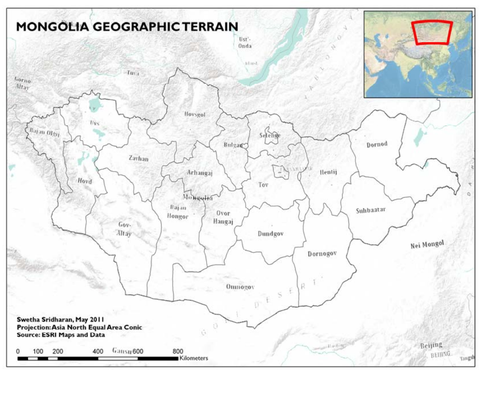
URBANIZATION IN MONGOLIA:
A CASE STUDY OF THE 1999-2002 WINTER STORMS

BACKGROUND

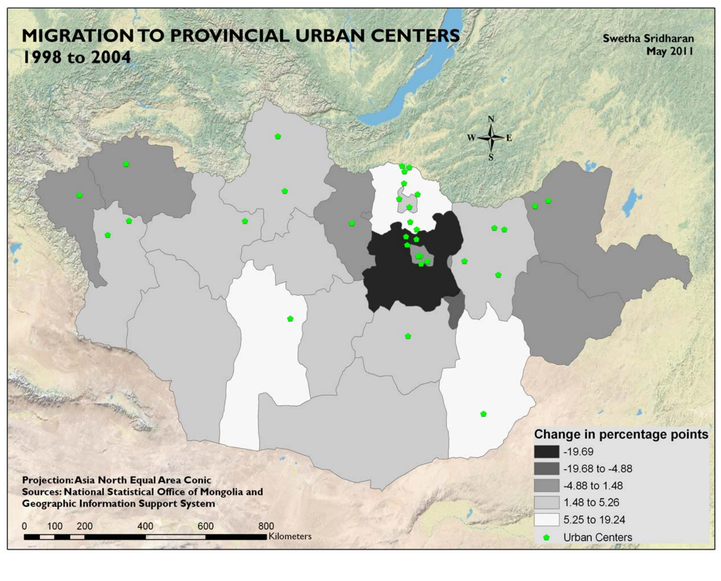
The largely nomadic nation state of Mongolia has been experiencing exponential rates of urbanization in the recent decade. As a result of a series of harsh winter storms (which are known as "dzuds"), the rural areas of the country have seen particularly high rates of livestock death. For this reason, most researchers say, the nomadic pastoralists that comprise the majority of the Mongolian population have migrated in large numbers to urban centers. The latter are few and far between. Though each province (or "aimag") has an "aimag center" that functions as a capital, these are typically small towns. Most urban migration is to the capital, Ulaan Baatar.

This analysis identifies trends that may be correlated with the dzud phenomenon. The previous series of dzuds occurred in 1999, 2000, 2001, and 2002, leading to the death of 8.4 million livestock. This is said to have caused a spike in urbanization. A survey conducted after the dzuds found that 14 percent (14,000 households and 70,000 people) had moved to Ulaan Baatar as a result of losing their livelihoods. Most recently, a 2010 dzud is said to have killed 7.8 million heads of livestock (17 percent of the national total), and the Red Cross estimates that around 20,000 people would have migrated to Ulaan Baatar as a result.



URBANIZATION WITHIN PROVINCES

The Mongolian government maintains some data on urbanization by province. However, this tracks only migration from the rural areas of each province to the provincial capitals. These are usually small towns. The majority of the migration, and indeed, the migration of interest, is to the capital, Ulaan Baatar. **This is substantiated in the map below, which shows only a relatively small percentage point increase in the urban birth rate in each province from 1998 to 2004.** Provincial urban population estimates were not available; the urban birth rate is used a proxy.



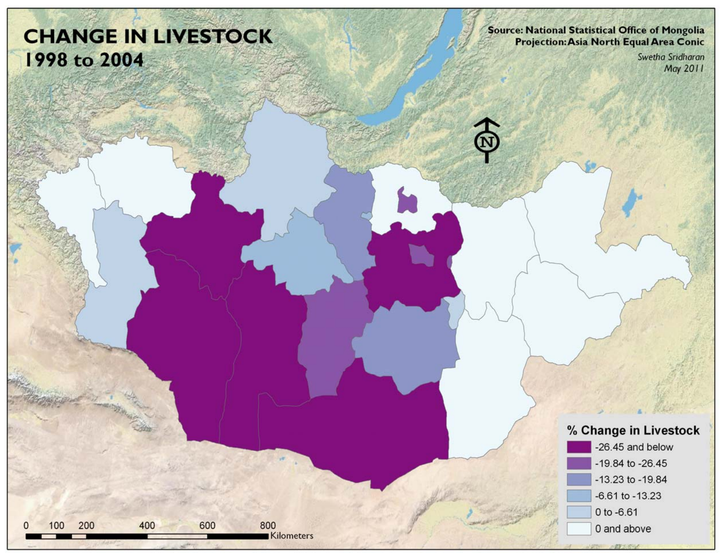
PURPOSE AND METHODOLOGY

This project focuses on the dzuds between 1999 and 2002, seeking to identify and illustrate the correlation between climactic phenomena and migration to Ulaan Baatar. It is hoped that this study will be meaningful in the analysis of the urbanization following the recent 2010 dzud (for which there exists no comprehensive data as yet).

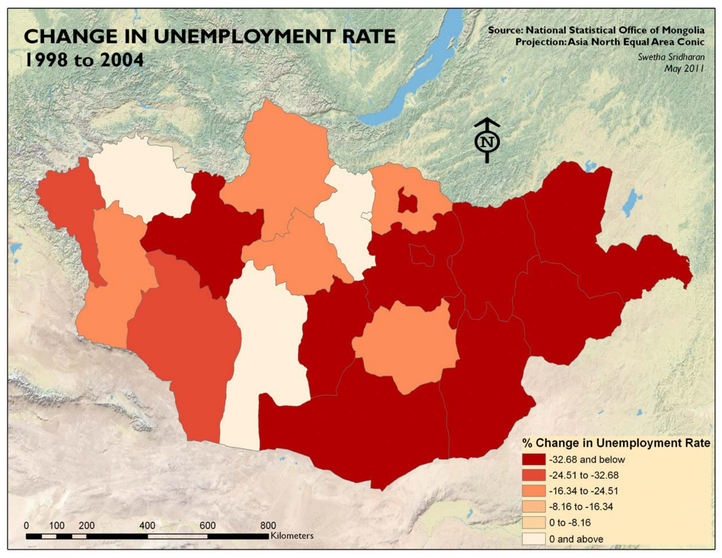
In order to study the level of urbanization to the capital during and after the 1999-2002 dzuds, this study assesses three variables.

1. Percentage change in the livestock numbers
2. Percentage change in unemployment
3. Percentage change in population density

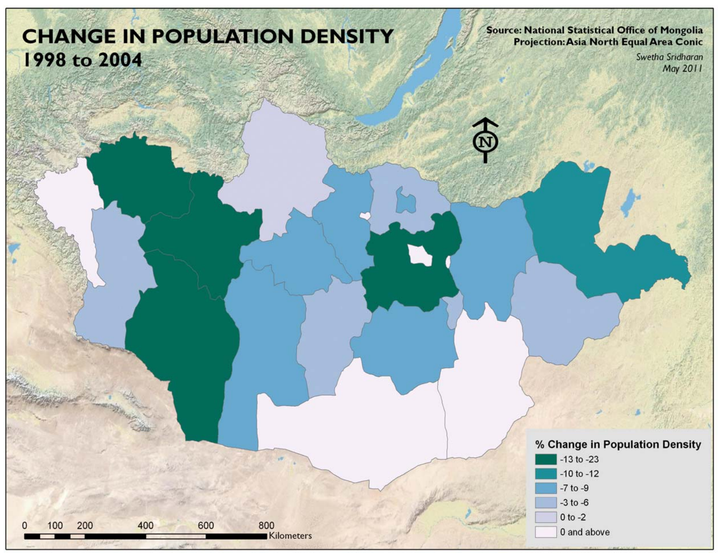
Each of these variables is divided into six bandwidths. Positive change in the variable is the first. Negative change is then divided into bandwidths determined by 0.5, 1, 1.5, and 2 standard deviations from the mean of negative change. Bandwidths are then assigned scores from 0 to 5, from positive change (in which this study is least interested) to the most negative change (which corresponds with higher levels of urban migration). **These variable scores are then added up to form an aggregate urbanization "score," a measure of how much a province was affected by urbanization as a result of the 1999-2002 dzuds.**



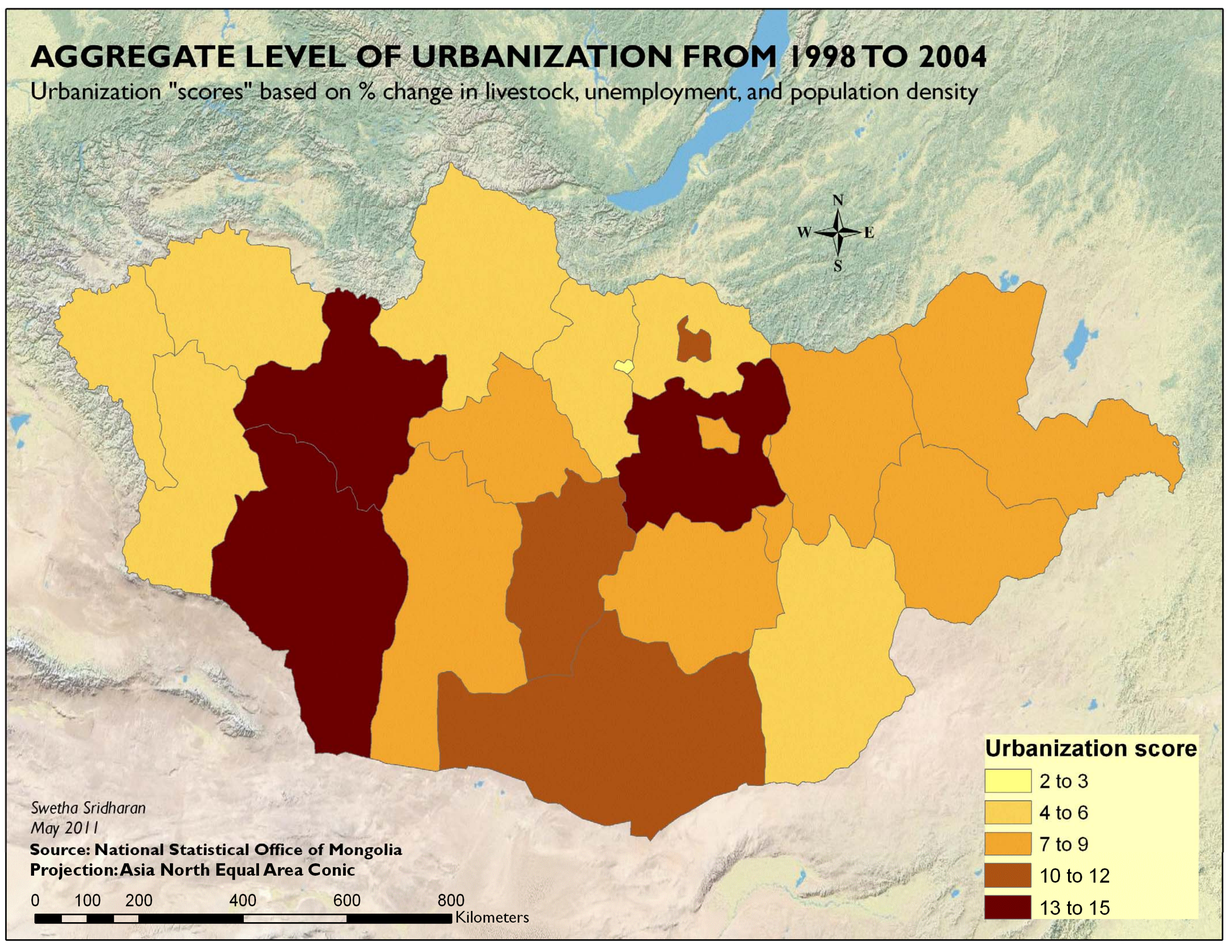
This is a potential *cause* of migration to Ulaan Baatar. Percentage decreases in livestock lead to individuals moving to the capital.



This is potential *result* of migration to Ulaan Baatar. Percentage decreases in unemployment rates signify that those who are unemployed have potentially moved to the capital.



This is another potential *result* of migration to Ulaan Baatar. Percentage decreases in population density signify that provincial residents have potentially moved to the capital.



CONCLUSION

According to the analysis, the darkest regions in the map on the right were most greatly impacted by urbanization—based on the measurement of livestock death, unemployment, and population density. Provinces Zavhan, Gov Altay, and Tov were most severely affected, with relatively high impacts also seen in Omnogov, Ovor Hangaj, and Darkhan-Uul.

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