**India**

Self-Paced Exercise

**Questions for Students – Answer Key**

**What data are required to create a new setup and run an analysis?**

If the goal of your analysis is to examine only health impacts, you must load grid definitions, pollutants, air quality data (in either monitor or model form), incidence/prevalence rates, a population dataset, and at least one health impact function. If you would also like to examine economic impacts, you must load a variable dataset and a valuation function.

**What is the relationship between the BenMAP data inputs and the grid definitions column/row index?**

All incidence rates and population data must be linked to a grid definition which matches the spatial scale of the data collected. Moreover, the column/row index links the specific input value to the polygon within the grid definition assigned to the incidence or population dataset.

**What is the difference between a pollutant and a metric?**

A pollutant is the air-contaminating substance of interest in your analysis. In this case, the pollutant is PM2.5. A metric expresses the time period over which air quality values are modeled or observed and how the value is calculated (e.g., mean, maximum, minimum). In BenMAP-CE, the Metric field refers specifically to daily values calculated directly from daily observations, or through various mathematical calculations of hourly observations.

**What is the air quality metric for the India PM2.5 monitor data you input into BenMAP?**

The air quality metric for India PM2.5 monitor data is a daily average, here labeled “D24HourMean”.

**What health endpoints are included in the India Incidence Rates?**

The endpoints included in the India Incidence Rates are all mortality endpoints. There are three unique endpoints: all-cause mortality, ischemic heart disease, and lung cancer.

**What races are included in the India Population data?**

The 2011 India population data used in this analysis is not broken out by race. All races are included.

**What are the health endpoints of the Krewski et al. health impact functions?**

For this analysis, we uploaded the Krewski et al. functions for ischemic heart disease and lung cancer from a .csv file. In addition, we manually entered the Krewski et al. health impact function for all-cause mortality.

**What are the sources for the valuation estimates? Why is it necessary to adjust these estimates for use in India?**

The first valuation function converts the U.S. EPA default mean VSL. The second valuation function converts a VSL estimate from the World Bank. We adjust these estimates for three reasons. First, we convert the VSL to be expressed in Indian rupees rather than U.S. dollars. Second, the conversion accounts for inflation, or the general upward trend in prices over time. Finally, the VSL is converted to account for differences in income levels across countries and over time. Income has been shown to affect the value individuals place on mortality risk reductions (i.e., the VSL).”

**What is the economic value for the benefits of the Indian government enforcing a rollback to the 15 ug/m3 standard program?**

The final valuation point estimate should be 18.6 trillion Indian rupees.

**Based on the analysis you performed, what would your final policy recommendation be to the Indian government as to whether they should implement rollback enforcement? What information makes you support this recommendation?**

Because the economic valuation of the new policy’s health benefits is valued at 18.6 trillion rupees and the cost of implementation is only 13 billion rupees, the Indian government should implement their proposed rollback to the air quality standard of 15 ug/m3. Since the monetary benefits of the standard outweigh the cost of the program, India will benefit from implementing this policy.