Chapter 6 -- Other Ideas of Possible Importance

The ideas of interest in previous chapters were supposedly indicators of importance in understanding the management of disasters. Interestingly, terms linked with prevention, mitigation, and rehabilitation did not represent the more important ideas, at least in terms of frequency of citation.

Table 1. Frequently Cited Ideas from Total Disaster Related Group.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Term** | **Freq** | **Term** | **Freq** | **Term** | **Freq** |
| **Total** | **475934** | **Total** | **475934** | **Total** | **475934** |
| **disaster** | **54961** | **evacuation** | **4124** | **mental** | **2228** |
| **health** | **54882** | **crisis** | **4122** | **age** | **2178** |
| **emergency** | **50113** | **policy** | **4052** | **protective** | **2033** |
| **hospital** | **24675** | **distress** | **3953** | **exposure** | **1943** |
| **mortal** | **13073** | **pandemic** | **3878** | **community** | **1916** |
| **death** | **10021** | **infectious** | **3752** | **research** | **1874** |
| **flood** | **9926** | **simulation** | **3597** | **political** | **1860** |
| **earthquake** | **9735** | **contamination** | **3385** | **medical** | **1830** |
| **morbid** | **7927** | **depression** | **3250** | **policies** | **1827** |
| **emergencies** | **7353** | **response** | **3108** | **assess** | **1740** |
| **hazard** | **6591** | **resilience** | **3006** | **danger** | **1690** |
| **risk** | **5882** | **security** | **2977** | **environment** | **1592** |
| **drought** | **5857** | **terror** | **2910** | **epidemic** | **1588** |
| **force** | **5574** | **rural** | **2752** | **mitigation** | **1587** |
| **rescue** | **4878** | **protection** | **2652** | **violence** | **1577** |
| **damage** | **4566** | **shelter** | **2386** | **rehabilitation** | **1521** |
| **infection** | **4494** | **management** | **2328** | **intervention** | **1448** |
| **hurricane** | **4230** | **fatal** | **2318** | **training** | **1422** |
| **evacuation** | **4124** | **stress** | **2298** | **support** | **1398** |
| **crisis** | **4122** | **resuscitation** | **2229** | **depressive** | **1355** |

Table 1 shows the most frequently cited ideas (for example, disaster plus a related term occurred 54,961 times). Four of the terms were in that higher frequency set. They were: response, resilience, mitigation, and rehabilitation. Prevention was 414th with 164 ideas. Climate ideas were cited 29 times and research ideas, 1874 times.

Sample documents are retrieved and displayed so that the informative terms and the associated ideas can be seen in the original context. While ideas can be used as independent building blocks, it is informative to consider the author’s intent for use. Often, the idea may be incidental in the original text but found to be relevant in future arrangements. The following exhibits describe arbitrary selections based on time of entry into PubMed or apparent importance of the idea.

Exhibit 1 is an announcement of the formation of a research program aimed at preventing destructive effects of climate changes in Cuba. The government recognized the vulnerability of the island environment and established programs. The report identifies the heads of the research efforts. No findings were presented to report progress since 1990.

Exhibit 1. Cuba’s Research Program in Climate Change.

[Mesa G](https://www.ncbi.nlm.nih.gov/pubmed/?term=Mesa%20G%5BAuthor%5D&cauthor=true&cauthor_uid=26027580), [Ortiz P](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ortiz%20P%5BAuthor%5D&cauthor=true&cauthor_uid=26027580), [Gorry C](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gorry%20C%5BAuthor%5D&cauthor=true&cauthor_uid=26027580). **Approaches to Climate Change & Health in Cuba: Guillermo Mesa MD MPhil, Director, Disasters & Health, National School of Public Health. Paulo Ortiz MS PhD, Senior Researcher, Climate Center, Cuban Meteorology Institute.** [MEDICC Rev.](https://www.ncbi.nlm.nih.gov/pubmed/?term=26027580) 2015 Apr;17(2):6-9. PMID: 26027580

The US National Institutes of Health predict climate change will cause an additional 250,000 deaths between 2030 and 2050, with damages to health costing US$2-$4 billion by 2030. Although much debate still surrounds climate change, island ecosystems-such as Cuba's-in the developing world are arguably among the most vulnerable contexts in which to confront climate variability. Beginning in the 1990s, Cuba launched research to develop the evidence base, set policy priorities, and design mitigation and adaptation actions specifically to address climate change and its effects on health. Two researchers at the forefront of this interdisciplinary, intersectoral effort are epidemiologist Dr Guillermo Mesa, who directed design and implementation of the nationwide strategy for disaster risk reduction in the Cuban public health system as founding director of the Latin American Center for Disaster Medicine (CLAMED) and now heads the Disasters and Health department at the National School of Public Health; and Dr Paulo Ortiz, a biostatistician and economist at the Cuban Meteorology Institute's Climate Center (CENCLIM), who leads the research on Cuba's Climate and Health project and is advisor on climate change and health for the UN Economic Commission for Latin America and the Caribbean (ECLAC).

In general, the themes describe in documents that contained consideration of research ideas did not reveal findings that would be considered to be evidence-based. This lack of methodological and progressive fact findings, hampers the ability to accomplish improvements in disaster management. As such, the actions taken appear to be based on opinion. While specialists are expected to have informed opinions, no guarantees are apparent. The costs in property and in disease are increasing with each new disaster. The motivation to have definitive programs is clear. The failure to provide definitive evidence is not.

This analysis of the disaster literature could be used to suggest that the management of disasters in the form of preventive actions, mitigations, and rehabilitations are not optimum. However, the intent of the analysis was to develop the database of facts provided by specialists in the discipline. Such experts will have to decide the merits of the data and the value of a research program that doesn’t produce evidence-based findings.

A distinct issue associated with the findings is the description of the analytic process as an example of artificial intelligence. That definition is satisfied by three different conditions. Those are:

1. Automation of established procedures. Many of the applications labeled as artificial intelligence consist of improving the use of existing analyses by automating the procedures. These procedures include “back office” methods. These improvements in function would be labeled as clerical efficiency rather than artificial intelligence. Although, the latter label has more appeal.
2. Detection of unusual events. Applications within the definition include improved fraud detection and discover of identity theft. These methods use established detection procedures in an automatic and more efficient manner. The results imply that the software are magical as well as mysterious. The fact that established procedures are being used more efficiently may be clouded by the detection results.
3. Deep learning. This approach represents real artificial intelligence. The existing factual data are used to develop new insights and new knowledge. “To go where man has never been before”. Hints of this learning can be found in samples designed for clerical efficiency. One example is the recognition of terms that don’t satisfy the algorithms designed to recognize informative terms by their endings. The inclusion of such terms may be due to contextual relationships or perhaps, invisible elves at work. In any event, the software provided unusual but correct additions to the analytic vocabulary.

The text analysis process satisfies the definition of Artificial Intelligence (Clerical Efficiency) in that:

    1.    Words contextually related to ones with defined endings are recognized. (The mysterious deep learning example!)

    2.    Ideas are organized and found to form concepts based on common anchor terms (called primary terms in the idea analysis).

    3.    The idea swarms (concepts) facilitate human learning of complex subjects faster than traditional methods.

    4.    The procedures used in accomplishing development of new knowledge acquisition (research design) can be learned and applied by individuals new to the discipline.

    5.    Assessing the degrees of change in process, the resolution of unknown text, the organization of new terms and contextual relationships, and the development of new knowledge acquisition strategies, suggests a closer relationship with the concepts and intent of Artificial Intelligence.

Hence, clerical efficiency may be the actual and frequent artificial intelligence product for some time to come. The results of this analysis may clarify or confuse. Interpretations are often more emotionally based that factually based. In any event, those who prefer a factual basis for decision-making will find that the idea database is well-suited for that. Those who value opinion rather than evidence, may also find strengths in the idea database. Certainly, the literature is replete with opinions. The evidence is on the rarer side. Accordingly, the decision as to *disaster or disastrous management* is the rule in disaster management is not an easy one.

The strengths and weaknesses of the procedures used are presented in terms of the ideas employed by the specialists. The questions posed include:

1. Are ideas representative of the facts describing the procedures and the results?
2. If so, can ideas be used to improve knowledge acquisition?
3. If not, what are the essential data needed?

The answers may not be so succinct.