

Digitizing Human Resources Management as a Mechanism to Predict and Manage Disasters

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Abstract The subject of disaster management started to impose themselves strongly in recent years, specifically in the last two decades, in view of the increasing volume of the disasters that occurred in this period and diversity, whether natural disasters or industrial disasters which is by rights, given the seriousness of these disasters and exacerbate the effects of the existence of an effective administration, based on the predictability of the disaster before its administration. This paper addresses the requirements for the activation of the role of human resources management by providing all the facilities the sophisticated processes of monitoring and early warning, as well as to work on the formation and training of these resources on the use of these modern technologies to achieve effective results in disaster management.

Keywords Digitization, Human Resources, Disaster Management

1. Introduction

Science and communication technology has enabled the understanding of nature and its consequences, a disaster that cannot be stopped as natural disasters, for example, however, the development of information and communication technology, it has become possible to predict miscarriages, to take the necessary measures to reduce the dangers of, and reduction of the effects and losses.

Many of the developing countries pursue a policy of "wait and see" the disaster instead of unifying the efforts to avoid it or try to minimize the effects that can result from them if they occur, in this regard, many developed countries have tended to promote investment in the hydrological cycle and air systems with a view to improving the technology predictability and expectations, through the activation of its dependence on the policy of "surveillance and early warning" to reduce the size of the negative effects of such disasters.

The disaster management learned of the modern science of comparative advantage, this science advance planning disaster forecasting and integration and application of information and to take the appropriate decision of the confrontation at the time of the disaster and then back to the current situation, and has evolved methods of dealing with disasters after the events of 11 September 2001 (World

Trade Center Disaster) and the introduction of many new technologies to cope with future disasters (Abu Chamaa, 2015:2).

Since the disaster management of many of the organs and bodies, the Department must be developed based on the monitoring and forecasting of these disasters are equipped with the latest technologies in the field of information and communications technology is human resources management to avoid such disasters or mitigate their effects if they occur.

2. Literature Review

2.1. The Concept of DIGITIZING Human Resources Management

Human resources is the quantity, which is owned by the organizations of individuals with the skills, knowledge, and those who can achieve the competitive advantage of their organizations (Gazier, 1993:3), The human resources management is concerned with the functional personnel at all levels, whether it is next to the wages, promotions, the right to negotiate and other (Bartoli, 1997:111).

Thus, the use of information and communication technology in the development of human resources lead to the provision of new training opportunity summarized in the training process or digital electronic configuration. Digital training is a process where the rich, interactive environment approved applications of computer technology and networks and media that enables the trainee to achieve the goals of the training process, through its interaction with its sources, in the maximum possible time and effort has been made at the

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highest levels of quality without restricting the limits of time and place (Waman, 2016:144).

The introduction of information and communications technology would enable the exchange of information and the necessary accuracy and speed of response at the local level, regional and even global, and the application of modern technology on human resource management would lead to raising the efficiency of these resources in dealing with the various positions, and become more able to absorb the emergency conditions and other surprises, one of the most important tools of digital technology used in the human resource development: the instructions program, video films, video training Telescoped events (IVT), Wireless Communications, Computer Training, Training and Development by the instructions program, virtualization and other.

2.2. Disaster Prediction and Management

The disaster has become one of the most important challenges facing the world as a whole at the present time, since the disasters cannot be stopped, but it can be predictable and reduce the dangers of, and reducing losses, so it was necessary to think in a scientific study of these disasters and forecasting before they occur, and disaster is a sudden change happens because of the sharp impact continuous changes in the results of the collapse of the balance, The Environmental law defines 4/94 The disaster as: " event caused by nature or human factors which result in severe damage to the environment and the potential of the superiority of local capacity to deal with them" (Cpas, 2018).

Disaster prediction is very difficult, so scientists try to use the latest computer technology to make the process more accurate through the establishment of a predictable air monitoring stations and agencies radar installations and early warning systems. The Forecast is an essential requirement in preventive disaster management process through proactive management of governance based on the predicted thought beacon to avoid a catastrophe early, Through the formulation of proactive preventive system based on innovation and practical training of human resources on how to deal with the requirements of the situation (disaster).

The characteristics of the disaster as per Abu Chamaa (2015:4):

- The element of surprise when the danger or the damage caused, where without introductions because it is difficult to predict;
- The source and cause of the catastrophe may be a natural phenomenon or as a result of administrative behavior of human beings, whether or error or omission with regard to the wars and weapons used;
- The element of the threat to the national interest as a result of danger and damage to individuals and groups;
- The continuity of the disaster and the importance of the time factor and its limitations in the face of danger.

2.3. Types of Disasters

There is no country that is immune from disaster, though vulnerability to disaster varies, there are four main types of disaster (wcpt, 2018):

- Natural disasters: including floods, hurricanes, earthquakes and volcano eruptions that have immediate impacts on human health and secondary impacts causing further death and suffering from (for example) floods, landslides, fires, tsunamis.
- Environmental emergencies: including technological/ industrial accidents, usually involving the production, use or transportation of hazardous material, and occur where these materials are produced, used or transported, and forest fires caused by humans.
- Complex emergencies: involving a break-down of authority, looting and attacks on strategic installations, including conflict situations and war.
- Pandemic emergencies: involving a sudden onset of contagious disease that affects health, disrupts services and businesses, brings economic and social costs.

2.4. Concept of Disaster Management

Based disaster management to reduce the risks associated with the disaster, a long process with many activities and planning processes and taking decisions and experience and practice, covering the distance between preventive measures and access to remedial action last (The National Information Center: 6), Consequently; disaster management can be defined as: "The ability to control the course of events of disaster management for the benefit of the State to reduce the size of the losses to the least possible extent, and where the ruling element is the capacity of the decision maker, the disaster management team." (Abdallah, 2003, 345).

The red Cross and red Crescent societies define disaster management as the organization and management of resources responsibilities for dealing with al humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters (wcpt, 2018).

The global trend today in disaster management is to give greater attention to disaster scenarios, and training, which are of two types:

- On table scenarios.
- Field scenarios.

And scenarios on the table to allow direct confrontation among those responsible for disaster management of the various sectors, as well as the assumptions anti-analyzed and debated.

The scenarios in the field they are the closest to the concept of training, as well as it allows the discovery of deficiencies in performance and in prior plans.

3. Role of the DIGITIZING Human Resources Management in the Disaster Prediction and Management

3.1. The Importance of Human Resources in Dealing with Disasters

Should the human component in dealing with disasters marks the difference of the place and time of occurrence and different intensity and the resultant losses, a set of essential features including awareness and cooperation, it must be a high degree of awareness of the nature of the disaster and the consequences of the situation and not be aware of it only through training the real composition and field levels, As there must be cooperation and coordination of efforts to control the disaster, as well as to the need to take advantage of the tests to be a strategy in the field of human resources management and planning, commensurate with the type of disaster is likely to occur (Bourbiaa, 2014:48).

It should be human resource management is equipped with the latest technologies and techniques of monitoring, measurement, and be integrated early warning system, and therefore the entry of Digitisation and electronic management of human resources management will enable the prediction of the occurrence of such disasters which facilitates the management process.

The following figure shows the process after forecast using surveillance radars, disaster management:

Figure 1. Process of disaster management

1- Mitigation/ Early warning Pre-disaster mitigation efforts	2- Preparedness Education, Training & Emergency Management Planning
4- Recovery Post-disaster recovery plan	3- Response Immediate response to stakeholders

Source: Aridj Mohamed Ahmed Abdullah, ITU Regional Development Forum 2018 (RDF-ARB), Algiers-Algeria, 12-13 Feb. 2018.

It has contributed to the development of human resources training on the use of modern technologies to create digital devices to address disaster reduction, Thus, the information technology and communications technology, especially the so-called "Geographic Information Systems Technology GIS" Had brought about a radical change in the way people organize relevant data to land and the method of their administration. The GIS started In the 1960s in Canada, America and Europe and then spread the use of this technology in the world after this technology did not reach the Arab world, but with the beginning of the 1990s, This technology is based on the collection, storage, analysis and presentation of relevant information geographical and spatial dimension and the importance of their ability to provide information in a timely manner, especially with regard to the development of methodologies for the management of natural and industrial disasters clearly shows its strength in the area of contingency planning (Alkahtani, 2013:3).

The use of the latest information and communication technologies will help in the management of disasters through early warning, prevention and mitigation techniques and relief, particularly in the areas of predictability of disbelief, detection and mitigation to overcome the event and reduce the loss of life and property to the minimum. In this context, some of the European countries in cooperation with some of the Mediterranean Euro-Mediterranean system for natural disaster prevention and management, The aim of this project led by all of France, Italy, Algeria and Egypt, along with their partners must refrain, to the gradual construction of Euro-Mediterranean system an efficient and sustainable management of natural and human disasters and limitation. The objective of the project in the strengthening of the Euro-Mediterranean network for human resources experts and civil protection bodies established in the pilot project), which requires close cooperation between the relevant bodies of the civil protection in relation to disaster management (Alkahtani, 2013).

Modern information technology is an effective element in the operations rooms command and control centers to deal with accidents and disasters and try to prevent or mitigate their effects when they occur, Examples: Geographic Information Systems (GIS), (GPS)... Which is an important tool in building the maps of the disaster areas and use in emergency relief operations and assess the extent of the damage to the disaster.

3.2. The Challenges of Modern Techniques of Facing Human Resources Management for Disaster Management

One of the most important challenges facing the authorities responsible for the management of human resources for disaster management is the use of appropriate modern technologies in the confrontation, and that the challenges expected of any disaster that could occur at any time and create a situation that requires the use of modern technologies in disaster management, and that the need has now become urgent for the use of advanced techniques for confrontation, but preparedness before the disaster. These techniques have been found to play an active role in reducing losses caused by them, but to reduce the cost of the rescue operation, it has been established through the incidents in disaster management that every \$1 spent in readiness for confrontation will provide 3 dollars at the stage of confrontation, that the disaster management officials may be forced to pay three times if they could not identify their targets accurately in the preparation phase (Abu Chamaa, 2015: 10).

3.3. Examples of the Use of Technology to Predict Natural Disasters

- Uses Experts Australian Bureau of Meteorology, for example, computer models to analyze large amounts of information about the climate of the planet, and hope in the establishment of a method to predict the digital divide called

“Ensemble Forecasting” Where a range of possible results on weather, which allows a variety of weather conditions that could be planned, currently extend weather forecast and details about almost a month, but the accuracy decrease after about a week, prompting the Australian Research Team to enter the largest possible number of details in the computer system, including the projected climate change scenarios, in order to be able to predict the weather patterns on the medium level, long-term future.

The researcher said "Peter Mai," the head of the research department at the Australian Bureau of Meteorology, The team is currently testing the accuracy of the computer system, where the comparison of the expectations of the model air events over the past 100 years and what actually happened during that period, using a huge amount of data about 4 PETABYTES. "Mai," he pointed out that the research team is optimistic about the preliminary results in more accurately forecasting despite that the model works on the further development of the research team is still in the pilot phase (<https://arabic.rt.com/technology/887075>).

The British scientists also proposes the use of audio detection system "reading" the ritual that precedes the fluctuations of natural disasters, to ensure the rapid and early evacuation of coastal populations in the event of a "tsunami", The experts also directs the use of sensors already in the sea, as well as the use of other technologies, in order to allow more time enough to evacuate before the disaster, After that join the military technology and also the new detection and warning system in "bugging" to the seas and oceans (<https://arabic.rt.com/technology/924609>).

4. Conclusions

The role of the DIGITIZING human resources management would play a great role in the disaster predictions and its management in the future. Further research is recommended in this cover the lost opportunities if this digitization fails to address the expected outcome.

REFERENCES

- [1] Abu Chamaa, A (2015) The complementarity between the various organs of the management of crises and disasters, The scientific forum on and crisis management centers in the Arab States and between reality and the HOPED, the crisis center and the development of Leaders, The Naïf Arab University for Security Sciences, 8 – 10 December.
- [2] Abdullah, A (2003) Natural Disaster Management with Applications To Earthquakes And Floods, The Journal of the Faculty of training and development, Mubarak Academy for Security, the number (9).
- [3] Abdullah, A (2018) ITU Regional Development Forum 2018 (RDF-ARB), Algiers-Algeria, 12-13 Feb.
- [4] Al Qahtani, Y (2013) Electronic Networking Computer Techniques During Disasters, Scientific Forum On Modern Technologies In The Rescue And Evacuation, shelter, 11-13 November, Riyadh (KSA).
- [5] Bourbiaa, D (2014) Natural disasters and social integration schemes (earthquake 21 Mai 2003 in the Boumerdes – Algeria – as a model), Ph.d. in sociology, Urban demographic specialization, University of Sétif 2, Algeria.
- [6] GAZIER, B (1993) Les stratégies des ressources humaines, la découverte, paris, France.
- [7] Nassar, W (2018) Centre Of Planning And Architecture Studies, accessed on June 11, 2018, at: www.cpas-egypt.com/pdf/Walid_Nassar/MS.C/008.pdf.
- [8] National Center For Information, the management of natural disasters, the Republic of Yemen.
- [9] Wamahn, M (2016) Development Of Human Resources In The Digital Environment, Phd Dissertation Science In Sociology, Human Resources Development, Faculty of Social and Human Sciences, University of Biskra, Algeria.
- [10] WCPT (2018) What Is Disaster Management, World Confederation For Physical Therapy, accessed on June 10, 2018 at: <https://www.wcpt.org/disaster-management/what-is-disaster-management>.
- [11] <https://arabic.rt.com/technology/924609->, accessed on June 13, 2018.
- [12] <https://arabic.rt.com/technologie/887075>, accessed on June 13, 2018.