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Elements of a Computer aided Emergency Management System

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Abstract: Past and recent disasters, both man made (technological) and natural (non-technological) have produced innumerable casualties and unimaginable harm to life and property. It is well documented that in case where the organization and the civil authorities were prepared to handle the situation, the losses were significantly less since these undesirable events occur suddenly and generally without immediate warning, especially the technological disasters, the result is an emergency. Though the management of factories and the authorities has responded to the challenge and has introduced number of measures to minimize the hazards, still one cannot forget the fact that accident cannot be completely eliminated. For this purpose, it is necessary to prepare an emergency preparedness plan for every administrative or industrial area by the competent authorities. Outcome of chemical accidents can be broadly categorized as fire, explosion and toxic release depending upon characteristics of a chemical involved in an accident along with other critical factors such as storage and processing characteristics, availability of ignition source, etc. Meteorological conditions such as wind speed, wind direction, height of inversion layer, stability class, etc. also play an important role by affecting the dispersion pattern of toxic gas cloud. With the help of computer simulation models, knowledge of chemicals; its behavior and availability of input data, it is possible to predict the area affected under different emergency scenarios. Further to assess the damage and carry out emergency planning and response exercise, it is essential to overlay the outcome on a map having features such as other industries, residential areas, schools, markets, road, rail, etc. Also the resources required such as fire and spill control, medical aid, etc. to combat the emergency situation arising out of chemical accident, their location and access to site of accident can also be plotted. Keeping in view the plotting requirement along with linkages of various databases, it has been considered appropriate to use Computer Aided Emergency Management System for effective mitigation and response during an industrial disaster. This paper proposes a basic composition of a Computer Aided Emergency Management System.

Keywords: Industrial disaster, Emergency Preparedness, Computer Aided Emergency Management System.

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