**Prop. Objectives:**

A spatial decision support system (SDSS) is a software tool or framework that integrates spatial data, analytical techniques, and decision-making processes to assist users in making informed decisions related to spatial problems. It goes beyond traditional GIS projects by incorporating decision-making components and facilitating collaboration among multiple stakeholders with diverse needs and interests.

Examples of application areas for SDSS include:

1. Land Use Planning: Developing an SDSS that assists local government officials, environmental organizations, and developers in negotiating the allocation of land for residential, commercial, and conservation purposes. The system would consider factors such as population growth, economic development, and environmental sustainability to facilitate compromise and consensus among stakeholders.
2. Water Resource Management: Creating an SDSS that helps water authorities, agricultural associations, and environmental groups negotiate the allocation of water resources for irrigation, drinking water supply, and ecological preservation. The system would consider factors like water availability, competing demands, and environmental impacts to support informed decision-making and trade-off discussions.
3. Forest Management: Designing an SDSS that enables forestry companies, indigenous communities, and conservation organizations to negotiate the sustainable use of forest resources. The system would consider factors such as timber production, biodiversity conservation, and cultural values to facilitate dialogue and compromise among stakeholders with differing interests.
4. Coastal Zone Planning: Developing an SDSS that assists coastal communities, tourism operators, and environmental agencies in negotiating the use of coastal areas for development, conservation, and recreation. The system would consider factors like shoreline erosion, habitat protection, and economic benefits to support collaborative decision-making and trade-off analysis.

In each of these examples, the SDSS serves as a platform for stakeholders with conflicting interests to engage in negotiation, understand each other's perspectives, and work towards mutually acceptable compromises. By incorporating decision-making components and facilitating collaboration, the SDSS helps participants navigate trade-offs and reach decisions that balance diverse needs and agendas.

Your project proposal should therefore contain the following steps/elements:

1. Identify an application area: Identify a specific domain or problem area where spatial decision-making plays a crucial role, such as urban planning, environmental management, or public health.
2. Define the problem: Articulate the problem you aim to address with your spatial decision support system (SDSS). This could involve identifying conflicting land uses, resource allocation challenges, or decision-making bottlenecks.
3. Identify stakeholders: Identify the different parties or stakeholders involved in the decision-making process. These could include government agencies, community groups, businesses, or individuals with varying interests and agendas.
4. Determine data requirements: Identify the types of spatial data and non-spatial data that would be necessary to support decision-making in your chosen application area. This could include demographic data, environmental data, infrastructure data, or socioeconomic data.
5. Propose decision-making components: Think about the specific decision-making components your SDSS would incorporate. This could involve analytical models, visualization tools, scenario analysis, or collaborative features to facilitate negotiation and consensus-building among stakeholders.
6. Consider implementation challenges: Consider the potential challenges you may encounter during the development and implementation of their SDSS, such as data availability, technical constraints, or stakeholder engagement.

Nuisance Facilities - ex - drug rehab, prisons - seem to be a good idea

What is extent? - block, neighborhood, region, backyard, busstop?

Temporal resolution - NYC311 data is on a monthly basis, Americommunity survey data updated every 5 years, etc.

Project should include:

1. a title
2. goals and objectives
3. a conceptual model diagram (and a verbal explanation of the same)
4. a list of resources needed
5. a schedule with milestones and deliverables

P1 - Grasslands Remediation - [

* Ensure adequate corridors
* Chernozem

Further Route for Data:

Landfill Gas

Map emissions per capita across countries of interest;

* *A New York study of 38 landfills found that women living near solid waste landfills where gas is escaping have a four-fold increased chance of bladder cancer or leukemia.*[*9*](https://energyjustice.net/lfg/#9)*,* [*10*](https://energyjustice.net/lfg/#10)

*The general options for dealing with landfill gas (once collected) are as follows:*

1. *flare it*
2. *boiler - makes heat*
3. *internal combustion engine - makes electricity*
4. *gas turbine - makes electricity*
5. *fuel cell - makes electricity*
6. *convert the methane to methyl alcohol*
7. *clean it up enough to pipe it to other industries or into the natural gas lines*

*\*carbon monoxide and NOx emissions are highest from internal combustion engines and lowest from boilers. Flares and gas turbines are in the middle*

[*http://www.eia.doe.gov/cneaf/solar.renewables/renewable.energy.annual/chap10.html*](http://www.eia.doe.gov/cneaf/solar.renewables/renewable.energy.annual/chap10.html)

Want to watch out for land/watershed stresses, climate stresses, hazardous waste impacts for nearby communities, and predominant contaminant risk (NMOC makeup)[1]

[1] *NMOCs usually make up less than 1% of landfill gas. EPA identifies 94 NMOCs in their 1991 report, "Air Emissions from Municipal Solid Waste Landfills - Background Information for Proposed Standards and Guidelines." Many of these are toxic chemicals like benzene, toluene, chloroform, vinyl chloride, carbon tetrachloride, and 1,1,1 trichloroethane. At least 41 of these are halogenated compounds. Emphasis for SDSS would include waste makeup and dioxin/furan risk - When halogenated chemicals (chemicals containing halogens - typically chlorine, fluorine, or bromine) are combusted in the presence of hydrocarbons, they can recombine into highly toxic compounds such as dioxins and furans; When halogenated chemicals (chemicals containing halogens - typically chlorine, fluorine, or bromine) are combusted in the presence of hydrocarbons, they can recombine into highly toxic compounds such as dioxins and furans; burning at high temperatures doesn't solve the problem as dioxins are formed at low temperatures and can be formed as the gases are cooling down after the combustion process. Will determine plant type and general options (flaring, burning, boiler, etc.)*

1. "Methodologies for Quantifying Pollution Prevention Benefits from Landfill Gas Control and Utilization," EPA document #600SR95089, July 1995.
2. "The Inventory of Sources of Dioxin in the United States," EPA/600/P-98/002Aa, April 1998.
3. Caponi, Frank R., Ed Wheless & David Frediani, ["Dioxin and Furan Emissions From Landfill Gas-Fired Combustion Units,"](https://energyjustice.net/lfg/LFG-caponi.pdf) County Sanitation Districts of Los Angeles County, 98-RP105A.03, 1955 Workman Mill Rd. Whittier, CA 90607.
4. "Investigation of Cancer Incidence and Residence Near 38 Landfills With Soil Gas Migration Conditions, New York State, 1980-1989," State of New York Department of Health, (Atlanta, Ga: Agency for Toxic Substances and Disease Registry, June, 1998). Available from the National Technical Information Service in Springfield, Virginia [800-553-6847]; request publication PB98-142144.
5. "Air Emissions from Municipal Solid Waste Landfills. Background Information for Final Standards and Guidelines." Document # is EPA-453/R-94-021. December 1995, 311 pages. <http://www.epa.gov/ttn/atw/landfill/landflpg.html#TECH>
6. "Methodologies for Quantifying Pollution Prevention Benefits from Landfill Gas Control and Utilization," EPA document #600SR95089, July 1995.
7. The EIA data I scraped (forms 923/860) - maybe can add in temporal analysis?

Schedule: N/A a this point

| Bloc |  |  |
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| [not february] |  |  |
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