Is Amplification of Rays Better than Creating New Light Sources?

Ahmed, Usaid (School: Generation's School)
Zafar, Ahmed (School: Generation's School)

Energy crisis leads to rise in the price and decrease in supply of energy resources, with the growing demand of limited energy resources, a definite risk for them to eventually run out. A large number of streetlights spread throughout the city also constitute a large percent of a city's energy drain. Instead of placing light bulbs at each street, lenses & mirrors were used to amplify the light, reflecting it further and reducing the need for multiple bulbs, thus saving energy. A bulb was fixed at the first street lamp with a convex lens attached to it, a plate of reflective material was placed above the bulb to reflect the rays downward, illuminating the part of the street within the light bulb's range. The remainder of the light was converged using the convex lens and focused towards the second lamp post which had no bulb but instead two mirrors to direct the rays of light. As the second street lamp received single light ray there was a concave lens to diverge the rays which would then move towards two mirrors attached to each other. The upper mirror which was a convex mirror directed the light rays towards the ground while diverging it so it can cover maximum area, while the lower one directed it to the next street lamp while passing the rays through convex lens to converge them. This process was repeated a certain number of times till light energy is no longer sufficient producing satisfactory light conditions on the street, only then was the construction and installation of extra light bulbs be required. In doing so, energy consumption and financial expenditure will be reaped as each light- bulb removed would be a benefit for mankind aiding it in alleviating the imminent energy crisis.

Awards Won:
Arizona State University: Arizona State University Intel ISEF Scholarship
Arizona State University: Arizona State University Intel ISEF Scholarship