Chapter 4.8 Geographic Information Systems

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Further reading

1. Mansour S. Spatial analysis of public health facilities in Riyadh Governorate, Saudi Arabia: a GIS-based study to assess geographic variations of service provision and accessibility. Geo-spatial Information Science; 2016: 19(1): 26-38

   Summary of this document: This reading provides detailed information on the application of GIS in the real world and describes the future directions of GIS use in the disaster health field.

   In this short article, the author performed a GIS analysis to assess the availability and accessibility of public health facilities across the Riyadh Governorate in Saudi Arabia. This assessment aims to provide accurate information on the distribution pattern, equity, utility, and availability of public health facilities across Riyadh Governorate. It found that the availability of public health facilities was heavily clustered, with some areas having a higher density of facilities while others having a shortage. The author concludes that spatial analysis studies can provide powerful analytical tools to explore health service delivery and identify unwarranted variations in availability and accessibility.

2. Yafei Z, Mao L. GIS-based urban fire risk assessment and its application in disaster mitigation planning. Journal of Catastrophology; 2010: 25(S1):258-63.

   Summary of this document: This reading provides detailed information on the application of GIS in the real world and describes the future directions of GIS use in the disaster health field.

   In this short article, the authors used GIS to develop an urban fire risk assessment model. It identifies, classifies, and maps fire risk areas to create a composite risk evaluation for an entire city. The model consists of six subjectively weighted variables. This article also describes a case study that piloted this assessment model, noting positive feedback and field application challenges. The authors conclude that this risk assessment model can be reliably applied to other cities, provided that the variables and weights associated with a city's fire risks are adjusted appropriately.

3. Nagata T, Kimura Y, Ishii M. Use of a Geographic Information System (GIS) in the Medical Response to the Fukushima Nuclear Disaster in Japan. Prehospital and Disaster Medicine; 2012: 27(2): 213-15.

   Summary of this document: This reading provides detailed information on the application of GIS in the real world and describes the future directions of GIS use in the disaster health field.

   In this short article, the authors describe the use of GIS to visualize the risk of radiation exposure and help allocate medical teams after the 2011 Fukushima nuclear disaster. GIS was used to map radiation measurements, enabling the safe deployment of medical relief teams. Additionally, GIS helped inform decisions surrounding emergency relocation and safe return during the recovery phase. The authors conclude that GIS can provide valuable and timely information in the disaster setting and assist in the safe allocation of humanitarian resources.

4. Kawasaki A, Berman M L, Guan W. The growing role of web-based geospatial technology in disaster response and support. Disasters; 2013:37(2): 201-21.

Summary of this document

This reading provides detailed information on the application of GIS in the real world and describes the future directions of GIS use in the disaster health field.

In this short article, the authors examine changes in disaster response due to the use of web-based geospatial tools. It uses the 2008 Sichuan and 2010 Haiti earthquakes as case studies. It describes conventional GIS disaster use by governmental agencies and relief response organizations, and how GIS has transformed into a more decentralized tool with significantly greater public participation. This article also discusses lessons learned from recent responses. The authors conclude that current GIS practice has combined professional practice with public involvement and that coordinating involved groups can maximize the utility of future disaster GIS applications.