Risk of Terrorism in the West Bank

Project Description

The primary goal of this project is to identify localities highly vulnerable to terrorism in the West Bank. For the purposes of this project, terrorism is defined as "the threatened or actual use of illegal force, and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (Global Terrorism Database).

Building on previous research looking at special variation in risk, this project analyzes risk of terrorism at the locality level based on five indicators: proximity to international or domestic border, location of governorate capitals, population density, religious composition, and location of terrorist attacks from 2006 to 2012.

In addition, data on the location of checkpoints is used to look at the correlation between risk of terrorism and physical security measures to determine vulnerability to terrorist attacks. Localities at the highest risk of terrorism and farthest from a checkpoint are ranked most vulnerable and localities at the lowest risk of terrorism and closest to a checkpoint least vulnerable.
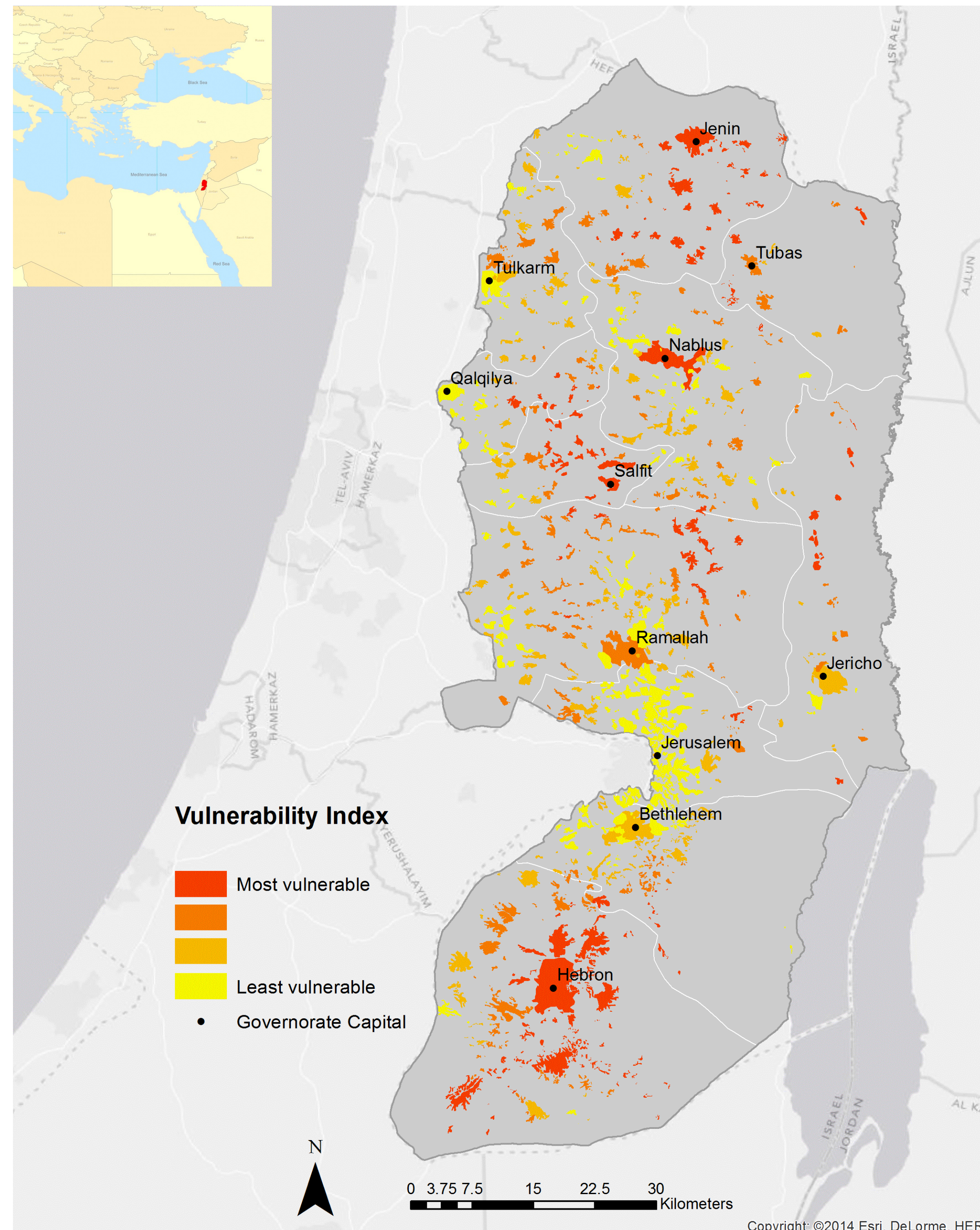
Methodology

The final vulnerability index compares the overall risk of terrorism to distance from a checkpoint, at the locality level:

$$\text{Vulnerability} = \frac{\text{Risk of terrorism}}{\text{Distance from checkpoint}}$$

The risk of terrorism in each locality was calculated using a ranking system of each of the five indicators, ranging from 1 to 5 with 1 being the highest risk of terrorism and 5 being the lowest risk. The indicators and rankings were based on by Claude Berrebi and Darius Lakdawalla findings that proximity to an international border, presence of a Jewish population, centers of government administration, and size of population led to increased risk of terrorism in Israel.
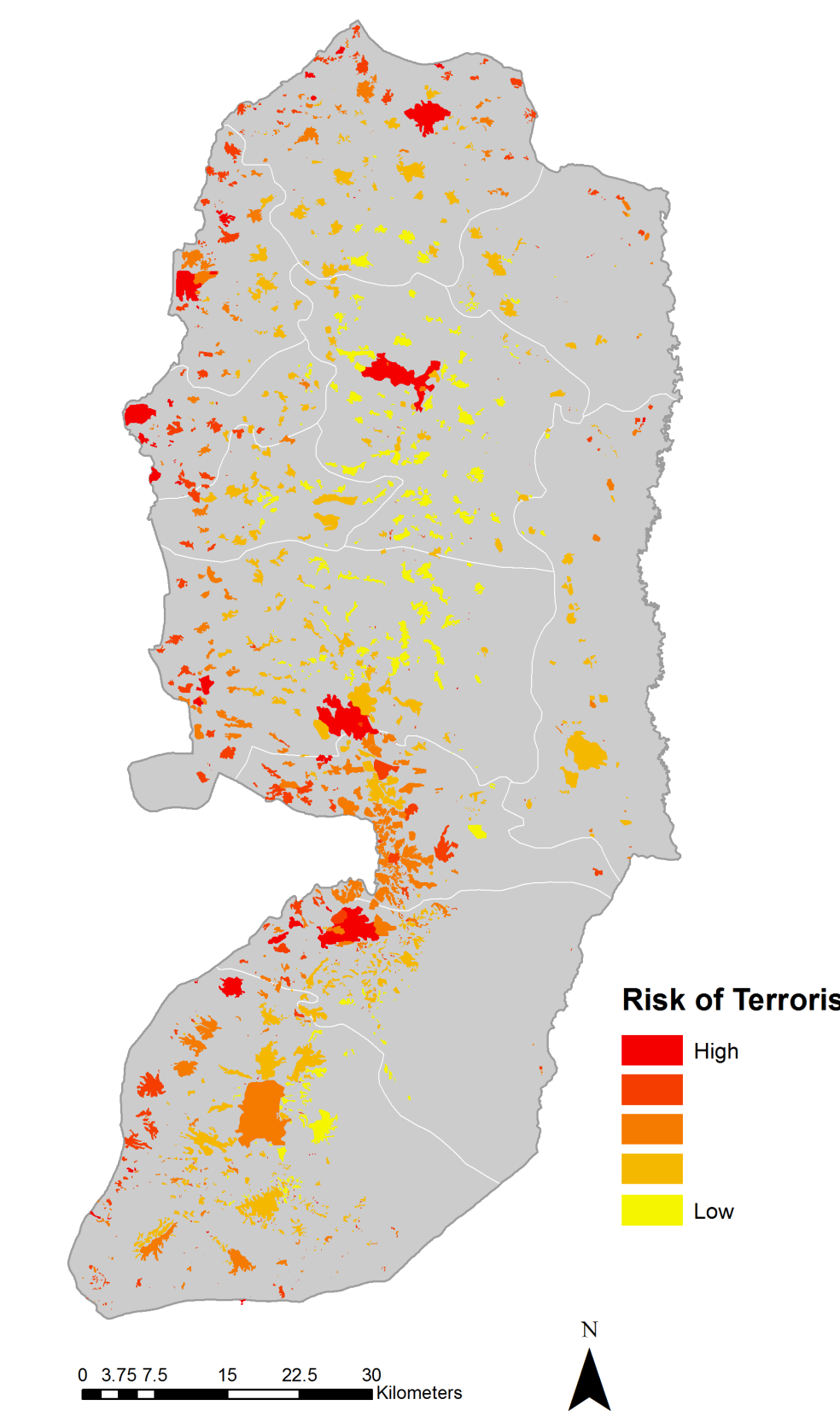
Indicator	Ranking
Proximity to Border (km)	1 = Closest to border (0 - 3)
	5 = Farthest from border (>15)
Governorate Capitals	1 = Locality with a capital
	2 = Locality without a capital
Population Density (people/km)	1 = Highest density (> 33.43)
	5 = Lowest density (0 - 2.3)
Religious Composition	1 = any Jewish population
	2 = no Jewish population
Terrorist Attacks (total number)	1 = Most attacks (14 - 24)
	5 = Least attacks (0)

Distance from checkpoints was determined using the Euclidean distance tool to calculate the average distance of each locality from a checkpoint. Zonal statistics were then used to generate a table of values with the average distance of each locality from a checkpoint, ranging from 0 to 17 km.

Vulnerability Index

- Most vulnerable
- Least vulnerable
- ● Governorate Capital

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Results

As seen in the map below, localities at the highest risk of terrorism tend to be located along the border or have a governorate capital. When looking at how risk of terrorism is correlated with checkpoints, Jerusalem, Qalqilya, and Tulkarm appear to be at relatively lower risk because of the number of checkpoints along the border. According to this analysis, Hebron, Nablus, Jenin, and Salfit are at the greatest risk of terrorism.

Risk of Terrorism
- High
- Low

While there are limitations to the interpretation of these findings, as discussed below, they can serve as a useful framework for understanding where there is a need to increase investment in physical security measures, given the level of risk and current checkpoint locations. Given the results of this analysis, new security investments should be focused on the most vulnerable areas near Hebron, Nablus, Jenin, and Salfit.
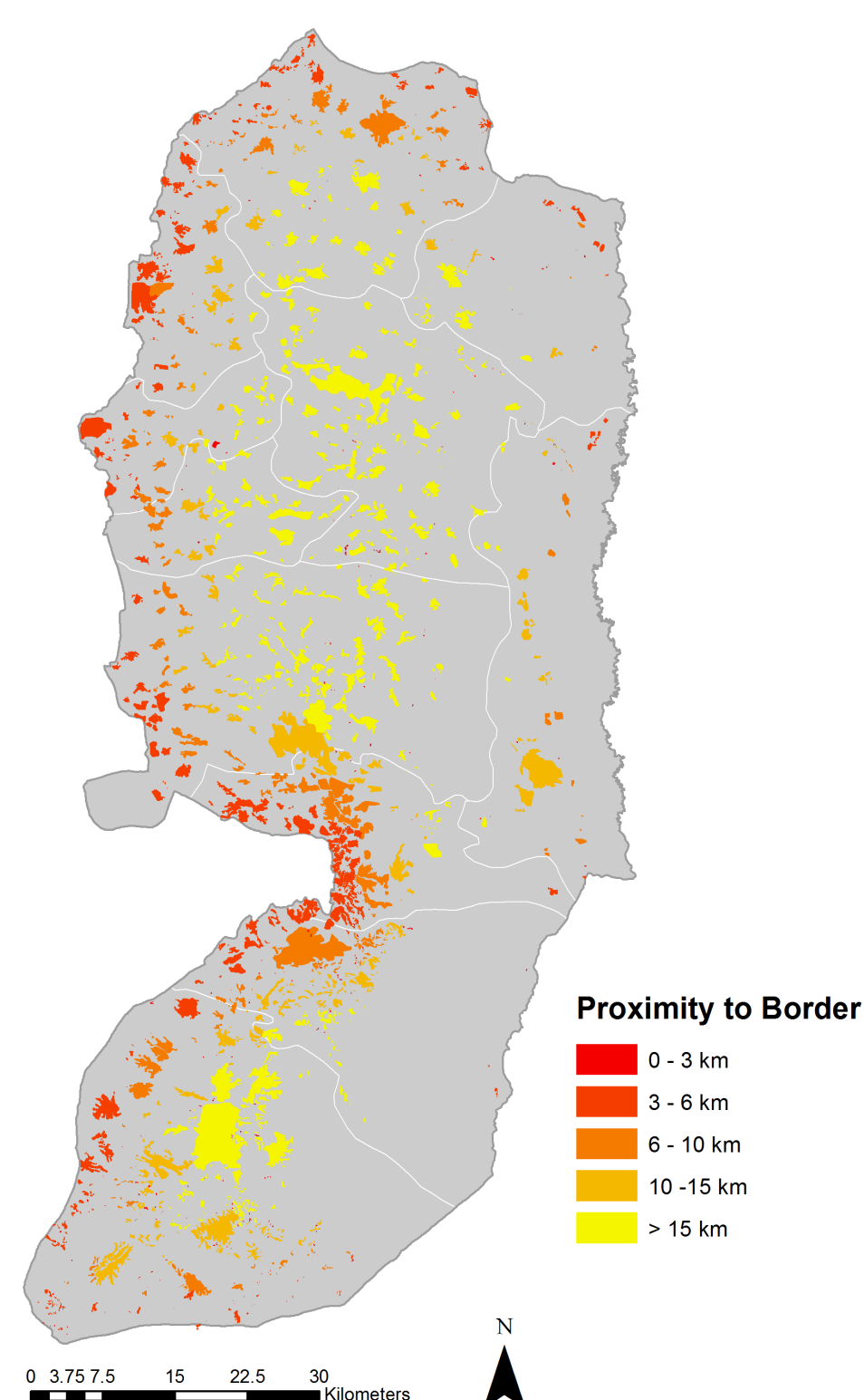
Limitations

One of the key limitations of the analysis is the variation in when the data was collected. The data for terrorist attacks is from after the Second Intifada (2006-2012), population demographics are based on 2004 data, and the location of checkpoints is based on 2008 data, making it difficult to generalize the results of the analysis.
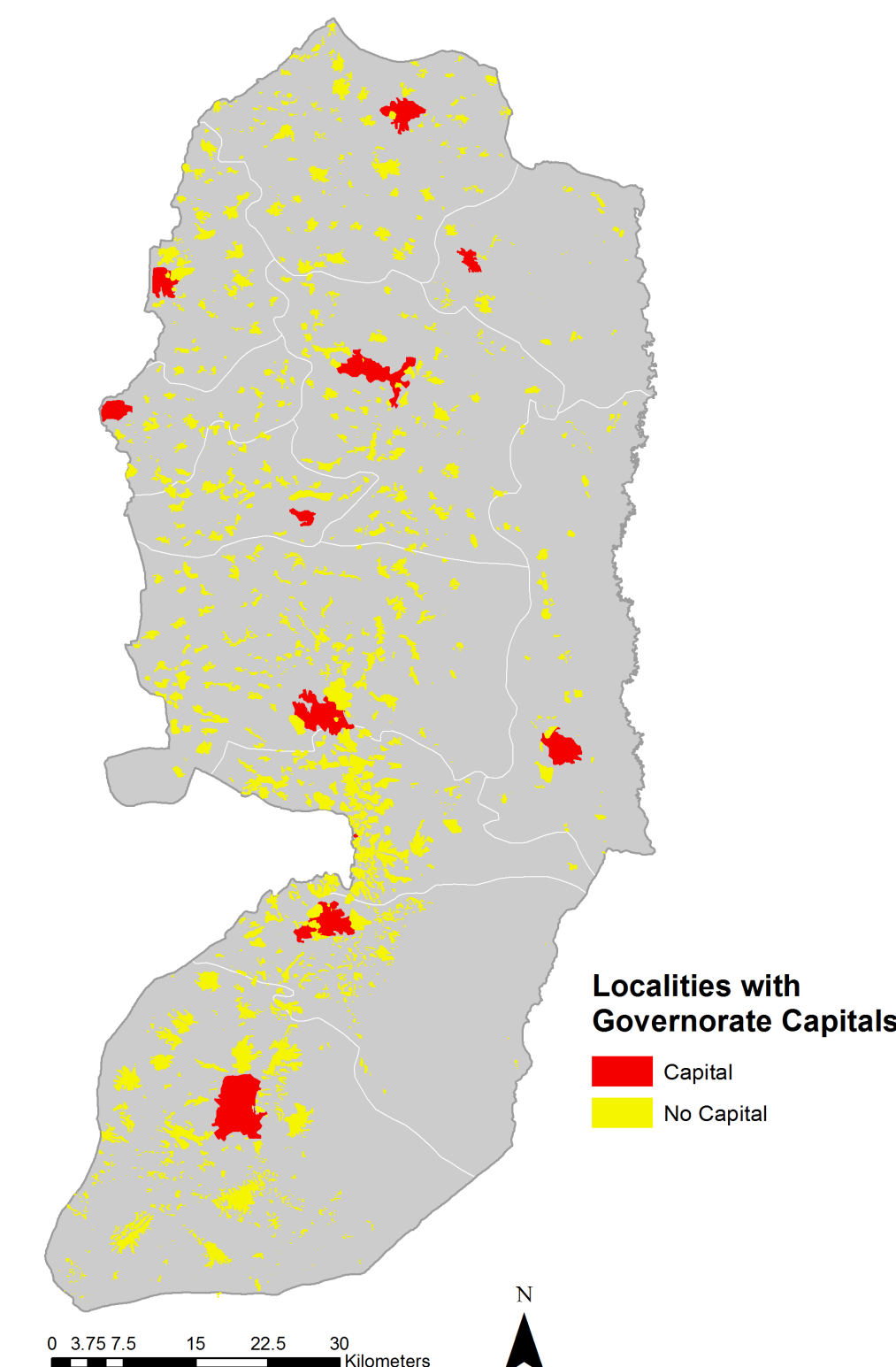
The use of checkpoints as a proxy for security investments is limited in that it only captures one form of physical security measure and does not include any other form of security investment.

This analysis cannot determine how the placement of checkpoints affects location or frequency of terrorist attacks, but begins to explore the correlation between terrorism and physical security measures.
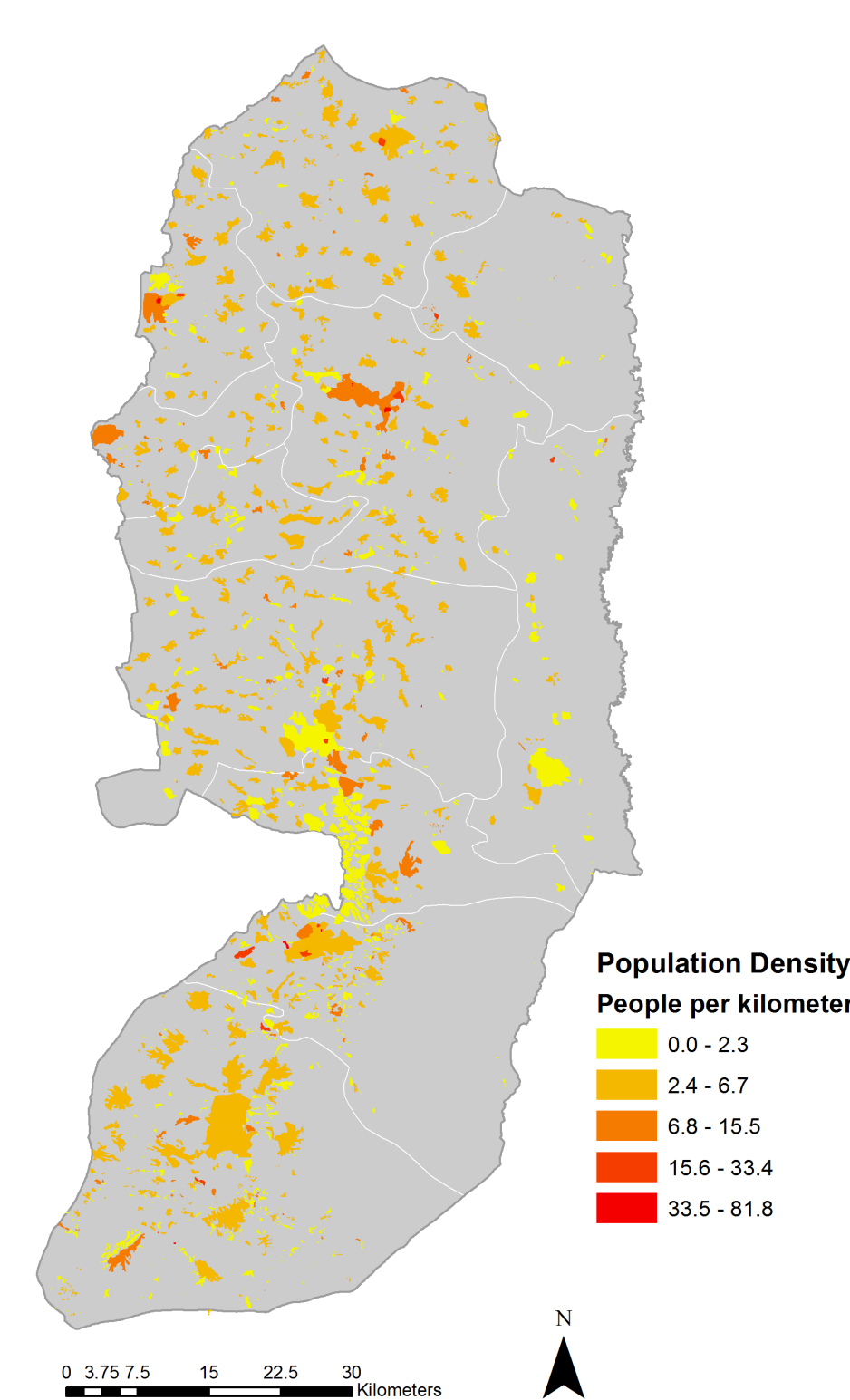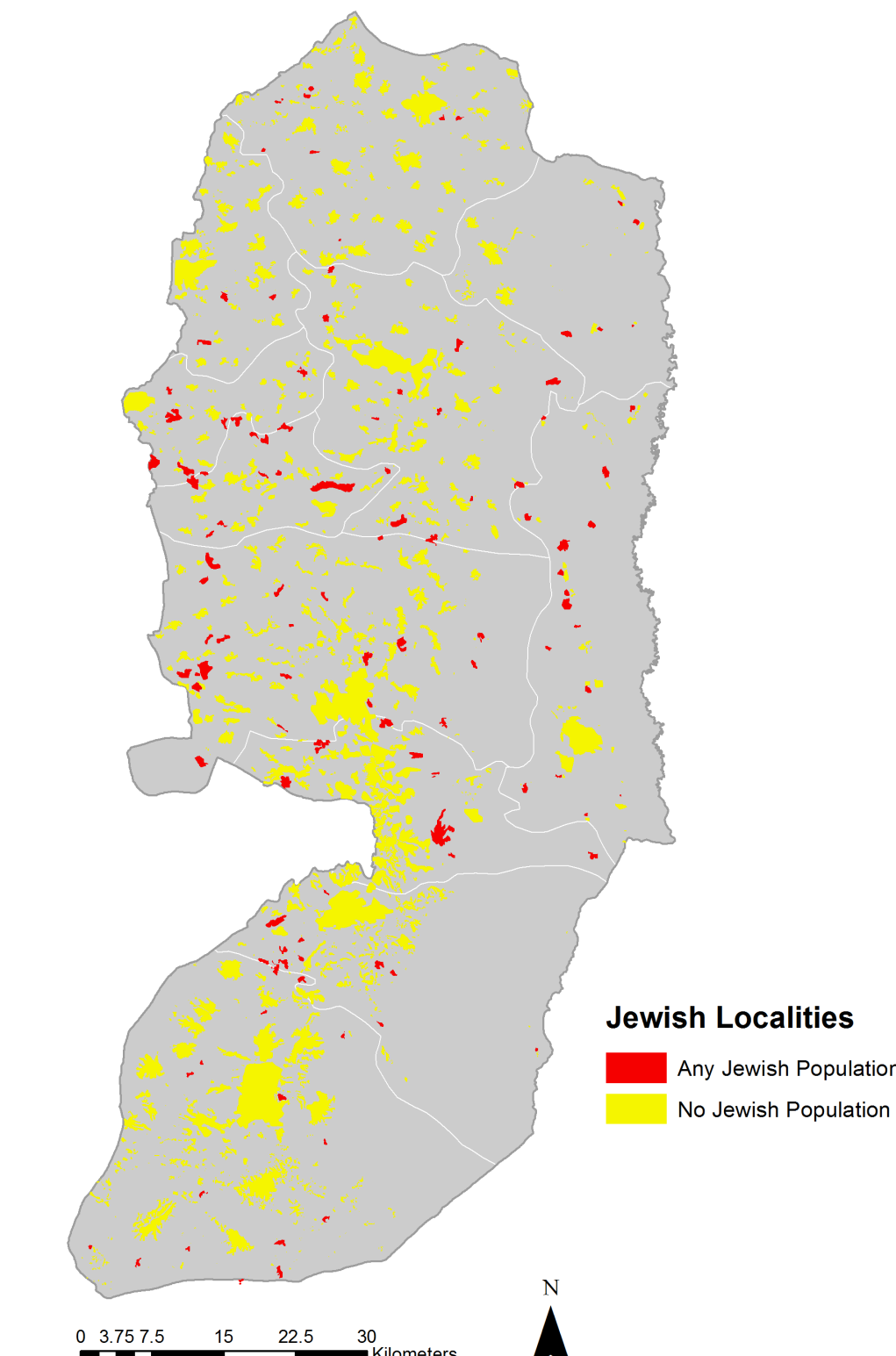

Proximity to Border

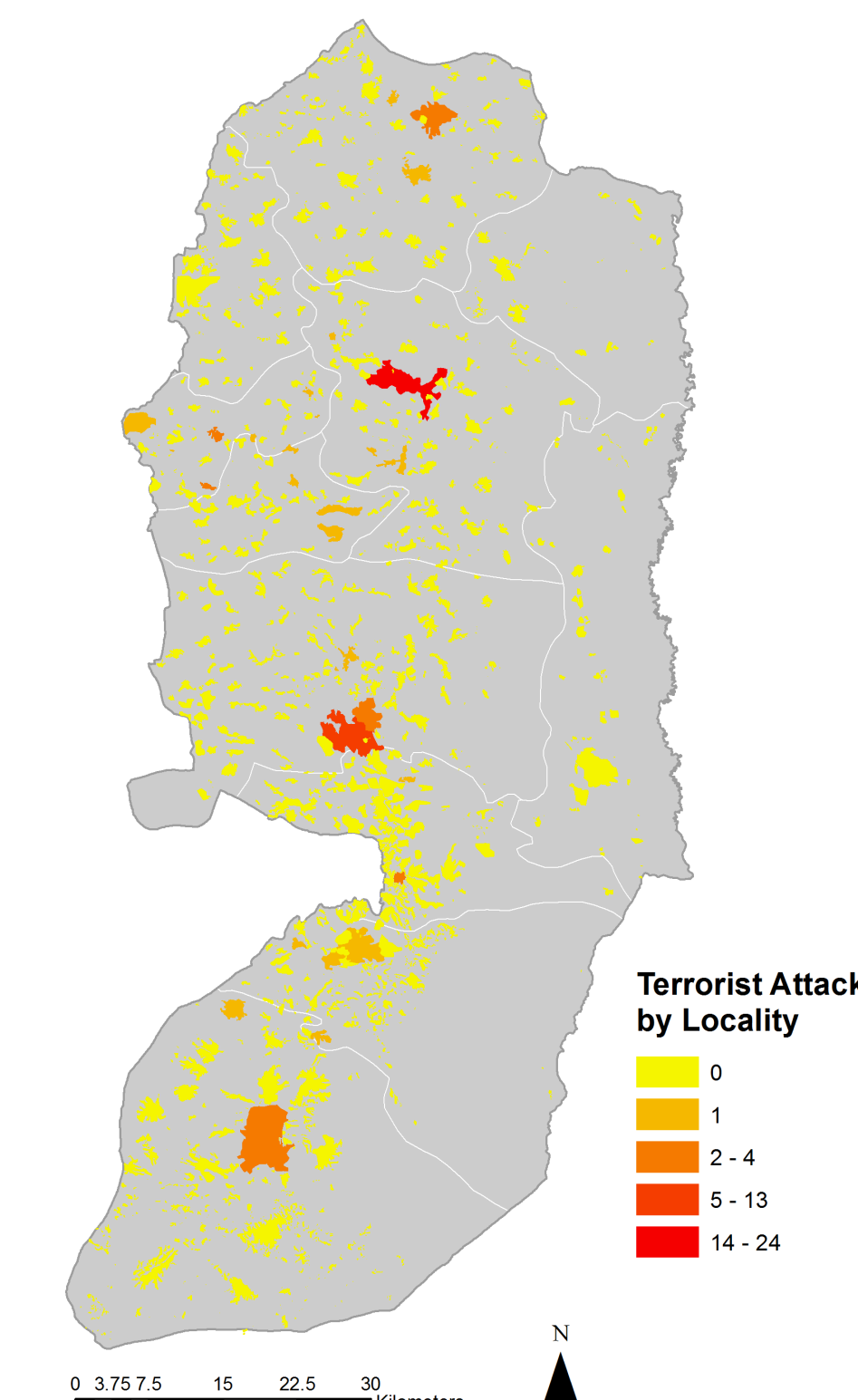### Proximity to Border
- 0 - 3 km
- 3 - 6 km
- 6 - 10 km
- 10 -15 km
- > 15 km

Governorate Capitals

Localities with Governorate Capitals
- Capital
- No Capital

Population Density

Population Density People per kilometer
- 0.0 - 2.3
- 2.4 - 6.7
- 6.8 - 15.5
- 15.6 - 33.4
- 33.5 - 81.8

Religious Composition

Jewish Localities
- Any Jewish Population
- No Jewish Population

Terrorist Attacks

Terrorist Attacks by Locality
- 0
- 1
- 2 - 4
- 5 - 13
- 14 - 24

Checkpoints

Average Distance from Checkpoint
- 0 - 1.7 km
- 1.7 - 4.4 km
- 4.4 - 7.5 km
- 7.5 - 11.6 km
- 11.6 - 17 km