

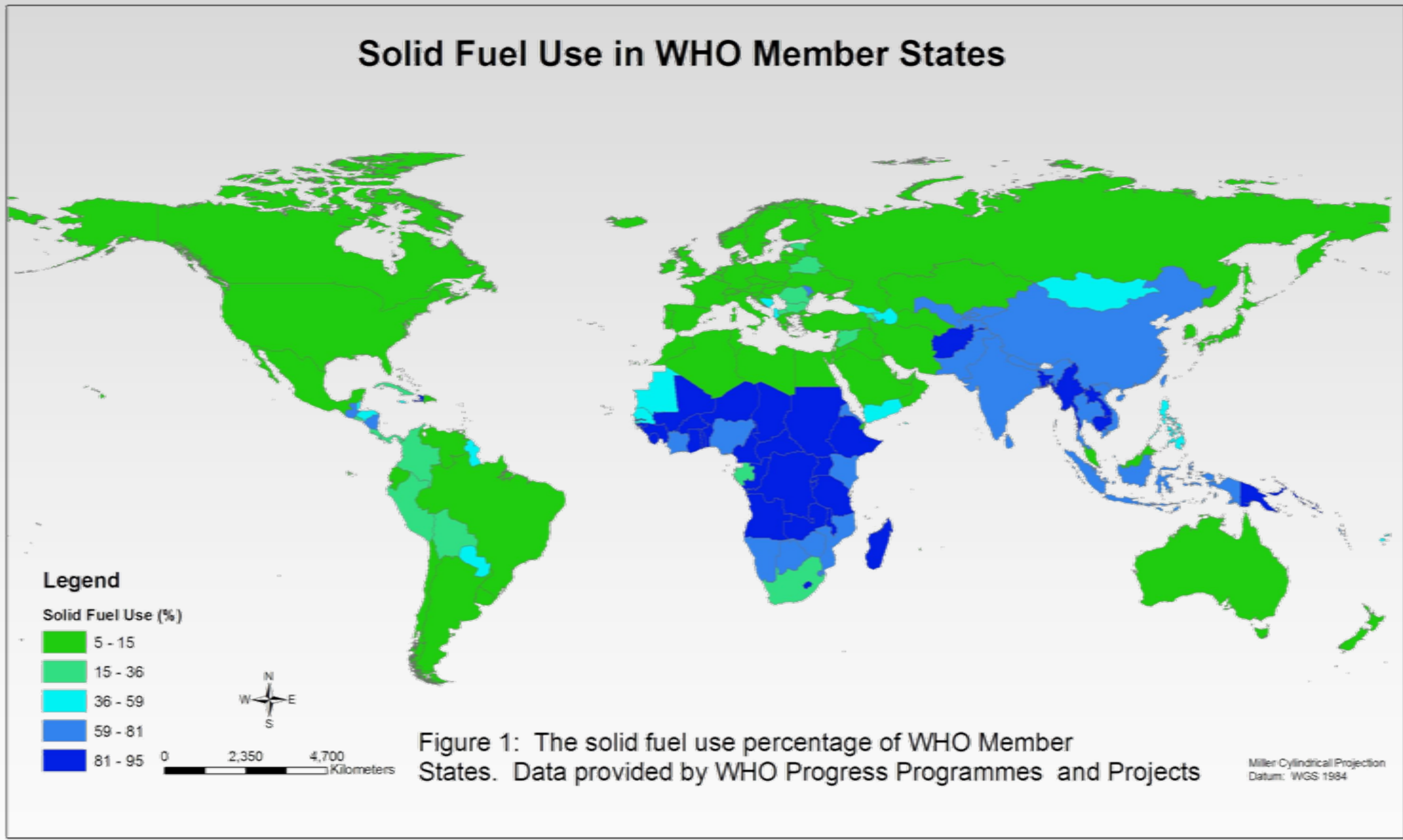
The Cause and Effects of Global Indoor Air Pollution

Gaines Burnett

Urban Studies, Furman University, Greenville, SC 29613

Abstract

As global warming increases the threat of pollutants increases causing concern. It is not just outdoor pollutants that are affecting individual's health but also indoor air pollution that is causing certain illnesses. It is in the developing world where many of these diseases are occurring, but some First World countries are also having problems. The main cause of these illnesses is believed to be solid fuels also known as biomass fuels which consists of wood, dung, agriculture residue, and coal. Some of these are used for cooking and other activities within households. This projects main goal is to show the impact solid fuels are having on the global population and the consequences of using these materials.

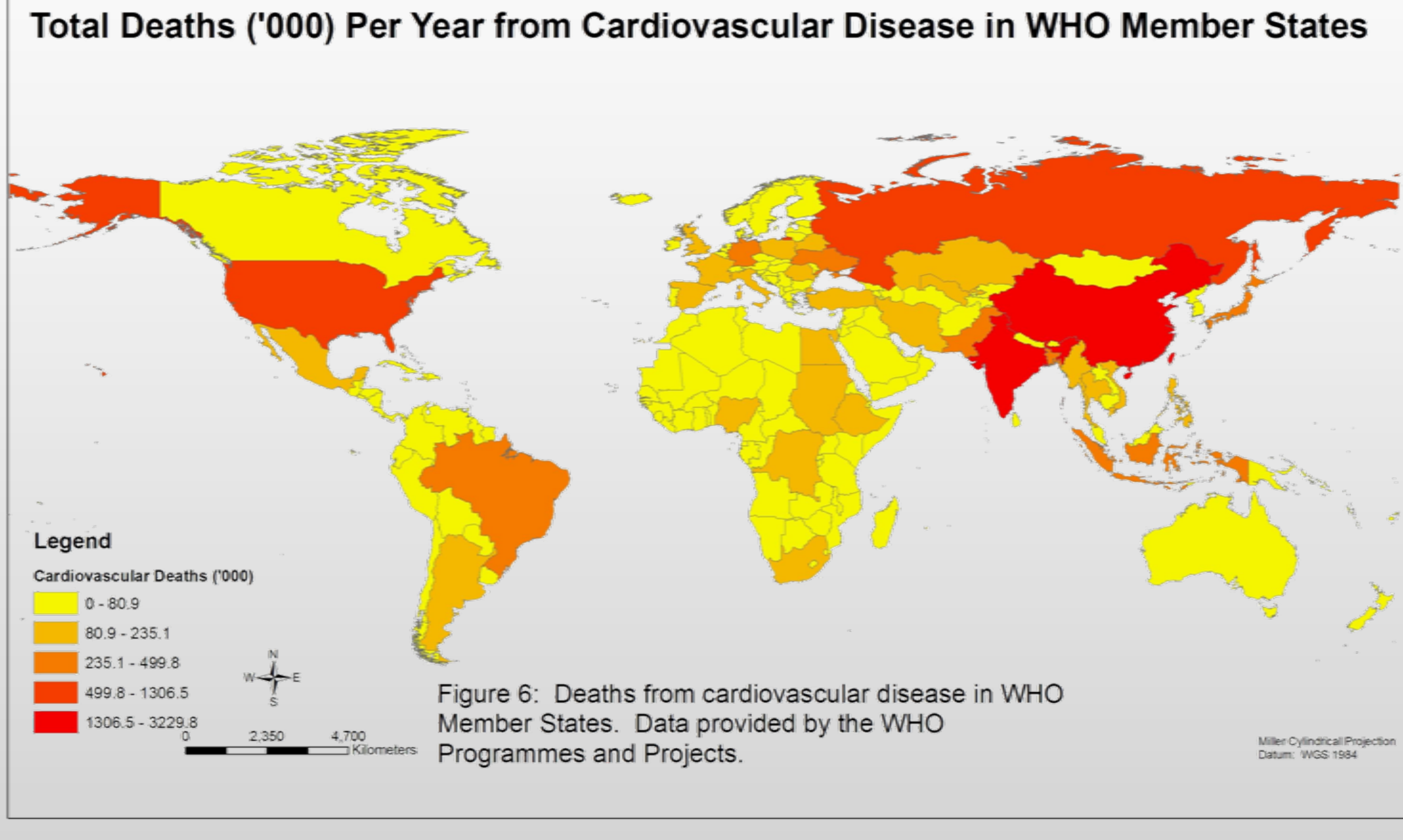
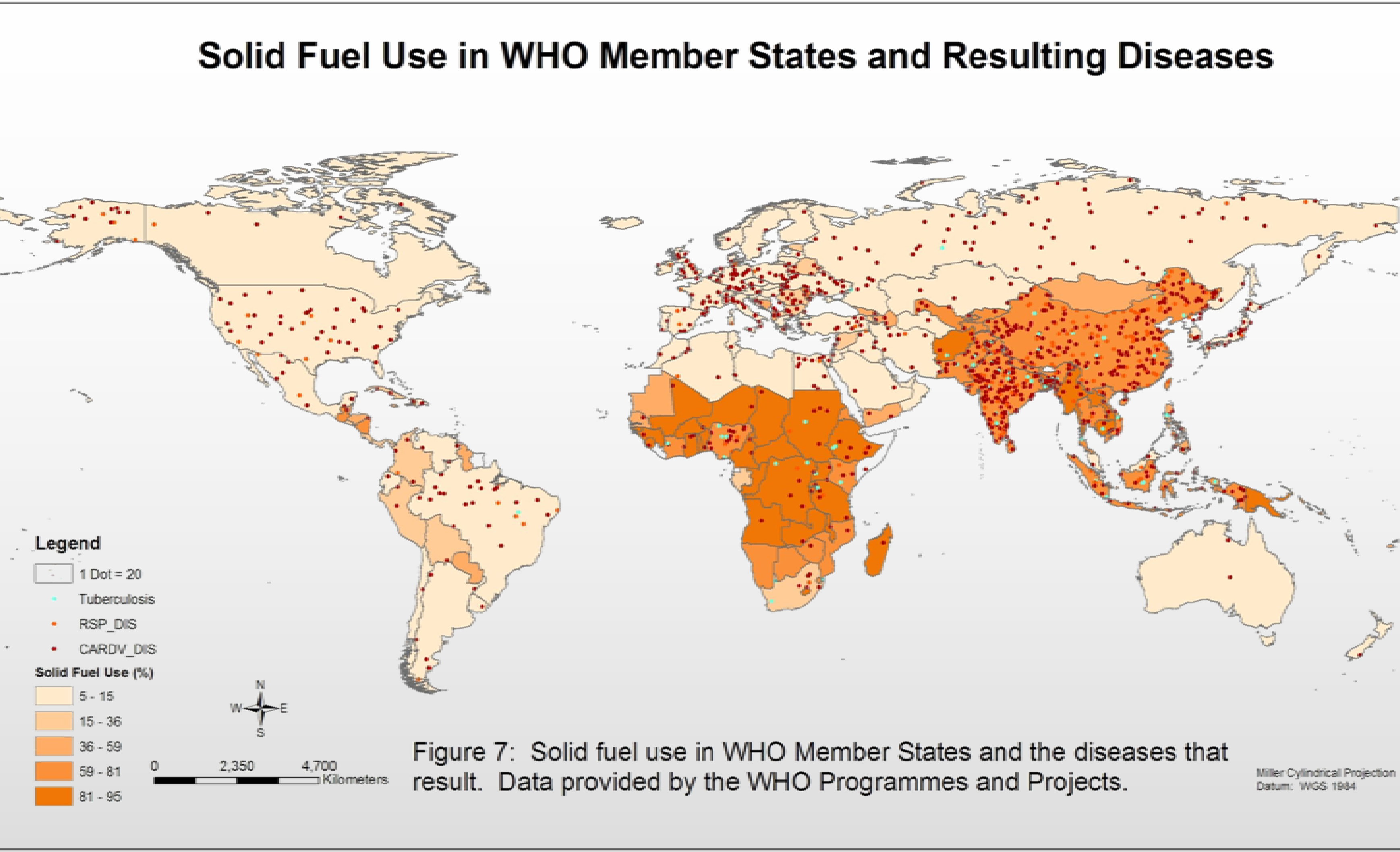
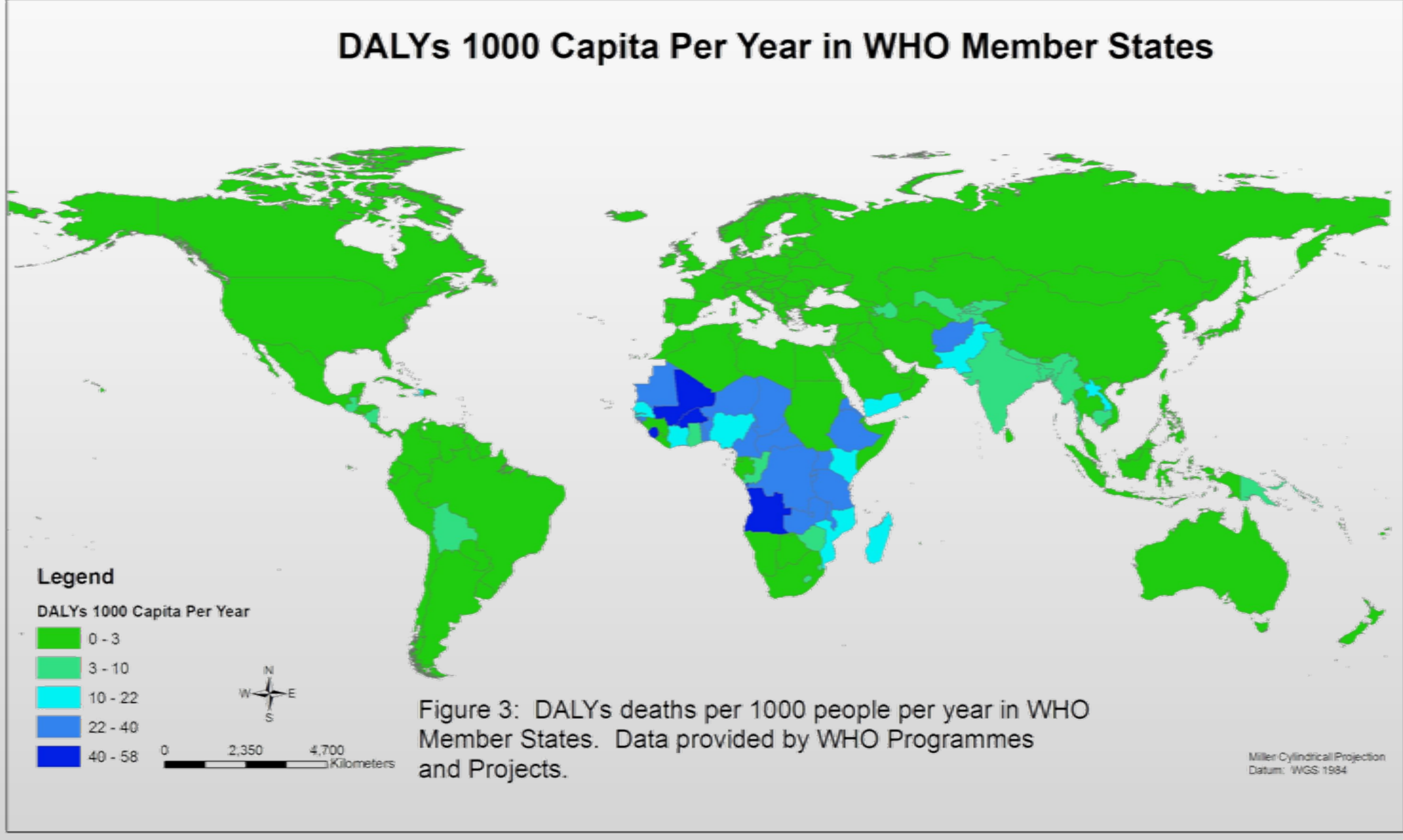
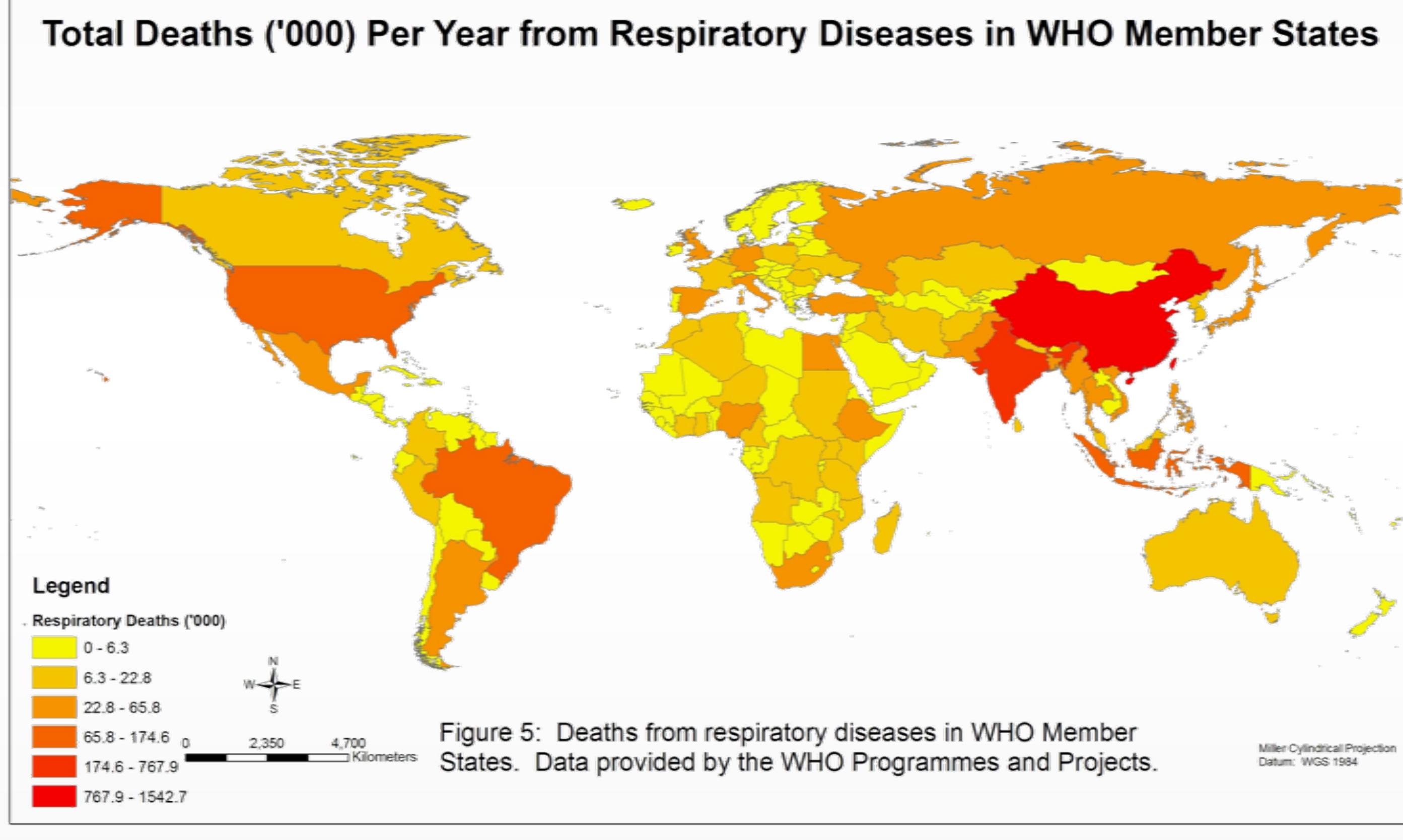
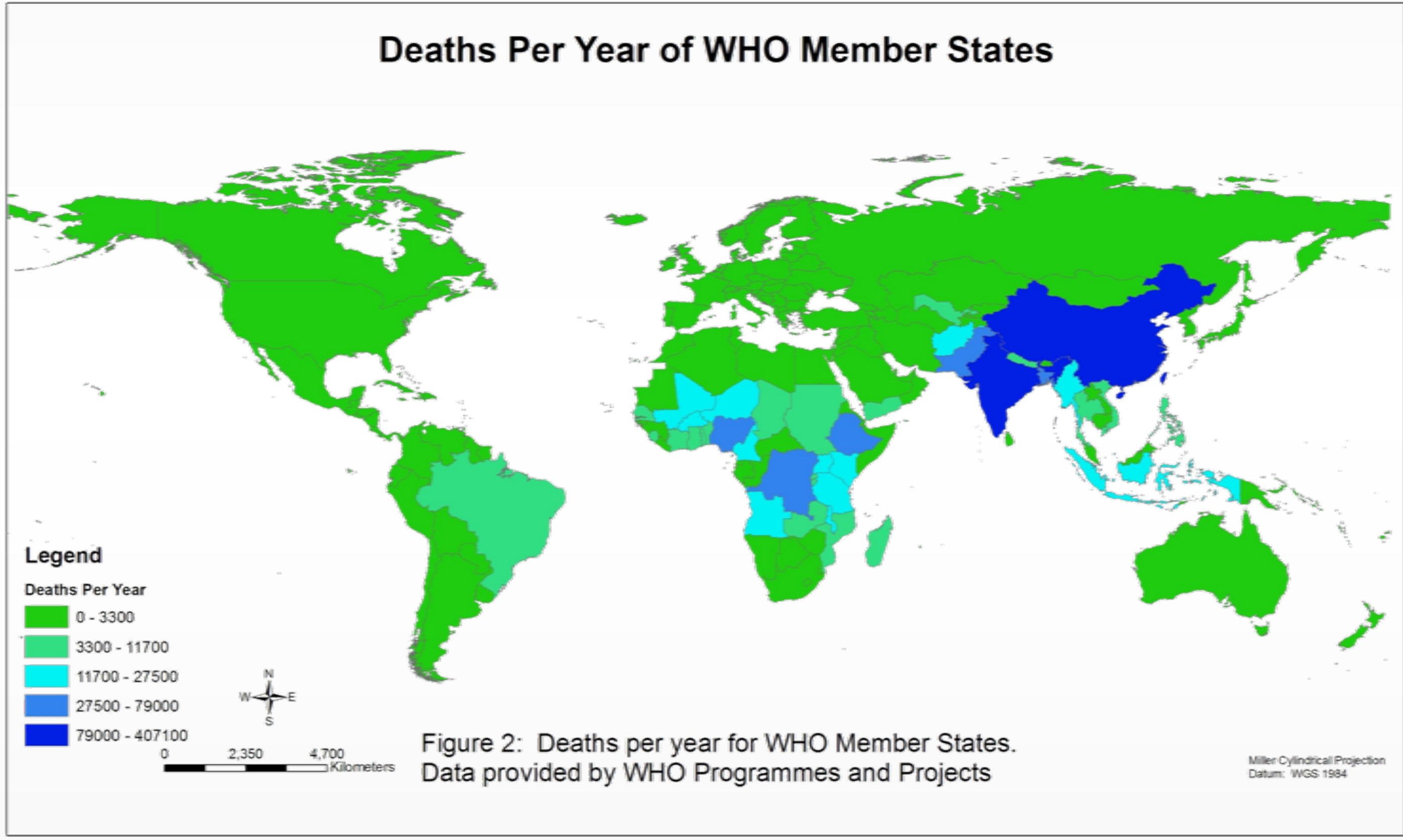
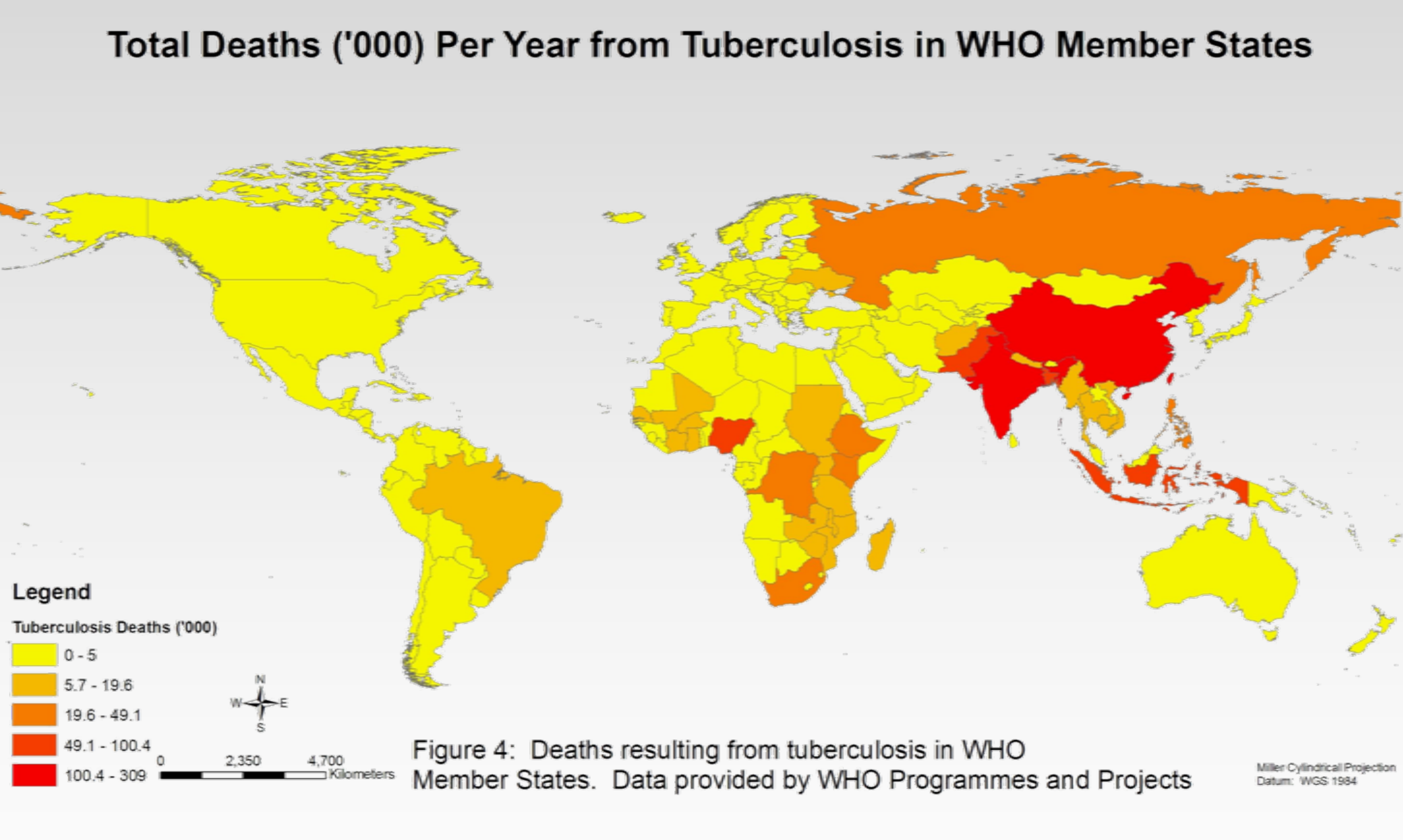


Introduction

The issue of indoor pollution isn't usually mentioned as much as the other global threats facing mankind but the fact of the matter is that thousands of people are dying every year from indoor air pollution, especially in developing nations. The World Health Organization (WHO) has created programs to combat this issue globally starting with statistics. In this project I attempt to find a correlation between the use of solid fuels in these nations with the number of deaths yearly from indoor pollution as well as the diseases believed to result from them and look at the areas in which this issue is affecting the most. I will also use programs such as ArcGIS to help me in conducting my research.

Methods

I planned on using GIS to analyze solid fuel use globally and see the areas where it was used the most compared with the rest of the world in terms of diseases from indoor pollution and deaths. I collected my data from the World Health Organization (WHO) website, which gave me information concerning this issue and the diseases that result from it based on previous studies. First, I looked at indoor air pollution data in terms of solid fuel use, deaths per year from solid fuel use, and disability adjusted life years (DALYs) which combine burden due to death and disability into one category. Finally, the illnesses believed to result from the use of solid fuels were included to compare and show how many people die from them each year. I had to manually input the data for each UN country into Microsoft Excel and import that into GIS.



Results and Discussion

Based on the data collected and put into figure 7 it is observed that where there is a high percentage of solid fuel use there is also a high percentage of illnesses such as tuberculosis, respiratory disease, and cardiovascular disease, but it should also be noted that this region is also heavily populated. It is also noted that in the regions of southwest Asia and central Africa, they have the highest number of solid fuel use, deaths per year, and number of deaths per 1000 inhabitants of countries. The countries with the highest solid fuel use tend to be Third World nations or developing nations whereas the First World nations tend to use the least amount of solid fuels as well as deaths per year and deaths per 1000 people. Let it be noted that figures 2 through 6 show areas where the rate of death from solid fuel use is the greatest are in the same areas where the diseases associated with indoor air pollution are the greatest causing a correlation to be made. As for certain countries in Africa that have both high solid fuel rates as well as death rates they also have the highest number of fatalities per 1000 people (Figure 3). It should also be noted that the United States high rate of cardiovascular disease is due to obesity and poor dieting.

Conclusion

It can be observed from the data collected from previous studies and put into GIS form using ArcMap that there is an increasing problem with indoor air pollution especially in poorer nations with population growth issues. Further research is encouraged to look at the role population plays in solid fuel use as well as cultural lifestyles that cause the use of these fuels.

Data Source

ESRI Dataset 2005

World Health Organization Database 2009

Acknowledgments

Thanks to Dr. Suresh Muthukrishnan for guiding me through the research and to the World Health Organization for providing the databases.