Light Pollution
EU-funded research

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Science for Environment Policy Future Brief on Light Pollution, November 2023

Multi-scale transdisciplinary approaches to protect the environment from artificial light at night (ALAN)

- Precautionary principle
- Technologies and practical adaptations – light sources; direction; limitation, control and adaptation; smart, intelligent and nano approaches
- Thresholds, measurements and assessment
- Design, zoning, defining ALAN-free areas
- Dark infrastructure, cross-cutting approaches

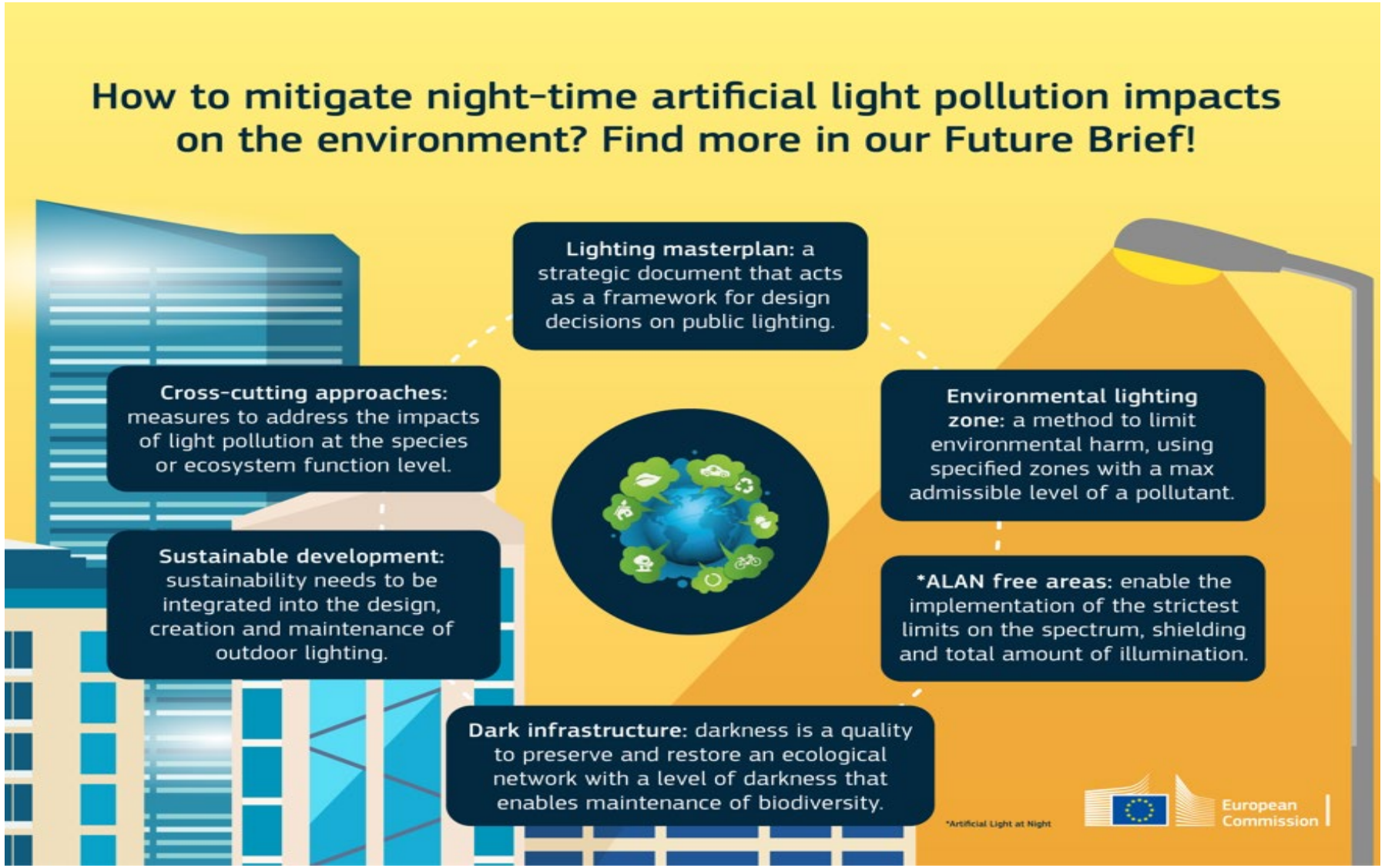
Monitoring ALAN remotely

- Citizen science

Emerging research issues and knowledge gaps

- Species for which impacts are unknown
- Marine and freshwater habitats
- Geographical disparities

https://environment.ec.europa.eu/research-and-innovation/science-environment-policy_en



Light pollution – EU-funded research

84 database results for EU-funded research projects on light pollution, funded via 7th Framework Programme, Horizon 2020, Horizon Europe, European Research Council:

https://cordis.europa.eu

Research focus varies (astronomy, energy efficiency); increasing number on biodiversity / ecosystems / human health.

European Commission

Selected projects – Horizon 2020 European Research Council

ENLIGHTENMe: Innovative policies for improving citizens' health and wellbeing addressing indoor and outdoor lighting (primarily urban: Bologna, Amsterdam, Tartu) www.enlightenme-project.eu (Horizon 2020)

CHRONO: reviewing causes and consequences of chronotype disruption caused by electronic devices, artificial light and work-related pressures of 24-hour economy (European Research Council).

CORALAN: impacts on coral of artificial light at night (Horizon 2020)

EXPANSE: improving urban population health (Horizon 2020 – considering whole "exposome" but little focus so far on light)

CITISENSE, **UltimateCOMPASS** (European Research Council): how organisms' communication / navigation alters in different states of light

(pictured: robot analysing dung beetle navigation using cues from the sky)

New EU-funded research - Horizon Europe

- Horizon Europe **Cluster 6** – Food, Bioeconomy, Natural Resources, Agriculture and Environment – co-chaired by DG ENV since 2022
- **2023 call topic** "Impact of light and noise pollution on biodiversity" resulted in two successful projects:
- ***PLAN-B*** *Tackling noise and light pollution for a sustainable tomorrow. Addressing adverse impacts of light and noise pollution on terrestrial biodiversity and ecosystems.* Coordinated by Ghent University (Belgium), with partners in Poland, Germany, UK, Spain, Sweden, Switzerland, Brazil
- ***AquaPLAN*** *Aquatic Pollution from Light and Anthropogenic Noise: Management of Impacts on Biodiversity.* Coordinated by University of Pisa (Italy) with partners in several countries including UK.

plan-b-project.eu

Key outputs of PLAN-B

PLAN-B will create the enabling conditions to support and enhance activities planned in the EU biodiversity strategy and provide a new path towards meeting the EU and international biodiversity targets.

4 years project

8 countries involved

12 consortium members

2.4M € of funding

An Innovative Framework

A framework and supporting handbook for assessing light and noise pollution impacts to inform environmental decision-making

A Pollution Database

An open access database on light and noise impacts on terrestrial biodiversity

New Scientific Models

Spatiotemporal models for evaluating noise and light impacts on terrestrial biodiversity and ecosystem services, including at the European scale

Innovative Pollution Solutions

Innovative solutions to prevent and mitigate light and noise pollution impacts; recommendations for enhancing legal and policy frameworks to reduce light and noise pollution impacts on terrestrial biodiversity

Legal & Policy frameworks

Recommendations for enhancing legal and policy frameworks to reduce light and noise pollution impacts on terrestrial biodiversity

Communities of Practice (CoPs)

Sustainable Communities of Practice (CoPs), centred around key stakeholder groups, on the impacts of light and noise on terrestrial biodiversity

Future EU-funded research

- Horizon Europe **2024 Work Programme** topic "*The role of environmental pollution in non-communicable diseases: air, noise and light and hazardous waste pollution*". €60m for ca. 7-8 projects.
- *Scope: Increase of (ALAN) in cities has altered natural light levels and extended human activities. Estimated that more than 80% of the world population is living under light polluted skies."*
- *Focus on areas where the understanding of and evidence on causality should be strengthened to overcome the current paucity of data and respond to calls from policymakers. Applicants should focus on at least one of the following three aspects: - Air pollution… **- Noise pollution & light pollution impact on human health** – Pollution from hazardous waste…"*
- HORIZON-HLTH-2024-ENVHLTH-02-06-two-stage. https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2024-envhlth-02-06-two-stage

LIFE projects related to light pollution

- LIFE is the **only dedicated EU funding instrument for the environment.** It does not support research but rather demonstration an pilot projects for innovative solutions with the potential of being replicated at scale.
- Various projects over the last decade with different **focus**, i.a. on the impact of light pollution on seabirds, turtles and bats.
- Many related to island **regions** (Madeira, Canaries, Malta), but also coastal regions of Italy and others to urban areas , i.a. Bordeaux.
- Elaboration of **best practices**, e.g. related to lighting equipment, to support planning.

Thank you - Děkuji

European Commission