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Locating Environmental Justice Populations: A Method for Identifying Vulnerable Populations in Massachusetts

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Abstract

Environmental Justice is an issue that has been relevant in the mind of the federal government for the past 18 years. Within society, the goal of Environmental Justice looks to prevent the exploitation of vulnerable populations through the siting of environmentally hazardous sites. Instead of over burdening specific vulnerable populations, fair distribution of hazards throughout the population is desired.

Although there is a large body of research that study the location and impact of hazardous sites on the surrounding communities, there are few existing models which look to locate vulnerable populations through the use of quantitative data. Of the existing models none implement an intensity scaling method based upon the percent of the population that exist within certain study area dependent thresholds. The purpose of this study is to develop a multi level index that examines a study area based upon intensity scaling of census data as well as hazard siting proximity analysis. A gap in the current literature is filled by the creation of the index and introduction of intensity scaling.

The final output of the index presents a method that is modular allowing for the application of each level of the index to be applied individual of the other level. The index can be used to support and facilitate decision making performed by local, state, or federal agencies, to prevent the over burdening of a community. A second use is as a predictive model, providing a base upon which a better understanding of the local impacts of future siting and/or removal of a hazardous site can be evaluated. A final use of this index is as a foundation upon which future research can be conducted, providing an environmental justice understanding of a region, allowing for targeted research to be performed.

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