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Title: The Social and Environmental Impacts of Biofuel

Abstract

Biofuel is a renewable source of energy because we can keep producing and because we can keep making biofuels it is an alternative to fossil fuels. The research will explore if the production of biofuel has an environmental impact in the United States. This research uses spatial data and network analysis geoprocessing tools to analyze p generation one biofuels. Using these methods, this research determines the distance from biofuel plants to the biofuel using fuel stations, and uses python geoprocessing within the analysis.

The data sets used for this research project include biofuel crop data, biodiesel and ethonal production plants locations, and biodiesel and E85 fueling stations locations. The crop data set is being used to see the farming locations of generation-1 biofuel e.g., corn, sugar cane, and soybean locations. Using the different processing plants and fueling stations data, the distance of the produced fuel is being measure from the location of the processing plant to the location of the station using the network anylysis tools. Also using this data it can be seen where the plants and stations are located and how dispersed they are around the US.

The preliminary result of this research shows that bio fuel is a viable replacement for fossil fuel. The research uncovers that generation one ethanol bio fuel is not the most economical or efficient. Future generations of bio fuel have tremendous potential to overcome the shortcoming of gen-1 ethanol based bio fuel. Ethanol based biofuel does not result in competition for food. Farming for ethanol based generation one bio fuel has a smaller environmental impact from traditional fossil fuels. This research can help show that biofuel is a good sustainable fuel source option that can be used instead of fossil fuels.