

Raymond Xiao

Lights Out

The lightbulb is one of humanity's most influential innovations. It has paved the way for never sleeping cities, late nights out, and less crime. Since its invention, it has spread rapidly through cities and homes promising peace of mind for families. However, in the last few decades, the sheer amount and strength of after-dark lighting has caused the night sky to vanish, creating ominous yet easily reversible problems while also harming both animals and humans alike. On a more positive note, the good thing is that there's pretty much no downside to reducing light pollution: solutions won't break the bank, wasteful energy is saved, and nearby ecosystems also benefit.

Light pollution (excess light at night) is so common in the US and Europe that “99 percent of the public can't experience a natural night!”^[2] This is a gigantic problem that is impossible to even begin fixing without data. By separating different light pollution data into geographic areas such as states, author Fabio Falchi hopes to aid cities and towns in discovering solutions that cater to their needs.

A shocking fact for me is that the “USA has almost three times the Flux per Capita compared to Europe.”^[1] This means that on average, a person in the US uses 3 times as much light as a person in Europe. Adding on, the US loses an “estimated \$1.7 billion to the nighttime sky via unshielded outdoor lights”^[3] every year. That is some serious cash which is easily recoverable with some smart solutions. Interestingly, there does not seem to be a cause and effect

relationship between the wealth of a location and the amount of light it uses. For example, some rural areas produce more light pollution than cities because they are mining or oil centers.

A bunch of related data was collected and grouped together to create a table with good, bad, and ugly areas. This table ranks locations in the US and Europe based on their average artificial light contribution at night with good areas contributing the least and ugly areas contributing the most. As stated perfectly by the author, this table is important because it will “help in paving the way toward a more sustainable nighttime lighting”^[2] by raising awareness and guiding potential decision makers.

Light pollution has only recently come into the public’s eye. It is an expanding topic of research with impacts that have only begun to be noticed by an average person. There are a bunch of easy and cost-free solutions that have been researched. For example, turning lights on only when needed or aiming them lower as to reduce glare onto the sky. Future ideas are in the works and the authors have tried to guide these ideas with their results. I think that a cool use of this data could be to implement city specific lighting solutions based on their table ranking. As the world population continues to grow, more and more night lighting will be needed and unless we are cautious, clear night skies may become a thing of the past.

References:

1. <https://www.sciencedirect.com/science/article/pii/S0301479719309296#sec5>
2. <https://www.darksky.org/light-pollution/>
3. <http://www.darkskiesawareness.org/faq-what-is-lp.php>