspaper	As many people still take interest in newspapers rather than TV news we will provide the knowledge regarding a plan to the public

Social service department	As our project is for the welfare of people and the social service department work for the betterment, we will ask for financial aid
The cultural and scientific association	Every innovation brings change and change is something that a culture accepts with difficulty. The cultural and scientific association will help the project to be easily implied within the culture.

The data is collected through (the UAE Ministry of Energy and Infrastructure, 2022)

iii) Identifying Stakeholders

Internal Stakeholders	**External Stakeholders**
Project Manager	Government
Project Team	Industry
Sponsor	Media
	Society

iv) Scope for Plan

The project's costs vary depending on location, availability, and even if whole labor costs are granted. Evaluating the cost of small fog collectors for each unit to build is $75 to $200 US. The cost of large 40 m2 fog collectors is about $1000 to $1500 US for each unit and it can work for 10 years (Sultan, et al., 2017).

v) Work Plan

The main aim of the project is to design the fog collector that helps in the collection of water at a minimum rate of 1000 liters in one day (Sultan, et al., 2017). Using fog to collect water may have many advantages for the world. It will enhance the availability of clean water by using fog as a source that viably provides potable water. In addition to providing society

with a system that provides a low cost and easy to maintain the item. It will also eliminate or reduce the use of energy to produce water.

Step 2: Understanding the situation

The fog situation is very serious in UAE as it forms twice a year in Dubai. The reason for high fog formation in the UAE is because of its rapid cooling at the desert surface. UAE has a rich water vapor atmosphere because it has been surrounded by water bodies. Here sea breeze brings great water amount by its inland circulation during the day. This water is trapped in the air and result in high fog formation during early morning and late night in UAE.

- **What is Fog and how it is formed?**

  The visible aerosol near the earth's surface consists of tiny ice crystals or water droplets being suspended in the air. Fog mostly forms in the winter's morning time because the temperature drops at this time of day and there is also 100% humidity present in the air. It is formed when there is a mixing of cool environmental air with warm moist air of water. Thus, this warm air by condensation cools down until it reaches 100% humidity level and results in fog formation. Thus, these tiny water droplets as fog hang in the air near the earth's surface. The 95% of fog seen in UAE is radiation fog because of overnight air cooling near the ground and this cooling at its saturation forms smog.

- **Identifying the hazards and risk assessment**

  Many risks arise due to high fog in the UAE. These risks include mainly fog causes air pollution which leads to great health hazards in UAE people. This risk goes higher when people come outside for work and drive which also emits pollutants from their vehicles. These vehicle pollutants got to mix with fog and increase various health hazards in people mainly breathing problems, asthma, lung problems, and allergy diseases. The other main hazard of fog is the increased amount of road accidents because of foggy weather. Such kind weather makes it difficult for people to drive safely and easily see things on the road which results in many road accidents in UAE (Mawed, 2020).

Step 3: Determining goals and objectives

As there is high fog in the early morning and late-night winters of UAE which is causing a lot of damage to the public. There should be a plan for this to control such high risks. This plan should include the goals of people's health safety, controlling air pollution, and reducing the accidents risks during this foggy weather.

- **Determining Operational Priorities**

  As there are several risks due to high fog, the following things could be done as operational priorities for avoiding these fog risks. Drivers should turn on their fog lights and should lower their speeds near high fog areas. Drive-by maintain distances and avoid changing your vehicle lanes.

- **Setting up of Goals and Objectives**

  This plan mainly includes the following goals and objectives:

  a-High Fog Control in UAE

  b-Reduce Accident Risk due to fog

  c-Prevention of Health Risks

  d-Clean Water Availability by use of Fog

  e-Eliminating energy use in Water Production

  This plan's main goal is high fog control in UAE while it gives other benefits like the production of clean water for drinking which normally costs a lot of energy in its production.

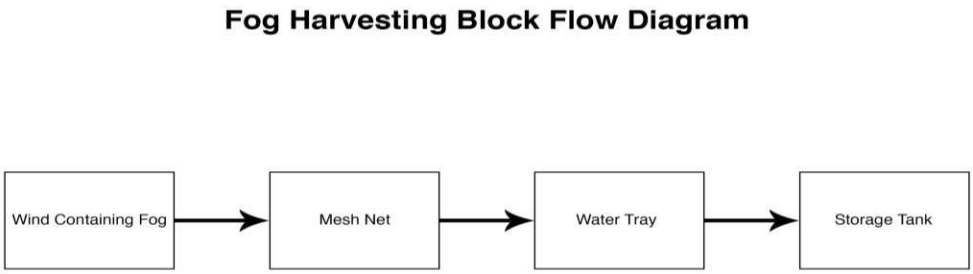
Step 4: Plan development

For the accomplishment of all goals, a Fog collector is used which collects fog droplets from water and converts them into clean drinking water. It is simple, low-cost sustainable technology that not only controls high fog and its spreading hazards but also produces clean drinking water. This system's production costs are in various ranges which are dependent on the weather system, its requirement size, and location where these have been used. The small fog collector's costs only $75-$200 in its manufacture. While large one could cost $1000-$1500 which could work efficiently for 10 years (Fahad Sultan, 2017).

Step 5: Plan preparation, review, and approval

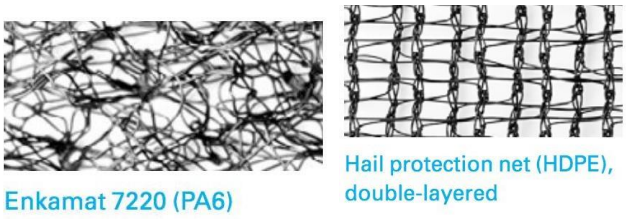
This plan works using a fog collector. This collector has been made using CloudFisher technology. This collector is made of mesh nets. These mesh nets are stretched across the metal frames which are attached with rubber expanders. There are no electricity or pumps required for the generation or movement of the water in this design. The energy which is required to convert fog water droplets into clean water is taken from the wind. The water has been moved in this fog collector with the help of gravity to the tank. Here is the working process flow diagram:

Figure 1: Block flow diagram of Fog Harvesting



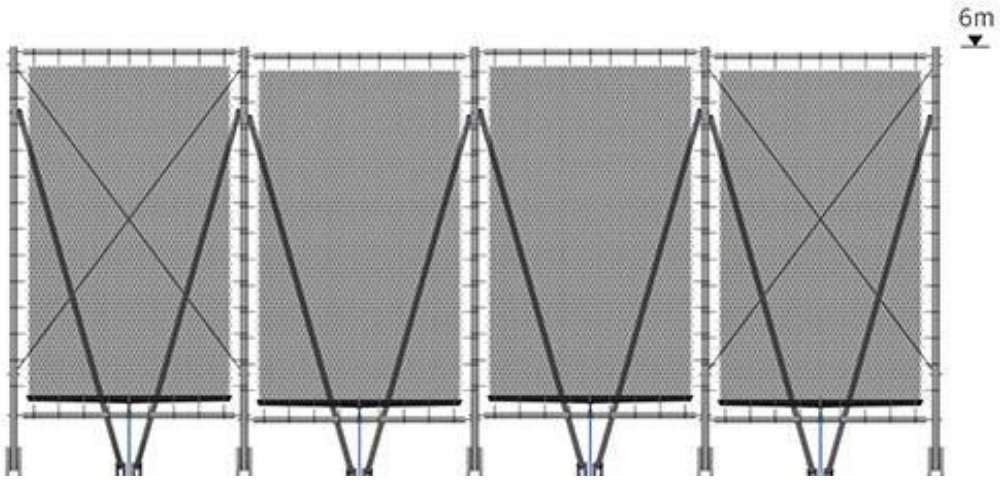
(Fahad Sultan, 2017)

Figure 2: Net Mesh Materials design used in Fog collector:



(Fahad Sultan, 2017)

Figure 3: CloudFisher Technology used in Plan



(Fahad Sultan, 2017)

- **Plan Review**

The plan which has been made depends on the size of the fog collector which we want to implement. The size of the collector has been chosen to depend on the fog amount at a specific area. If there is high fog somewhere, thus larger collectors have been used for collecting fog droplets from the atmosphere. These large fog collectors as a result produce a large amount of water there.

- **Plan Distribution**

The water which has been collected from the atmosphere depends on square meter surface as for larger fog control and high-water production, 52.8 square meters total net surface fog collector has been used. As produces 6 liters per square meter produces 316.8 Litre per day and 22 liters per square meter produces 1161,6 Litre per day. This plan has been distributed for control of fog and use of water in industrial, Forestry, agriculture, Schools, and villages area. While for smaller water production, 16.5 square meters total net surface fog collectors have been used. As produces 6 liters per square meter produces 99 Litres per day and 22 liters per square meter produces 363 Litre per day. This plan has been made for the distribution of water and fog control in small village areas (Fahad Sultan, 2017).

Step 6: Plan implementation and Maintainance

i) Awareness and Training

The first step to implementing the plan is to make people aware of the plan. This awareness should be provided through the media and government of Uae.

ii) Understand the situation

The media must provide the people with the advantages of the product and how to provide them step by step procedures to use it. The government's role is to make it permit the company to go to the institutions to provide knowledge as well as knowledge regarding it to the youngsters.

iii) Determination of goals

To increase the availability of water and eliminate fog.

iv) Plan development

The resources will be as discussed in the paper and the potential sponsors and helping hands will be the team members.

v) Plan approval

The plan will be provided to the government and other institutions for approval and will be implemented just after it is approved.

vi) Plan implementation

The plan will be implemented according to the regulations provided by the government. Federal Transport Authority will review the plan every two weeks to ensure its working.

Q2: CLO 2

- Risk register and Sources

As in this plan, the main agency is Federal Transportation Authority, and the supportive agencies which we would use to implement this plan include Gulf News, The Cultural and Scientific Association, Ministry of Industry and Advanced Technology, Khaleej Newspaper, and Social Service Department. There is a plan in which how leading agency would include its supportive agencies.

i. Social Service Department

Federal Transportation Authority would first demand funding from its supportive agency of the Social Service Department for the implementation of this plan. This plan is going to serve people by reducing health risks in people which are due to high fog, controlling air pollution, reducing accident risks on road by limiting fog in the air, eliminating energy usage in water production, and clean drinking water availability to people. That is why Social Service Department would provide funding for the implementation of this plan. This funding is going to be used in doing research over-improving plan efficiency, preparation in the industry at a larger level, and spreading this innovation in public through media.

ii. Cultural and Scientific Association

Federal Transportation Authority would involve the supportive agency of Cultural and Scientific Association after getting funding which would do proper research on a given plan. This supportive agency would first apply the plan at a micro-level and check whether it would work properly or not at a larger level. If this agency found some problem in it, then it would bring changes in the used technology to overcome the situation. When this agency would be satisfied properly by testing at the micro-level that this researched plan would work efficiently at a macro level. Then, it would approve this plan and give it to the Federal Transportation Authority for its implementation (Korkmaz, 2020).

iii. Ministry of Industry and Advanced Technology

Federal Transportation Authority pass this approved plan to the next supportive agency which would be the Ministry of Industry and Advanced Technology. This agency would work on giving the plan proper shape. The industry would prepare the Fog collector based on the advanced technology as given by the plan. This agency would use the funding of the Social Service Department too for manufacturing the fog collector. This supportive agency would make different types of fog collectors according to demanding places.

iv. Gulf News and Khaleej Newspaper

After the preparation of Fog collectors, the next step would be its distribution and getting awareness to the people about the use of this innovative technology. So, Federal Transportation Authority would involve the different types of media sources as supportive agencies including Gulf News and Khaleej Newspaper for awareness of this new technology. These media sources would let everyone about the cost of fog collectors, their proper use, and their implementation at proper windy area places. So, that high fog problem rapidly got controlled. It is only possible if a maximum number of people have information about how to use this advanced technology properly and it would be done by these supportive media agencies of the Federal Transportation Authority.

- ## Risk Assessment and Output

The organization uses two types of risk assessment:

Qualitative Risk Assessments

This type of risk assessment is done when the team would use their intuition and personal judgment to identify the hazards or risks and plan the measures of control. The teammates will rate the risk according to the probability and severity of the risk in question. These rates will be classed as high, medium, or low level.

Quantitative Risk Assessments

For this type of risk assessment, the teammates will use quantitative tools and techniques to measure the risk level. The most useful tool for risk measurement is the risk matrix, this will be used to evaluate assigning the probability severity of risks.

Risk matrix

It is a risk measurement tool there is a 3×3 matrix that may have the following values:

3×3 Risk Matrix, based on the probability of the risk

Highly Unlikely: 1

Likely: 2

Highly Likely: 3

3×3 Risk matrix based on Severity

Major: 1

Serious: 2

Slight: 3

Output

The team use an equation for the calculation of the level of the risk in the plan:

Risk Output = Severity x Probability

The risk output would be equal to the severity of the risk as well as how likely it is to occur. If the risk is severe and will likely occur highly, the higher will be the return. If the risk output is less severe as well as less likely the lower will be the return. The teammates of the organization must make the rule according to the risk output.

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