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Evaluation of the Effectiveness of Flood Emergency Plans for Power Supply Stations - A Case Study of A Flash Flood Disaster of A Power Transmission Station North of Al-Madinah Al-Munawwarah

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Abstract:- **The study aimed to evaluate the effectiveness of the management of the emergency and environmental disasters plans from the point of view of officials and employees of the western sector of the Saudi Electricity Company concerned with the implementation of the emergency and environmental disaster management, through a case study of transmission station north of Al-Madinah city, exposed to a flood disaster on January 28, 2019. The descriptive analytical approach was used and built on inquiries and questions directed to the Company group of officials and employees concerned with the management of emergency and environmental disasters, who participated directly in combating the flood disaster in north Al-Madinah Electricity Transfer Station on January 28, 2019. A Questionnaire was designed and distributed to a sample of (120) employees from various departments concerned with the implementation of flood disasters in the Saudi Electricity Company. The results showed the absence of significant differences among impact of demographic variables (educational qualification and job rank) on the measures taken by officials and employees of the Electricity Company in the three axes (pre- during and after the occurrence of floods), with the exception of the variable number of years of experience (less than 5 years, between 5 to 10 years, 10 years and more) which had a significant effect regarding the first axis (measures before the occurrence of floods), and the type of job (administrative, technical), as well as the number of courses they received in responding to flood disasters (from 1 to 3, from 4 to 6, 7 and more), as their competencies and activities varied in all three axes. The answers were highly effective regarding the basic study variables for the second and third axis (measures during and after the occurrence of floods). For the first axis (measures prior to the occurrence of floods), only half 50% of their answers were effective, and 50% drifted to be neutral. The study confirmed the effectiveness of the plan and procedures for preparation and response to confront flood disasters (before, during and after the occurrence of floods) by the departments concerned with implementing the plan and procedures for managing emergency and environmental disasters in the western sector of the Saudi Electricity Company.**

Key words: Power Plant, Emergency Plan, Flash Flood, Electricity, Al-Madinah Al-Munawwarah

I.INTRODUCTION

This study aimed to evaluate the effectiveness of emergency and disaster management plans and procedures in the power supply stations of the Saudi Electricity Company, to confront disasters caused by floods and the necessary preparations to combat them before, during and after the occurrence of a flood disaster, from the point of view of officials and employees of the departments of the Saudi Electricity Company concerned with implementing the emergency and environmental disaster management plan in the western sector, who directly participated in the process of confronting the Medina flood disaster, January 28, 2019 AD, in a fair and comprehensive assessment of the current situation and benefiting from this assessment in developing and raising the future performance of these departments. A power transmission station north of Al-Madinah Al-Munawwarah was chosen as a case study for the research, due to its importance in the electrical network of the region. In order to ensure that the disaster is less harmful, it is necessary to put in place the necessary and effective plans to reduce the severity of these disasters. These natural disasters affect human life and infrastructure, such as housing, water and electricity supplies, and service and health activities. One of the considerations to reduce natural disasters is the impact on the electrical grid, so it is necessary to develop a strategy to ensure the continuity of the electrical grid, with options with a high probability of success (Umoh and Luggab, 2019). Evaluation is an assessment of the value or level of work, a review of its results and progress, and a decision on the value of those results" (Al-Mukhtar, 2008). It is also referred to as measuring and evaluating the relationship between the efficiency of employees' performance of the duties of the job he occupies and each of the behavior and ability of the worker to perform better and as a result the investigator according to the level of performance and the actual degree of achievement (Shabaa, 2011). Evaluation is done to answer specific questions to guide decision-makers, and to provide information on whether the theories and assumptions used in developing programs are correct, what worked and what did not work, and the reasons for that (United Nations, 2004).

Contingency planning processes consist of defining the response and recovery strategies to be applied during and after an emergency, and defining tasks and responsibilities (Environmental Health in Emergencies and Disasters (2007). As for procedures, they are the measures and steps that are taken for something, which is a set of assets and conditions

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to be followed (Al-Ayed et al., 1988). In the case of a disaster, it was defined in different terms, as Al-Anzi (2015) defined it as a sudden natural event that causes great material, human, social and economic losses, such as floods. The concept of disaster management is that it is a science or profession that aims to apply science, technology, planning and management to deal with extremist events (Al-Momani, 2012). One of the tasks of the Disaster Control is to collect information and data on disasters and dangers, training in the method of dealing with disasters, evaluating the effects of the disaster, and identifying lessons learned for use in managing future disasters (Al-Tuwaijri, 2018). Al-Mughir et al., (2018) indicated that the emergency environmental disaster management process should be in three phases (before, during and after the disaster). Al-Enezi (2015) defined it as "the procedures and preparations taken by the concerned authority to confront the danger of a disaster and deal with all its stages

II.METHODOLOGY

The goal is to know the effectiveness of emergency and disaster management plans and procedures in the power supply stations of the Saudi Electricity Company, through a case study of the flood disaster on a power transmission station north of Medina on January 28, 2019.

The data on which the study was based

The study relied on a number of questions and inquiries within three axes:

• How effective are the plans and procedures for emergency and disaster management in the power supply stations of the Saudi Electricity Company?

• What are the weaknesses and defects in the plans and procedures of emergency and disaster management in the power supply stations of the Saudi Electricity Company?

• What is the level of preparedness and response to flood disasters in the western sector of the Saudi Electricity Company?

The study methodology described and analyzed the opinions of workers in the western sector of the Saudi Electricity Company, on the subject of the study, which is the effectiveness of emergency and disaster management plans and procedures in the power supply stations of the Saudi Electricity Company to cope with flood disasters. Using the social survey method, which belongs to descriptive studies, and is known as the descriptive-analytical method, which describes the phenomenon in its current state, analyzes its data, the relationship between its components, the opinions presented about it, the processes it includes, and the effects that they cause. (Abu Hatab and Amal, 2005).

Source of information's

1- The primary data was collected through a questionnaire as a main tool for the study, designed specifically to collect some data necessary for the study, and it was distributed to some of those concerned with the implementation of the emergency and environmental disaster management plan in the Saudi Electricity Company.

2- Secondary sources: specific to the theoretical framework of the study. The secondary data sources included information and reports obtained from the departments concerned with disaster management in the western sector of the Saudi Electricity Company, in addition to books, references, research and previous studies that dealt with the subject of the study.

Community Studied

The study population consisted of the number of people responsible for implementing the emergency management plan and environmental disasters in the various departments of the Saudi Electricity Company in the western sector, who participated directly in the process of confronting El-Medina Al-Munawara flood disaster on January 28, 2019, on the 380 kilowatt power transfer station north of Medina. Their number is 240, according to the records of the western sector of the Saudi Electricity Company (Saudi Electricity Company, 2019). After confirming the validity and integrity of the questionnaire for the test, 120 questionnaires were distributed to the study population, and then 70 questionnaires were retrieved with a rate of 58.33%, and since there were no problems in honesty and stability, the exploratory sample, which amounted to 30 questionnaires, was entered into the final analysis, so that we have the total number of valid sample items For analysis, there are 100 questionnaires, and therefore the recovery rate is 83.33% during the period from 10/11/2020 to 29/1/2021 AD.

Study questions:

1) The data presented included demographic variables:

They are independent variables and included data (personal and occupational), and the scale of this variable consists of (5) statements prepared to measure the efficiency of workers in the field of disaster management in the western sector of the Saudi Electricity Company. Such as: educational qualification and job rank, number of years of experience, type of job, number of training courses in the field of responding to flood disasters.

2) The main variables of the study:

It included the basic measures to confront flood disasters and consisted of (36) phrases distributed over three axes:

A - Procedures prior to the occurrence of floods.

The scale for this variable consists of (14) statements that are designed to measure the employees' opinions towards that dimension.

B - Procedures during the occurrence of floods.

The scale for this variable consists of (12) statements prepared to measure the employees' opinions towards that dimension.

C - Actions after the occurrence of floods.

The scale for this variable consists of (10) statements prepared to measure the opinions of workers towards that dimension.

3) In preparing the questionnaire, the closed form (Closed Questionnaire) was used, which determines the possible responses to each question. Likert scale was used for the triple gradation of the responses of the study sample members to the statements of the

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basic study variables "axes and dimensions" such as (effective, to some extent effective, ineffective), where the number (3) expresses the highest degree (effective), While the number (1) expresses the lowest degree (ineffective).

• Statistical methods

The following statistical methods were used:

1. (frequencies, percentages, mean and standard deviations) to describe the nature of the data collected.
2. Pearson's Correlation Coefficient to calculate the internal consistency validity of the questionnaire.
3. Cronbach Alpha coefficient to calculate the stability of the different axes of the resolution and the resolution as a whole.
4. Duplicates and Percentages.
5. The arithmetic averages (Mean) in order to know the extent to which the answers of the sample members are high or low from the main axes, and the arrangement of the axes according to the highest arithmetic average.
6. Standard Deviation To identify the extent to which the answers of the sample members deviate for each paragraph of the questionnaire, and for each of the main axes from its arithmetic mean.
7. An Independent Sample T-Test.
8. Test (F) to compare the averages of more than two samples.

III.RESULTS AND DISCUSSION

Demographic variables (primary or personal and occupational)

TABLE NO. (1): ACADEMIC QUALIFICATION

axis	Diploma	Bachelor	Master	F test	
				Value	Significance
First axis	2.27	2.43	2.29	0.349	Not significant
Second axis	2.51	2.57	2.70	0.334	NS
Third axis	2.58	2.62	2.47	0.465	NS

Statistical results in Table No. (1) Indicate that there are no significant differences with regard to the three axes (pre-floods, during and after floods procedures) between the educational qualification variables in the personal demographic variables (diploma, bachelor's, master's). This indicates that the educational qualification did not affect the effectiveness of the activities carried out by officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company. This is in contrast to what was stated by Al-Otaibi (2007), who found in the rise of the educational qualification a positive role in the management of natural disasters.

TABLE NO. (2): NUMBER OF YEARS OF EXPERIENCE

axis	<5 years	From 5-10 years	> 10 years	F test	
				Value	Significance
First axis	2.62	2.28	2.36	0.150	SD
2nd axis	2.64	2.56	2.59	0.833	NS
3rd axis	2.59	2.48	2.64	0.245	NS

The statistical results in Table No. (2) show that there are significant differences with respect to the first axis (pre-floods procedures) and this is consistent with what Al-Otaibi (2007) stated that years of experience have an effective role in the process of combating disasters. The absence of significant differences with regard to the second and third axes (procedures during and after floods) between the variables of the number of years of experience in the personal demographic variables (less than 5 years, between 5 and 10 years, more than 10 years). This indicates that years of experience have an effective effect on the operations of combating flood disaster before the occurrence of floods, but it does not effectively affect the control operations during and after the occurrence of flood.

TABLE NO. (3): JOB RANK

axis	From 44-47	From 48-52	> 53	F test	
				Value	Significance
First axis	2.35	2.38	2.30	0.905	NS
2nd axis	2.36	2.53	2.60	0.677	NS
3rd axis	2.54	2.61	2.50	0.691	NS

The statistical results in Table No. (3) show that there are no significant differences with regard to the three axes (pre-floods, during floods and post-floods procedures) between the job rank variables in the personal demographic variables (from 44 to 47, from 48 to 52, more than 53). This indicates that the job rank does not affect the activities and preparations carried out by the officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company, in terms of activities and preparations to face flood disasters.

TABLE NO. (4): JOB TYPE

axis	Technician	Administrator	T test	
			Value	Significance
First axis	2.22	2.50	0.006	SD
2nd axis	2.48	2.69	0.014	SD
3rd axis	2.46	2.69	0.009	SD

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The statistical results in Table No. (4) show that there are significant differences regarding the three axes (procedures before the floods, during the floods and after the floods) between the job type variables in the personal demographic variables (technical, administrative). This indicates the impact of the job type on the activities and preparations carried out by the officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company, in terms of activities and preparations to face flood disasters.

TABLE NO. (5): THE NUMBER OF COURSES I RECEIVED IN THE FIELD OF RESPONDING TO FLOOD DISASTERS

axis	From 1-3	From 4-6	> 7	F test	
				Value	Significance
First axis	2.34	2.40	2.47	0.006	NS
2nd axis	2.55	2.73	2.58	0.014	NS
3rd axis	2.56	2.61	2.64	0.009	NS

The statistical results in Table No. (5) show that there are significant differences with regard to the three axes (pre-floods procedures, during floods and after floods) between the variables of the number of courses obtained in the field of flood control in the personal demographic variables (from 1 to 3, from 4 to 6, more than 7). This indicates the impact of the number of courses that workers received in the field of responding to flood disasters, on the effectiveness of the activities and preparations carried out by officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company, in terms of activities and preparations to confront flood disasters. This is consistent with what was stated by Al-Wahas (2002) about the existence of a statistically significant relationship between the component of qualification and training and the level of effectiveness of each component of crisis management. It is also consistent with what was stated by Al-Otaibi (2007), which indicated that the increase in years of experience serves the objectives of combating disasters.

The main variables of the study

The first axis: pre-flood measures

TABLE NO. (6) ARITHMETIC AVERAGES AND STANDARD DEVIATIONS FOR THE FIRST AXIS (MEASURES BEFORE THE OCCURRENCE OF FLOODS).

M	Expression	Arithmetic mean	Percentage	Standard deviation	Usage range	Rank
1	**Preparing and implementing plans to cope with flood disasters.**	2.33	77.7	0.697	Neutral	8
2	**Providing the manpower with the necessary and appropriate equipment and mechanisms for confrontation.**	2.43	81.0	0.640	Effective	6
3	**Maintenance of available equipment and machinery.**	2.43	81.0	0.671	Effective	7
4	**Training and awareness programs dedicated to responding to flood disasters.**	2.06	68.7	0.776	Neutral	13
5	**Study the floods incidents that hit the region in the past years**	2.05	68.3	0.809	Neutral	14
6	**Studying the locations of electricity substations and knowing how long they might be exposed to torrential rains.**	2.29	76.3	0.808	Neutral	9
7	**Determining the amounts of rain expected to fall on the area through the competent authorities.**	2.22	74.0	0.760	Neutral	11
8	**Ensure the readiness of the alarms and their effectiveness.**	2.54	84.7	0.593	Effective	3
9	**Determining the flood water collection points inside the stations.**	2.10	70.0	0.859	Neutral	12
10	**Define tasks and responsibilities.**	2.53	84.3	0.611	Effective	4
11	**Determine the goals to be achieved.**	2.47	82.3	0.611	Effective	5
12	**Inventory of all parties that own heavy equipment and available catering establishments.**	2.29	76.3	0.743	Neutral	10
13	**Preparing command and control centers (operation rooms).**	2.70	90.0	0.541	Effective	1
14	**Coordination between concerned departments and government agencies participating in confrontation operations.**	2.59	86.3	0.570	Effective	2
General used average		2.36				
General used degree		Effective				

It is clear from the previous table No. (6) that the total score for the first axis (pre-floods measures), which measures the effectiveness of the measures taken by officials and employees of the departments concerned with the implementation of the emergency

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management plan and environmental disasters in the western sector of the Saudi Electricity Company from activities and preparations before the occurrence of the floods, which came with an arithmetic mean of (2.36) and a standard deviation of (0.516), This means that the officials and employees of the departments concerned with implementing the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company are highly effective by taking proactive measures to confront the floods before they occur. The phrase (13) for preparing command and control centers (operations rooms) outperformed all other phrases with the highest effectiveness with a mean of (2.70) and a standard deviation of (0.451), and phrase No. (14) came in the second place for coordination between the concerned departments and government agencies participating in confrontation operations with a mean of (2.59) and a standard deviation of (0.570), and in the third place came phrase No. (8) to ensure the readiness of alarms and their effectiveness with a mean of (2.54) and a standard deviation of (0.593), and in the fourth place came phrase No. (10) determining the tasks and responsibilities with an arithmetic mean of (2.53) and a standard deviation of (0.611), and in the fifth rank came phrase No. (11) defining the goals to be achieved with an arithmetic mean of (2.47) and a standard deviation of (0.611), and in the sixth rank came the phrase No. (2) providing human bases and mechanisms with an arithmetic mean of (2.43) and a standard deviation of (0.640), and in the seventh rank came phrase No. (3) maintenance of equipment and mechanisms with an arithmetic mean of (2.43) and a standard deviation of (0.671). However, those who participated in this questionnaire effectively did not agree to items (1, 4, 5, 6, 7, 9, 12) and were neutral, which indicates that these items have shortcomings and need an increase in effectiveness. This is consistent with what Al-Anazi (2015) stated in his study of assessing the performance of disaster management from the point of view of municipal workers, where they pointed out the shortcomings in the axes of field efficiency, practical capabilities and the reality of planning. It is also consistent with what was stated by Abu Zayd (2013) in terms of the respondents having medium approval on the availability of disaster requirements, and the Palestinian Ministry of Interior in Gaza achieved medium success in facing disasters. This result can be explained by the fact that there is great interest and effectiveness among the officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company in prior preparation to confront the dangers of torrential rains, because they are aware of the seriousness of the floods and the impact and damage they have on the electrical network, so they are ready for it And they have ways to combat it before it falls. The second axis: measures during the occurrence of floods.

The second axis: procedures during the occurrence of floods

TABLE NO. (7) ARITHMETIC AVERAGES AND STANDARD DEVIATIONS FOR THE SECOND AXIS (MEASURES DURING THE OCCURRENCE OF FLOODS).

M	Expression	Arithmetic mean	Percentage	Standard deviation	Usage range	Rank
1	Field commands respond quickly to emergency instructions.	2.72	90.7	0.494	Effective	1
2	Jump to the event site.	2.63	87.7	0.562	Effective	5
3	Division of flood-prone sites according to the degree of risk.	2.52	84.0	0.689	Effective	8
4	Immediate notification to the concerned parties to participate in the response process.	2.72	90.7	0.514	Effective	2
5	Take the necessary immediate measures to reduce the damage of the torrents on the sites exposed to the torrents.	2.59	86.3	0.552	Effective	7
6	Ensuring the effectiveness of rainwater and flood drainage networks in flood-prone sites.	2.37	79.0	0.677	Effective	12
7	Provide the necessary equipment for confrontation.	2.52	84.0	0.577	Effective	9
8	Providing manpower for confrontation.	2.50	83.3	0.595	Effective	11
9	Follow up the effectiveness of performance and the confrontation process.	2.60	86.7	0.532	Effective	6
10	Performing work according to specialization.	2.51	83.7	0.577	Effective	10
11	Taking into account the priority in the response operations to the affected sites.	2.64	88.0	0.560	Effective	4
12	Following up on the disaster and the changes that occur to it, with announcing it to the workers.	2.68	89.3	0.566	Effective	3
General used average		2.58				
General used degree		Effective				

It is evident from the previous table No. (7) that the total score for the second axis (measures during the floods), which measures the effectiveness of the measures taken by workers in the western sector of the Saudi Electricity Company in Madinah during the occurrence and occurrence of floods, came with an arithmetic average of (2.58) and the degree of use The public is (effective), which means that there is a high effectiveness for workers in the electricity sector to take precautionary measures they take during the occurrence of floods. The phrase (1) (field commands respond quickly to emergency operations) outperformed all other phrases with the highest effectiveness with a mean of (2.72) and a standard deviation of (0.494), and phrase No. (4) (immediate notification to the concerned parties participating in the operation) came in second place with a mean of (2.72) and a standard deviation of (0.514), This is consistent with what was stated by Al-Otaibi (2007) the immediate reporting of the parties involved in dealing with

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the disaster event . And in the third place came phrase No. (12) (follow-up to the disaster first and the changes that occur to it with its announcement to the workers) with a mean of (2.68) and a standard deviation of (0.566). And in the fourth place came phrase No. (11) (taking into account priority in response operations to the affected sites) with a mean of (2.64) and a standard deviation of (0.560), and in the fifth place came phrase No. (2) (quick transition to the site of the event) with an arithmetic mean It was (2.63) and standard deviation was (0.562). In the sixth place came phrase No. (2) providing human bases and mechanisms with an arithmetic mean of (2.43) and a standard deviation of (0.640), and in the seventh place came phrase No. (3) maintenance of equipment and mechanisms with an arithmetic mean of (2.43) and a standard deviation of (0.671). This result can be explained by the fact that there is great interest and effectiveness among the officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company, in the level of readiness to face the risks of floods during their occurrence from damage to the electrical network, as a result of previous experiences in how to deal with floods when they occur. These results indicate that the significance was clear for all twelve statements related to the second axis (measures during the occurrence of floods), which indicates the effectiveness in everything related to the activities carried out by officials and employees of the departments concerned with the implementation of the emergency management plan and environmental disasters in the western sector of the Saudi Electricity Company. The response range was effective for all phrases, but it was graded from highest to lowest as follows (1, 4, 12, 11, 2, 9, 5, 3, 7, 10, 8, 6). This result does not correspond to what was stated by Al-Anazi (2015) in his study evaluating the performance of disaster management from the point of view of workers in municipalities, where they pointed out the shortcomings in the axes of field efficiency, practical capabilities and reality, and it does not correspond to what was stated by Abu Zayid (2013), who found a relationship There is a direct statistical significance between the availability of disaster management requirements and the level of success in managing it by studying the requirements of disaster management and its level of success in the Gaza Strip. The effectiveness of Item No. 8, providing manpower to combat torrential rains, is also consistent with what Al-Otaibi (2007) stated, which indicated that the most important obstacles to combating disasters are the lack of human forces.

The third axis: measures after the occurrence of floods

TABLE NO. (8) ARITHMETIC AVERAGES AND STANDARD DEVIATIONS FOR THE THIRD AXIS (POST-FLOODS PROCEDURES).

M	Expression	Arithmetic mean	Percentage	Standard deviation	Usage range	Rank
1	**Inventory of material and human losses and damages**	2.68	89.3	0.530	Effective	3
2	**Coordination with the concerned authorities to remove the waste resulting from the flood disaster.**	2.53	84.3	0.594	Effective	7
3	**The speed of restoring electrical service to those affected.**	2.79	93.0	0.456	Effective	1
4	**Updating the plan of future training programs to face flood disasters.**	2.41	80.3	0.740	Effective	10
5	**Inventory of costs spent during the management of the flood disaster.**	2.60	86.7	0.586	Effective	4
6	**Preparing a detailed final report on the event.**	2.73	91.0	0.489	Effective	2
7	**Work to modernize devices and equipment necessary to prepare for flood disasters.**	2.41	80.3	0.712	Effective	9
8	**Conducting a comprehensive evaluation of the disaster management plan in coordination with the concerned authorities that participated in the confrontation process.**	2.56	85.3	0.625	Effective	6
9	**Preparing reports and identifying the positives and the disadvantages and how to address them.**	2.58	86.0	0.572	Effective	5
10	**Continuous improvement of emergency and environmental disaster management plans and procedures.**	2.46	82.0	0.688	Effective	8
General used average		2.58				
General used degree		Effective				

The results presented in the previous table No. (8) indicate that the total degree of the third axis (post-floods measures), which measures the effectiveness of the measures taken by workers in the western sector of the Saudi Electricity Company in Madinah after the occurrence and occurrence of floods, came with an arithmetic average of (2.58). The general degree of use was (effective), which means that there is a high effectiveness for workers in the electricity sector for the measures they take after the occurrence of floods. The phrase (3) (the speed of restoring electrical service to those affected) outperformed all other phrases with the highest efficiency with a mean of (2.79) and a standard deviation of (0.456), and phrase No. (6) (preparing a detailed final report on the event) came in second place with an average of My arithmetic reached (2.73) and a standard deviation amounted to (0.489), and phrase No. (1) (inventory of material and human losses and damage) came in the third place, with a mean of (2.68) and a standard deviation of (0.530), and came in the fourth place, phrase No. (5) (Inventory of costs spent during the management of the flood disaster) with a mean of (2.60) and a standard deviation of (0.586), and phrase No. (9) came in the fifth place (preparing reports

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and identifying the pros and cons that occurred and how to address them) with an arithmetic mean of (2.58) and a standard deviation amounted to (0.572). This is consistent with what was indicated by (Al-Shaalan 2002) of the importance of studying the causes of the disaster, trying to identify and evaluate them, and develop procedures and court controls not to happen again. In the sixth place came phrase No. (8) (conducting a comprehensive evaluation of the disaster management plan in coordination with the concerned authorities that participated in the confrontation process) with a mean of (2.56) and a standard deviation of (0.625), and in the seventh place came phrase No. (2) (Coordination With the concerned authorities to remove the waste resulting from the flood disaster) with a mean of (2.53) and a standard deviation of (0.594). Therefore, based on these results, it can be said that there is great interest and effectiveness of the procedures undertaken by the officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company, to address the risks and damages of floods after their occurrence. They are aware of how to mitigate and remove the effects and damages caused by the floods. And they aware of the seriousness of these wastes that appear after these torrents and the damage they cause to the electrical network. They benefited from previous experiences in how to deal with the resulting flood disasters and their environmentally harmful waste. Therefore, they are ready for it and have the plans, procedures, manpower and equipment necessary to mitigate the damages resulting from the floods and remove their effects. These results indicate that the significance was clear for all the ten statements related to the third axis (procedures after the occurrence of floods), which indicates the effectiveness in everything related to the activities carried out by officials and employees of the departments concerned with the implementation of the emergency management plan and environmental disasters in the western sector of the Saudi Electricity Company . The response range was effective for all phrases, but it was graded from highest to lowest as follows (3, 6, 1, 5, 9, 8, 2, 10, 7, 4).

IV.CONCLUSION

The most important results obtained in this study can be summarized as follows

1- Regarding the demographic variables (primary or personal and functional)

A - The educational qualification and the job rank did not affect the preparations, activities and operations of the officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company in terms of preparations, activities and operations to combat the floods of Medina in the three axes (before, during and after the occurrence of the flood disaster). While the type of job and item number of courses you obtained in the field of facing flood disasters had a significant impact on what workers do in combating floods in the Medina Electricity Company in the three axes (before, during and after the disaster).

2 - Regarding the main study variables

A - With regard to the first axis (pre-floods procedures)

half of the fourteen phrases were commented on by the officials and employees of the departments concerned with the implementation of the emergency and environmental disaster management plan in the western sector of the Saudi Electricity Company with the active participation, while the second half was commented on as neutral. The two phrases (preparing command and control centers, and coordination between the concerned departments and government agencies participating in confrontation operations) were characterized by the highest effectiveness in this axis, while the phrase (studying the floods incidents that hit the area previously) occupied the bottom of the list with the lowest rate of effectiveness.

B - With regard to the second axis (measures during the occurrence of floods)

All the responses made by the Electricity Company officials and employees to the statements presented to them were described as effective, and the two phrases (field leaders respond quickly to emergency instructions, and the phrase immediate notification to the concerned authorities to participate in the response process) were the most effective, while the phrase (ensuring the effectiveness of storm and flood water drainage networks) sites exposed to torrential rains) the bottom of the list with the lowest effective rate, which indicates a lack of attention to this aspect compared to other aspects.

C - With regard to the third axis (measures after the occurrence of floods)

The comments and responses of the Electricity Company officials and employees on the statements presented to them regarding the third axis (measures after the occurrence of the floods) were all characterized by effectiveness but gradually in their effectiveness. While the two phrases (the speed of restoring electrical service to those affected by the floods, and preparing a preferred final report on the event) occupied the bottom of the list with the lowest rate of effectiveness, which indicates a failure to pay attention to this aspect compared to other aspects.

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