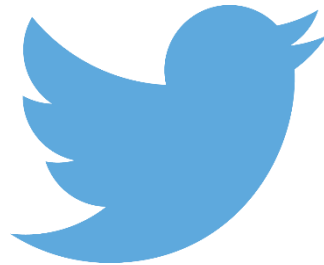


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# Street lights...

We have done LED conversions so is that the job done?

# Demand on the up...

- The International Energy Agency projects that 5 billion people (60% of the world's population) will live in cities by 2050
- Overall demand for lighting will be 80% higher by 2030 than in 2005.
- Street lighting energy consumption is an increasingly significant part of cities energy use and of course a growing burden on municipal budgets
- But.. Intrinsically linked to economic growth (20%) and community safety (35%).

# LEDs a global 'new norm'

- LED lights are 40 to 60% more energy efficient than traditional lighting
- Better quality lighting, lower energy consumption, and reduce CO2 emissions.
- US alone a savings of \$6 billion annually and carbon emissions reduced by the equivalent of taking 8.5 million cars off the roads for a year
- Philippines: constituted 65% of the city's electricity costs and 5% of its overall budget.
- In India: Street lighting electricity and maintenance costs can consume 5 to 10% of municipal budgets or 20% in smaller areas

# Developing cities..

- Capital costs are still prohibitive
- Institutional capacity to manage big projects
- So what we do in the UK not necessarily reflected in global context

# Is there a negative to LEDs?

- Light pollution has increased worldwide
- LEDs are illuminating places we didn't bother to light before!
- Creating an environmental cost to the carbon we save!
- The Journal of Science Advances found that artificially lit outdoor surfaces grew at a pace of 2.2 percent each year between 2012 and 2016.

# Light pollution growth in

- Africa, Asian and South America
- Italy, the Netherlands, Spain, and the US, - some of the world's brightest areas -remain relatively stable
- Declines? War-torn places like Syria and Yemen

# What is the impact of light pollution?

- Long-lasting LED lights are better on carbon footprint but the overall environmental footprint?
- Artificial light emission into the environment will “*continue to increase, further eroding Earth’s remaining land area that experiences natural day-night light cycles. This is concerning because artificial light is an environmental pollutant.*” Kyba and Holker (2017)



# Human and Animal .....

- Threatens nocturnal animals, plants and micro-organisms and is
- ..“increasingly suspected of affecting human health.”
- Light affects our body clocks, sleeping patterns, and a lack of sleep is known to make us more susceptible to a range of health problems including diabetes, high blood pressure, and depression.

# Are switch off or dimming policies the answer to light pollution?

- Journal of Epidemiology and Community Health (London School of Hygiene & Tropical Medicine in partnership with University College London)
- 14 years of data from 62 local authorities across England and Wales found there was no evidence of an link between reduced street lighting and increased crime or traffic accidents.

# Methodology

- Quantified the effect of 4 street lighting adaptation strategies (switch off, part-night lighting, dimming and white light) on casualties and crime in England and Wales.
- Observational study based on analysis of geographically coded police data on road traffic collisions and crime in 62 local authorities.
- Conditional Poisson models were used to analyse longitudinal changes in the counts of night-time collisions occurring on affected roads during 2000–2013, and crime within census Middle Super Output Areas during 2010–2013.
- Effect estimates were adjusted for regional temporal trends in casualties and crime.

# Findings

- No evidence that any street lighting adaptation strategy was associated with a change in collisions at night.
- There was significant statistical heterogeneity in the effects on crime estimated at police force level.
- Overall, there was no evidence for an association between the aggregate count of crime and switch off.
- There was weak evidence for a reduction in the aggregate count of crime and dimming.

# What is the answer to over-lit areas?

- Behaviour change of motorists? Light unlit roads with full-beam (AA Advice..)
- Other ways to design out crime (APSE New Approved Partners the Police and Crime Prevention Academy)
- Awareness raising that street lighting goes beyond just a cost or carbon reduction strategy

# **NEW MUNICIPALISM**

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