

# Planning Ahead for Resiliency: Role of GIS

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# RESILIENCE

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Resilience is a term used across many different fields, including social, political, economic, environmental, and others

# What makes a people or place resilient?

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- Being ADAPTABLE to change
- Having awareness
- Harnessing local resources
- Being active instead of passive

# Sociospatial helps achieve resilience

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**Definition:** Sociospatial is an integrated examination of space, place and social indicators in a holistic fashion.  
(Steinberg and Steinberg 2009; 2015)

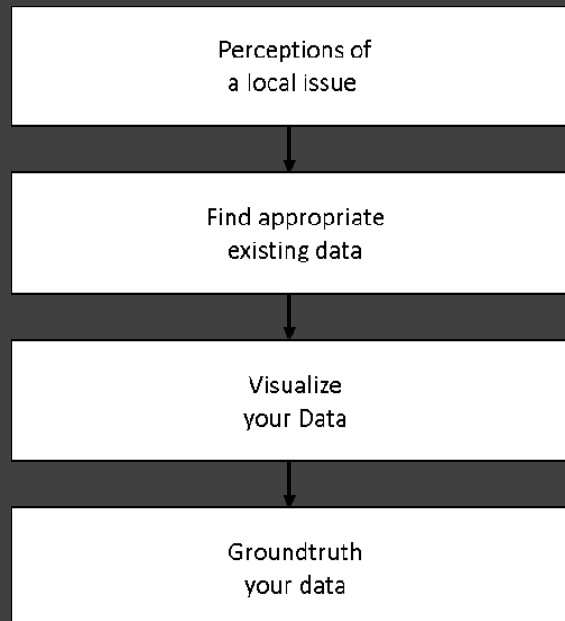
# Resiliency

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The ability to successfully adapt to changes

# Sociospatial Thinking

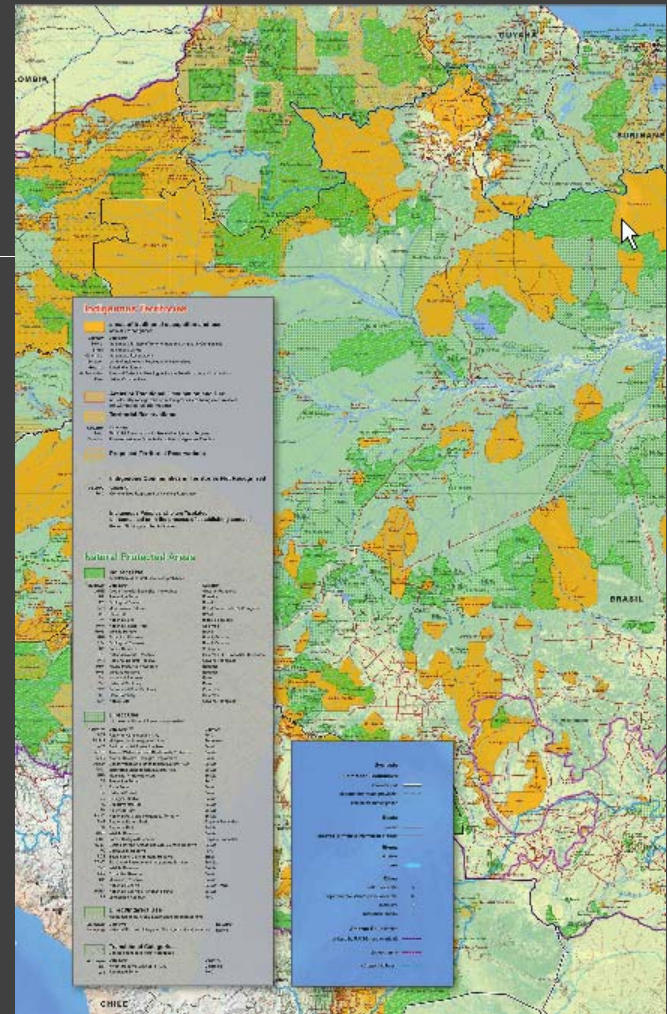
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# Thinking Spatially about PLACE



# GIS-Enables Integrated Data





# Interdisciplinary

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Ability to integrate different disciplines and approaches together.

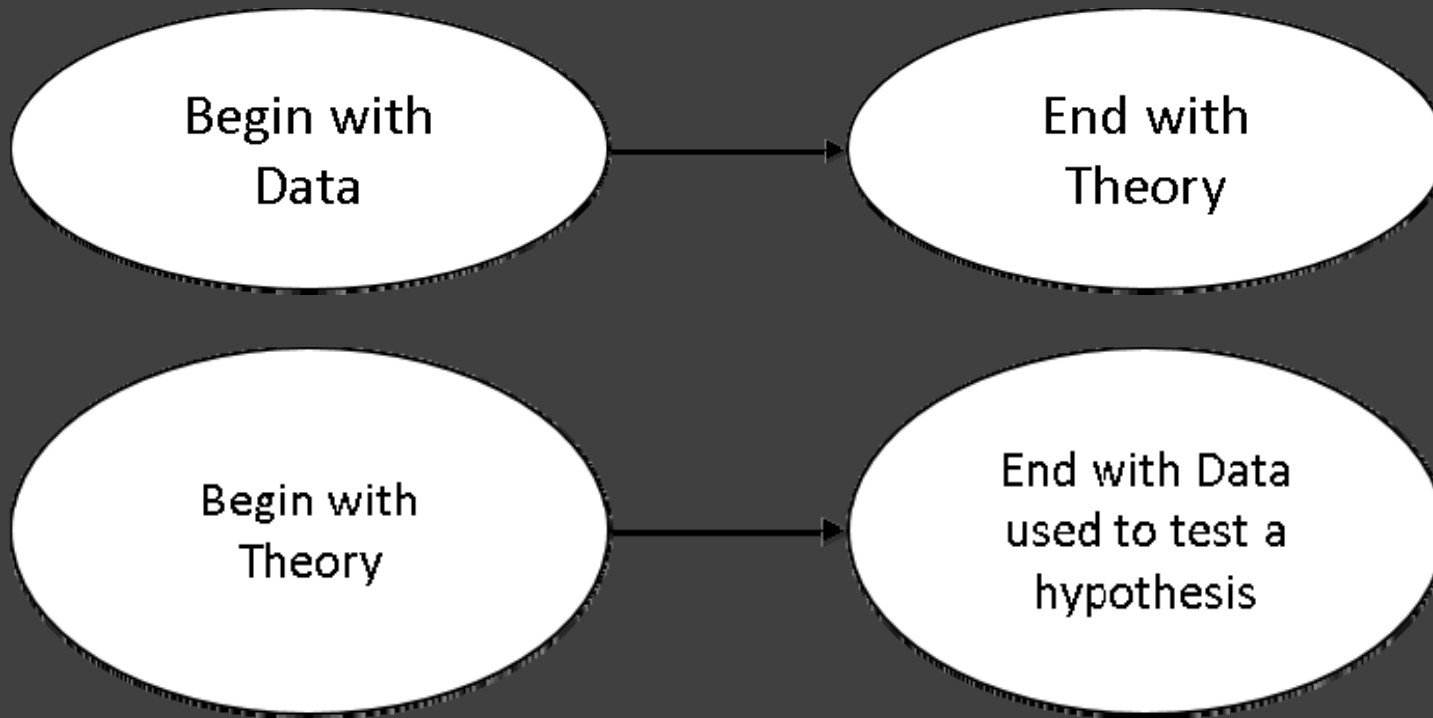
## Challenge facing resiliency

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- Using Geographic Information Systems (GIS) enables one to actively consider space and place
- Educational systems and approaches that utilize spatial place-based approaches (GIS) are better suited to impact people who participate in them
- Enables the participants in the educational setting to help to define, characterize and understand their situation

# Inductive or Deductive Thinking?

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# Multiple Methods

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Using multiple methods enables the researcher to triangulate the situation.

# Sociospatial Grounded Theory:

## A New Approach to Research Methods

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1. Determine a topic of interest.
2. Determine a geographic location of interest.
3. Collect the data (qualitative, spatially linked and social data).
4. Geocode the data.
5. Ground truth the data.
6. Analyze the data and look for spatial and social patterns.
7. Generate theory (spatial and social).

# 1: Determine topic of interest

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What is the risk of pesticide exposure to school kids in agricultural communities?

## 2: Determine geographic location of interest

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# 4: Geocode the Data



Zip_Code	Respondent	Question_1	Question_2	Question_3	Question_4
55113	A	4	3	5	5
55401	B	2	4	3	3
55112	C	5	4	4	5

Zip\_Code, Respondent, Question\_1, Question\_2, Question\_3, Question\_4

55113, A, 4, 3, 5, 5

55401, B, 2, 4, 3, 3

55112, C, 5, 4, 4, 5

Using GPS, geocoding of addresses or other spatial information

## 5: Ground Truth the Data

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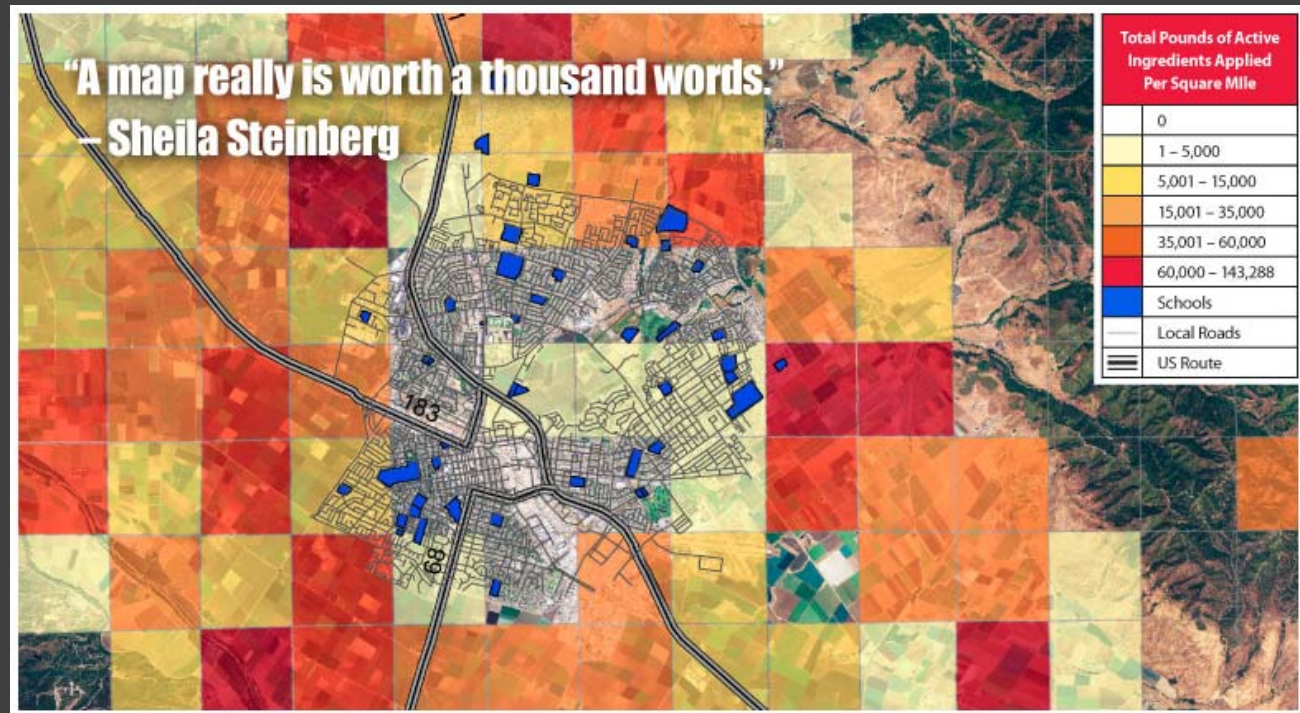
## 6: Analyze the data (look for spatial/social patterns)

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# 7: Generate Theory

A number of schools are located in areas of significant risk of pesticide drift and exposure.



## Sociospatial Approach-for Resilience

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- Being interdisciplinary allows the researcher or practitioner to view the problem/issue from multiple angles.
- Facilitates creativity and innovation
- Ultimately produces solutions that can work across different types of stakeholders

# Best Practices for Achieving Spatial Resilience

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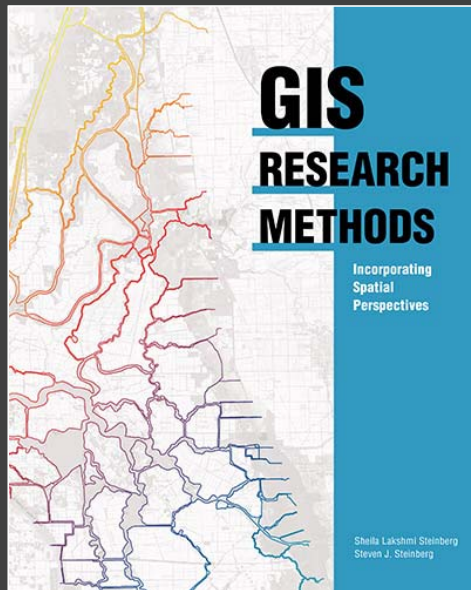
1. Adapt to changes in the physical and social environment
2. Draw on existing strengths (human capital, social capital, understanding of place)
3. React to changes through education (both formal and informal)

## Conclusion

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- Use GIS to create context-based interdisciplinary views of a situation/problem/issue
- Enables one to see the “big picture” of WHY and WHERE
- Fosters better decision-making and REACTION to change
- Focus on where the geography of action (space, time and place) IS and SHOULD OCCUR

# GIS Research Methods: Incorporating Spatial Perspectives



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